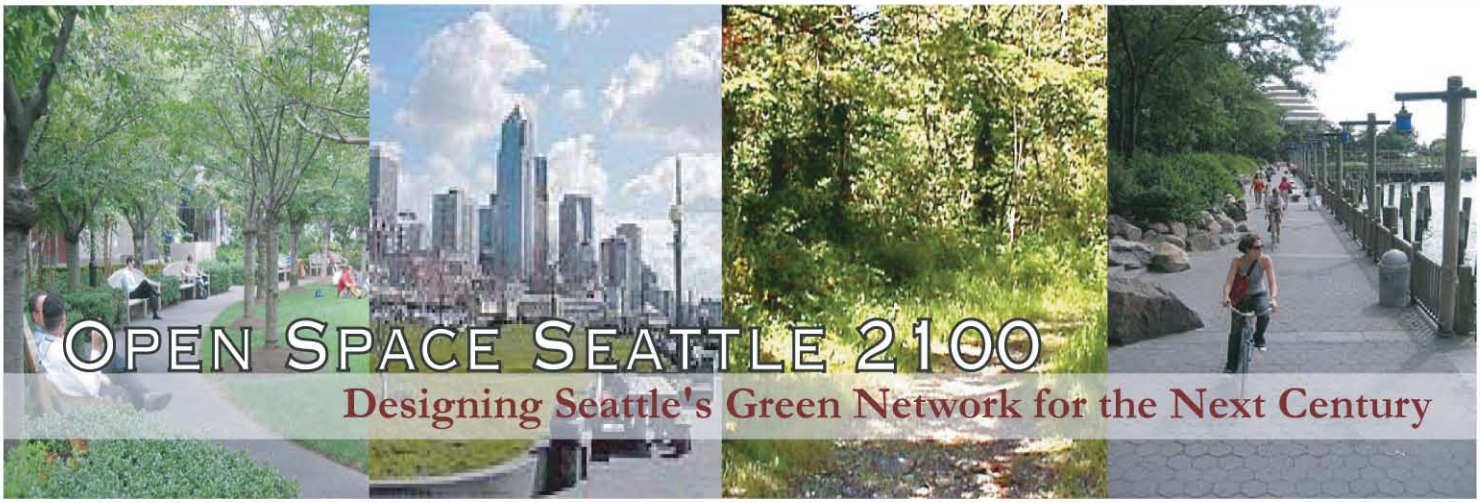


Green Futures Toolkit

A Resource Guide for Designing Seattle's Green Network

GREEN FUTURES TOOLKIT

A Resource Guide for Designing Seattle's Green Network

Researched and written by students in the UW College of Architecture and Urban Planning
Landscape Architecture 561, 504, and 402. Autumn 2005, Winter 2006

Edited by

Nancy Rottle, Assistant Professor
Brice Maryman, Lecturer

Green Futures Toolkit

A Resource Guide for Designing Seattle's Green Network

Researched and compiled by students in the UW College of Architecture and Urban Planning
Landscape Architecture 561, 504, and 402. Autumn 2005, Winter 2006

Table of Contents

San Diego, California
Tehia Kalebaugh

Stoke-on-Trent, United Kingdom
Kent Straub-Jones

Sydney, Australia
Mitchell Coleman

Boulder, Colorado
Garrett Devier and Melissa Martin

Barcelona, Spain
Peter Nelson

Helsinki, Finland
Michael Michalek

Section B - Open Space Typologies

Parking Strip Gardens
Jocelyn Liang Freilinger

Pedestrian and Bicycle Oriented Sp
Arielle Farina-Clark

Green Structure
Sarah Preisler

Habitat Corridor
Tauschia Copeland

Environmental Learning Parks
Garrett Devier

Playgrounds
Noelle Higgins + Nathan Brightbill

Pocket Parks
Alison Blake

Public Art: Linking Form Function + Meaning
Elizabeth Umbanhowar

Water Streets
Elizabeth Powers

Waterfronts
Lauren Acheson

Traffic Restricted Streets: Woonerfs and Transit Malls
Paul Chasan

Botanic Gardens
Kari Stiles

Healing Gardens
Betsy Severtsen

Boulevards and Parkways
Diego Velasco

Community Gardens
Vanessa Lee

Outdoor Cafes
Kayla Lowber

Parking Lot Parks
Jeremy Fichter

Urban Natural Areas
Tim Shuck

Wildlife Preserves
Zachary Smith

Section C - Implementation Mechanisms

Real Estate Excise Tax
Betsy Severtsen

Intermediary Agency
Garrett Devier

Transfer of Development Rights
Noelle Higgins

Mitigation Funds/Brownfields Clean-up
Jocelyn Liang Freilinger

Capital Campaigns for Open Space: Two Case Studies
Elizabeth Umbanhowar

Military Decommissioning
Lauren Acheson

Conservation Easements
Kari Stiles

Matching Grants
Alison Blake

Ecological Compensation Measure
Sarah Preisler

Sales Tax
Arielle Farina-Clark

Fee Waivers

Melissa Martin

Municipal/State/Federal Grants

Vanessa Lee

Tax Increment Financing

Nathan Brightbill

Land Banking

Elizabeth Powers

Section D - Inclusive Needs Report

Alison Blake, Tauschia Copeland, Noelle Higgins, Vanessa Lee

Introduction

- Extremes of Age
- Disability
- Homeless
- Ethnic Groups and Immigrants
- Low-Income Communities

Section E - Research Questions

Open Space and Public Health

Betsy Severtsen

Urban Forestry Potential

Nathan Brightbill

Urban Ecosystems

Melissa Martin

Cultural Uses of Open Space

Garrett Devier

Schools in the Open Space Network

Noelle Higgins

Urban Agriculture

Vanessa Lee

Seattle Earthquake

Lauren Acheson

Future Transportation

Sara Robertson

Climate Change

Allison Blake

Land Treatment and Water Temperatures

Elizabeth Umbanhowar

Population Scenarios

Jocelyn Freilinger

Section F - Parks History Overview

Place-Based, Historically Grounded Urban Ecology

A Century of Park Planning in Seattle

Sarah Dooling, Gregory Smith, Ken Yocom

Section G - Map + Plan Bibliographies

Ecology

Neighborhood Planning

Parks and Open Space

Transportation and Streets

GUIDING PRINCIPLES FOR CHARRETTE TEAMS

REGIONAL RESPONSIVENESS
1. 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, views, 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.

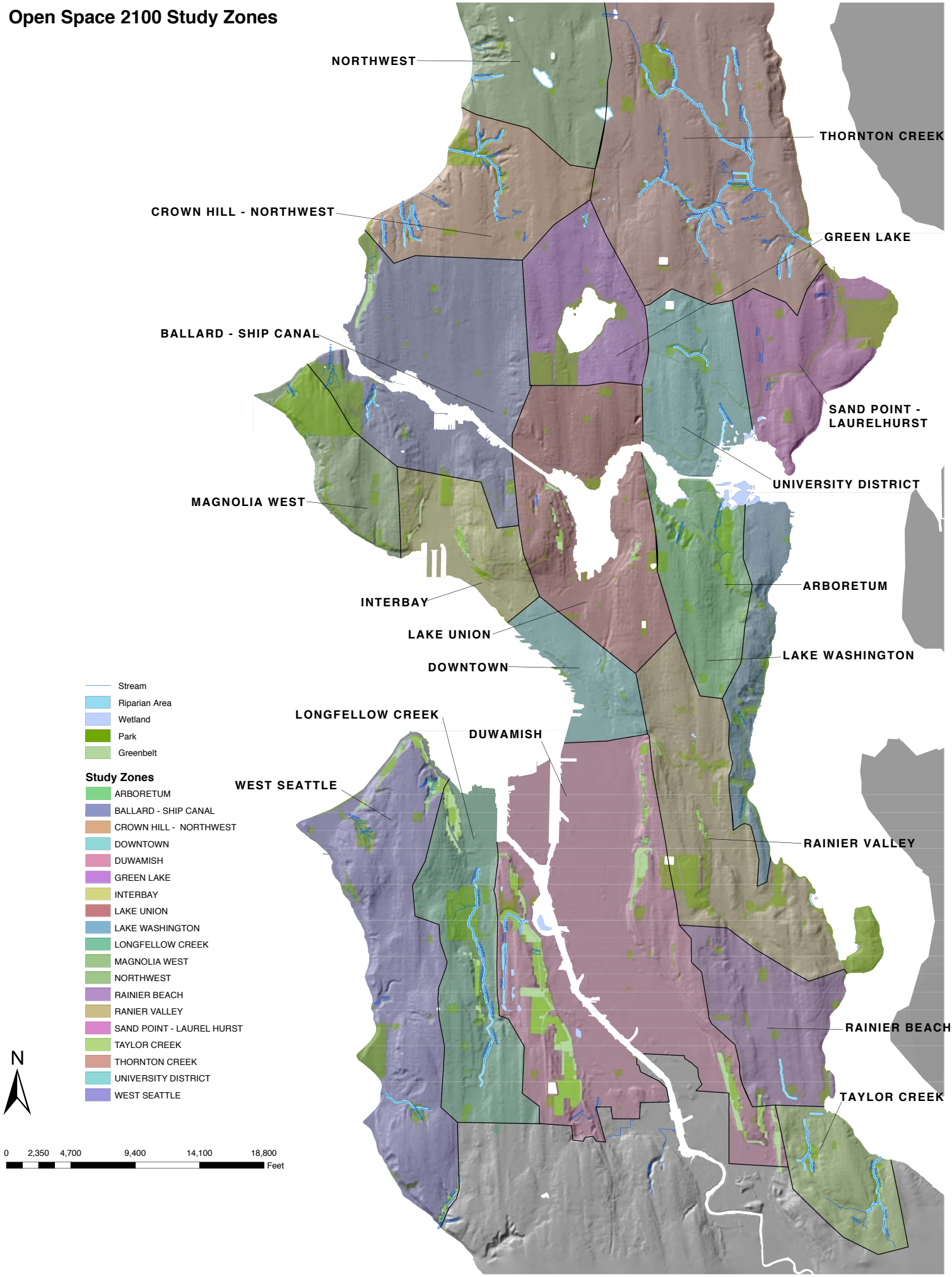
5. QUALITY, BEAUTY, IDENTITY and ROOTEDNESS
Use Seattle's many natural strengths to create an exemplary, signature open space system. Build on intrinsic qualities, both natural and cultural; reflect, respond to and interpret geographic, ecological, aesthetic and cultural contexts; address emotional and 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 ecological systems 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 includes 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.

Open Space 2100 Study Zones



Portland, Oregon, USA

Alison Blake + Vanessa Lee

'The City that Works'

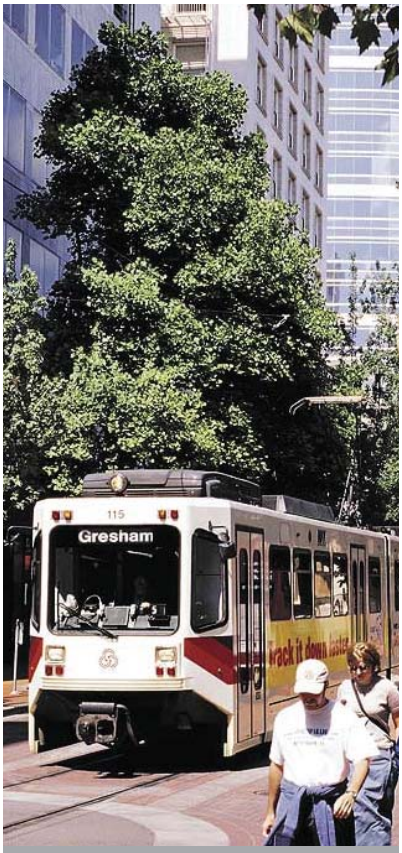
Left:
Portland Skyline and Mount Hood

Below:
MAX, Portland's Light-Rail Transit

(credit: Portland Visitors Association)

Portland, Oregon is an environmentally progressive Northwest city that has taken the concept of open space planning to heart. The development of a regional government system (Metro) and the adoption of an urban growth boundary in 1979 have helped protect lands outside of the city while encouraging density and vibrancy within the city limits. Portland is notable for having almost 6,000-acre Forest Park, the fifth-largest municipal park in the country. At the same time, master planning efforts have given equal attention to livability and open space within the city, so that Portland today boasts a total of 247 parks and recreational sites including 196 neighborhood parks.

Today, Portland is renowned for the efforts it has made to integrate public infrastructure in the name of livability and planning for the future. Attention to the environment and specifically to open space are at the heart of these planning efforts, which include the completion and expansion of Portland's original park systems plan, known as the Forty-Mile Loop.Yet at the same time, Portlands facilities are aging and require attention if they are to meet the needs of an expanding population. Still thinking ahead, Portland Parks adopted their plan for the future, the *Parks 2020 Vision* in the year 2000. *(See page 5)*



We need to blur the boundaries between Park and City. Let's start thinking of Portland itself as a garden. If we invest our city with the same care, love, attention and patience we extend to our private gardens...

City Statistics

City Population: 481,000

City Area: 79,808 Acres

Density Level: 6.0

Park Acreage: 12,591

Park acreage per 1000 residents:
21.4

Governing bodies:
Metro
Portland Parks
+ Recreation

Expenditure per person:
$136

Timeline of Portland's Parks + Open Space

1903: Master Plan
John Olmsted Develops Master Plan for Portland's Parks, proposing the "40-Mile Loop" and the acquisition of land on the West Hills for a wilderness "Forest Park"

1913-1942: Parks on Hold
Very little new lands is able to be purchased by the City and only small segments of Olmsted's Plan are put into action. Subdivisons are slated to be built where Forest Park was proposed and a wood-cutting camp is set up on Tualatin Mountain

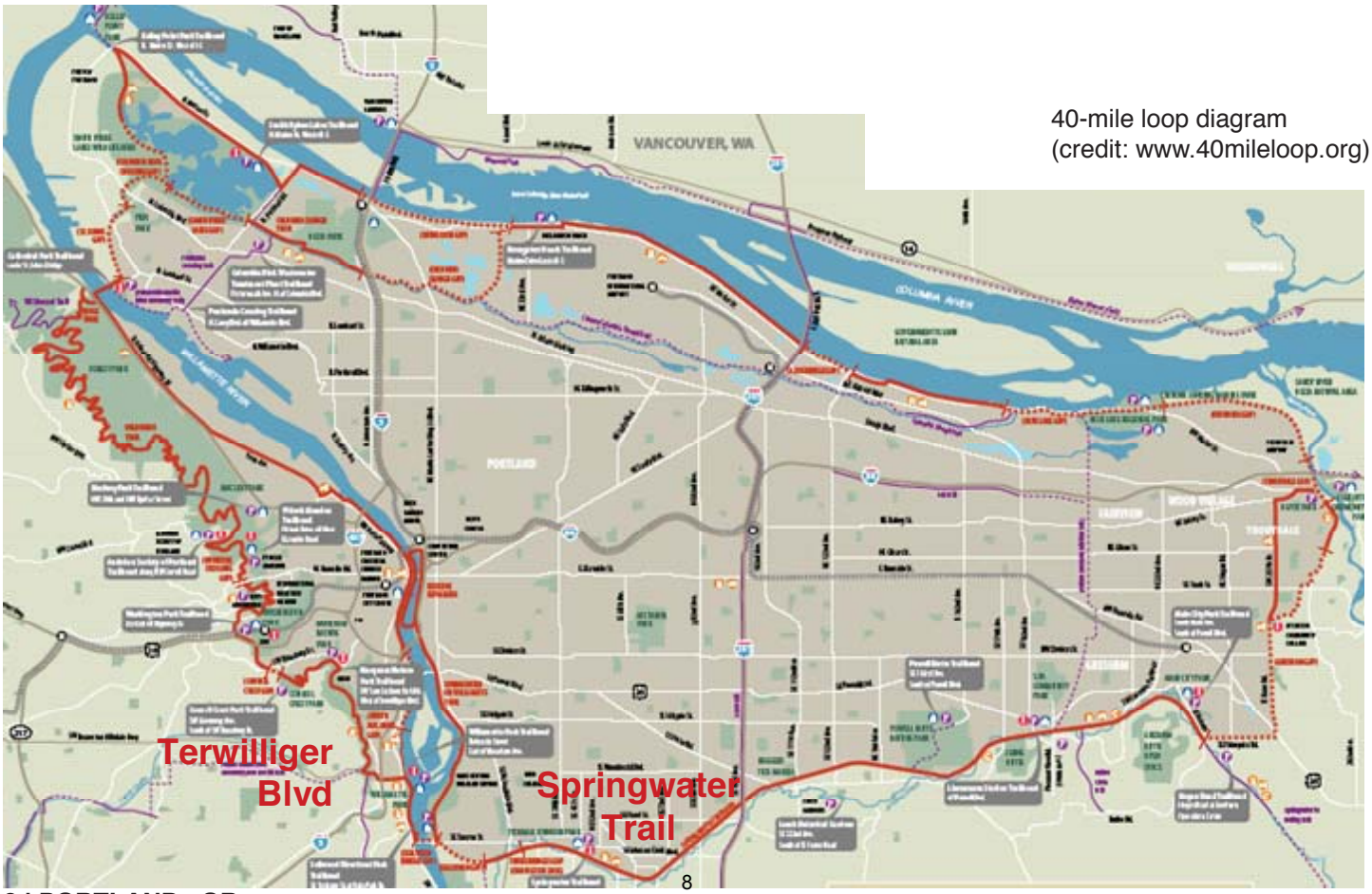
1943-1948: Forest Park Reborn
Robert Moses revives the Forest Park proposal. A series of fortuitous events result in the city acquiring the land for the Park

1950's & 60's: City In Decline
Portland experiences a major decline including loss of industry, a rise in poverty, and an urban exodus to the suburbs.

1977: Metro Created
State Legislature approves creation of Metropolitan Service District, refers it to voters

1979: Urban Growth Boundary Created
Metro adopts the first Urban Growth Boundary

1984: Pioneer Courthouse Square
Portland Residents successfully rally to replace the demolished downtown Portland Hotel with an urban park instead of an 11-story parking garage.



40-mile loop diagram
(credit: www.40mileloop.org)

...Portlanders will be rewarded with stunning beauty, ecological health, and gentle spirit of place."

~Tess Beistel, SE Portland resident

'The City that Works'

Major Components

a. Connective corridors

40-mile loop *(in red on the diagram on p.2)*

Terwilliger Boulevard ~100-acre parkway; City created a special design zone to retain its "heavily wooded character."

Springwater Trail: 16.5-mile multi-use trail for walkers, joggers, hikers, bicycles, wheelchairs, and strollers; abandoned rail corridor

b. Anchors/ Large Nature Areas

Forest Park ~5000 acres (to be 6000 acres); 5th largest municipal park

Powell Butte Nature Park ~ 600 acres; on former volcano

Delta Park ~700 acres; includes sports field complex

Mt. Tabor Park ~200 acres; contains an extinct volcano

c. Civic

Pioneer Square Park - 1.5 acres of red brick hardscape (*see story)*

Ira Keller Fountain ~ designed by Lawrence Halprin

Vera Katz Eastbank Esplanade - 1.5 mile accessible walkway; demo project for improved fish habitat and wildlife and riverbank restoration.

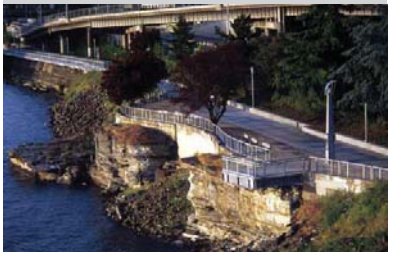
Tom McCall Waterfront Park - tore down Harbor Drive to build public space

d. Neighborhood Parks

246 other parcels aside from Forest Park + Pioneer Courthouse Sq.

e. Other

Community + Public Gardens: Rose Garden, Hoyt Arboretum

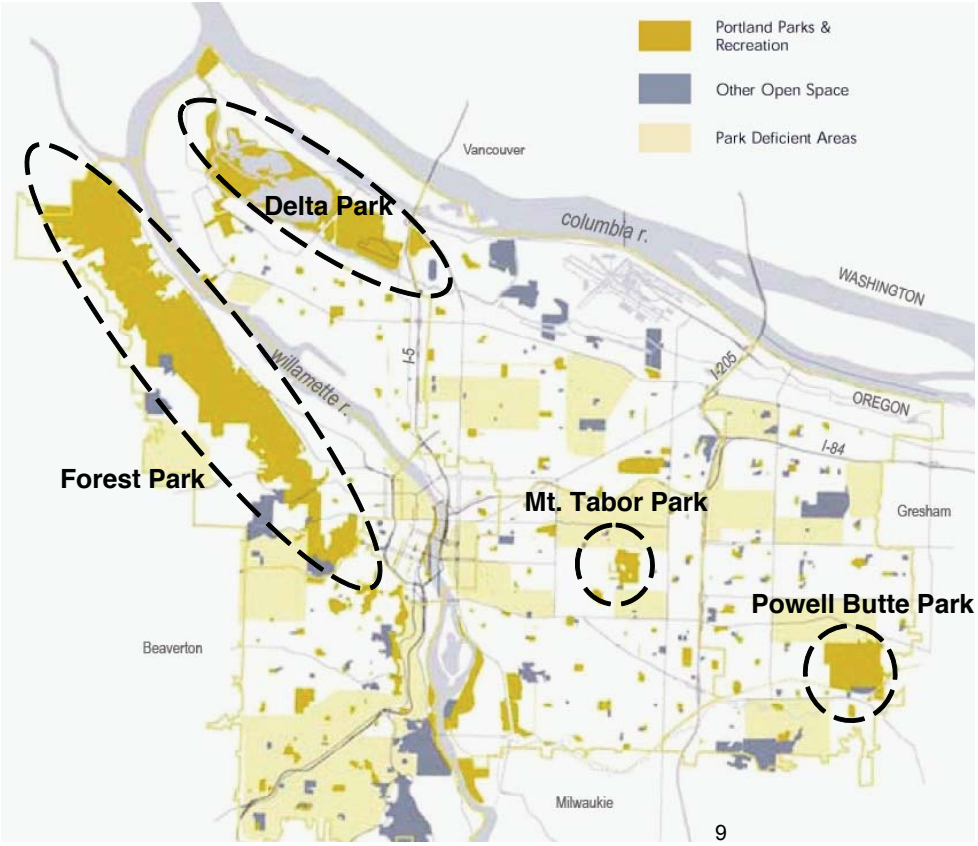


Above:
top:
Springwater Trail

middle:
Ira Keller Fountain

bottom:
Vera Katz Eastbank Esplanade

(credit: Portland Parks + Rec.)



Left:
Anchors diagram
(credit: Parks 2020 Vision)

For the benefit of our children, their children and the wildlife that depend on these special places, we have an obligation to protect what makes the Portland area so wonderful." *~Jim Desmond, SE Resident & Vision Team member*

Funding Mechanism and/or Planning

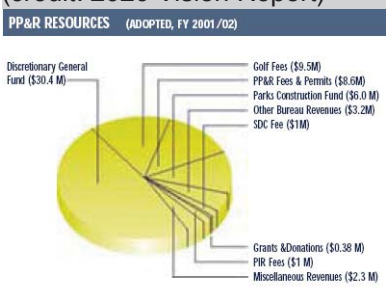
Portland's Park System is the third best funded system after Seattle + Minneapolis ($136/resident). The Parks Department is allowed to keep all the revenue it raises (rather than send most to the City's general treasury). In fiscal year 2001/02, PP&R spent just under $60M to operate, maintain, and expand Portland's park system *(see Resource Allocation Pie Chart)*. The Vision 2020 report found funds insufficient for effective park maintenance. For example, there were only two staff people to maintain Forest Park.

Metro acquires undeveloped open space and operates 18% of the system, while Portland Parks develops the facilities and operates 77%. In the case of Forest Park, there is an issue of jurisdiction as Parks is not likely to turn over the greatest single natural area in the region to Metro.

Additional Mechanisms include:
System Development Charge (SDC) - passed in 1998, this residential development fee generates about $1.5M a year for park capital improvements.
5-year Parks Levy – started in July 2003; will restore 2.2M in recent cuts; to reopen some recreational facilities, increase amenities, and reduce erosion of park maintenance infrastructure; 1.5M/year to provide access to rec. programs; $3.95 million/year to provide safe places to play; 1.7M/year - restore, renovate and maintain parks.

Role of Advocacy Groups:
Portland Parks Foundation was established in 2001 in response to the Parks 2020 Vison. It created a Parks Expansion Fund to ensure that all neighborhoods have access to parks and green spaces, and to provide financial aid to low-income youth in the face of shrinking public funding.

(credit: 2020 Vision Report)



(credit: Portland Parks + Rec)

Pioneer Courthouse Square

Deemed the city's "outdoor living room", Pioneer Courthouse Square sprung from a true grassroots effort: brick by brick. This central, almost-treeless block receives a diverse group of both tourists and residents each day. Portland residents successfully held a 65,000 brick campaign to purchase the block. They rallied to replace the demolished downtown Portland Hotel with an urban park as opposed to an 11-story parking garage.

In this robust space, events range from celebrations, concerts, memorials, political rallies, speeches, and even a sand castle festival. The physical postmodern design includes a waterfall, pillars, and amphitheatre seating area by Will Martin via a public design competition. This hub is also where the transit mall, light-rail system, and the city's two largest department stores meet.

The nonprofit corporation, Friends of Pioneer Courthouse Square handles the programming, maintenance, and security of the site. An annual budget of $900,000 is generated from event fees and leases to shops and vendor carts. The group's mission is stated as "become[ing] the Rockefeller Center of the West."

Bricks cost $100 each and are still being sold.

Portland was named America's Most Livable City by Money Magazine in 2001.

'The City that Works'

Current Issues

Funding Population Growth Aging Facilities Unequal Access

To the casual observer and even user, our city's park system appears impressive. And in some ways it is. However, virtually every part of the city is lacking in important ways many of our facilities are old and inadequate, we have a large deferred maintenance problem, and we are not adding the capacity we need to be the livable city we want to be as we grow and change. We need to gear up on parks in fundamentally new ways during the next 20 years or we will lose the quality of life we enjoy."

~Jim Zehren, SW Portland resident & Vision Team member

The Means of Achieving Open Space Goals

- Establish a Parks and Recreation Board to advocate for parks and ensure that the recommendations of the Parks 2020 Vision are carried out.
- Establish a Parks Foundation to bring new resources and expertise to long-term stewardship of parks and recreation.
- Develop a 20-Year Capital Plan to identify park system needs.
- Develop a Marketing and Communications Plan to inform the public about the value of parks, as well as the services available from their park and recreation system.
- Develop a Comprehensive Partnership Plan to coordinate activities and enhance partnerships with public schools.
- Develop Long and Short Term Funding Plans to stabilize park funding and provide needed renovations, acquisitions and improvements.

From the *Parks 2020 Vision*

Above:
Forest Park

(credit: Portland Parks + Rec)

Parks 2020 VISION

Portland's current goals are summarized in a new report published in 2000 that analyses the state of parks today, highlights areas of needs in each of Portland's neighborhoods, and defines methods for achieving established goals in the 20 years following.

Goals:
Acquire 1,870 acres of park land, including 620 acres of protected habitat
Provide 100 new sports fields; 6 new full-service community centers.
Provide 150 additional miles of trails; complete the 40-Mile Loop Trail.
Increase the urban forest on streets and in parks.
Create public plazas in each regional and town center and "green connections" along each designated main street in the city

Left:
Portland waterfront and skyline looking north

(credit: Portland Visitor's Association)

"Portland could be the Walking City of the West – known for its pedestrian-friendly system of urban trails, paths and walkways that link parks, plazas, community centers and natural resource areas."~Barb Scharff, PTLD resident+VisionTeam member

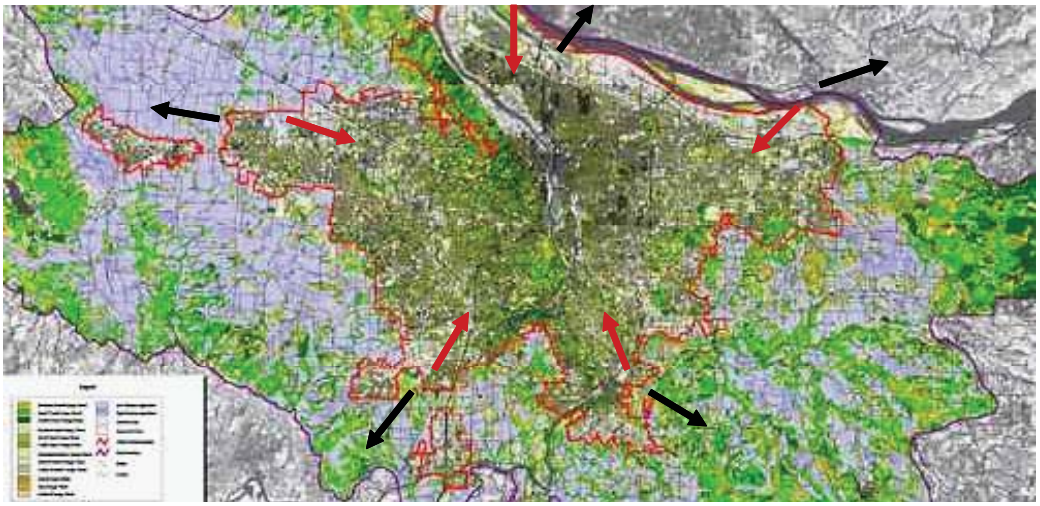
URBAN GROWTH BOUNDARY
Ensures an orderly development pattern, working from the core out.

INSIDE: require each town and city to maintain a 20-year supply of residential, commercial, + industrial lands.

OUTSIDE: protects productive rural areas; ultimately contributes to broader matrix of connective wildlands.

Lessons Learned

-Blending infrastructure (transportation nodes with parks) helps to secure open space.
-Master planning and public support are effective tools for protecting open space.
-Establishing an Urban Growth Boundary can be an effective means of protecting open space outside of cities while fueling growth into a downtown core
-In order to create "Livable Cities", development of interior is just as important as the exterior.



(credit: Michele Dailey)

above: Eastbank Esplanade
below: Jamison Square
(credit: Vanessa Lee)

Resources

Harnick, Peter. *Inside City Parks.* Urban Land Institute, WA: 1997.

Parks 2020 Vision
http://www.parks.ci.portland.or.us/PlansReports/2020/2020.htm

Urban Growth Boundary
http://www.conservationeconomy.net/images.cfm?PatternID=33
The metropolitan Portland urban growth boundary (in red).
Image by Michele Dailey.

http://www.40mileloop.org

http://www.parks.ci.portland.or.us

http://www.pioneercourthousesquare.org

http://www.portlandonline.com

http://www.portlandparksfoundation.org/

http://www.travelportland.com/

San Francisco, California
United States

"The City by the Bay"

Paolo Valassi

San Francisco's identity is deeply intertwined with its physical location. Stretching from the shores of San Francisco Bay over its hilly peninsula to the breakers of the Pacific Ocean, San Francisco is a place of sweeping vistas which dramatically juxtapose urban forms and open water. Given the city's history of repeated cycles of boom and bust in the pursuit of the big score, it is astonishing that the city is so lovely and has managed to stay that way. That it has done so is largely due to its long tradition of civic activism and civic pride.

During the city's early history, both Frederick Law Olmsted and Daniel Burnham were called in by private citizens to create park plans for the city. While neither plan was implemented due to concerns over cost and the potential commercial disruption that reorganizing the city might entail, these endeavors established a tradition of community involvement in the city's urban design. Most recently, thanks to civic activism the city took the extraordinary step of not rebuilding the Embarcadero Freeway, despite the freeway's function as a major connector to downtown. What was predicted to be a traffic disaster has instead served to revitalize San Francisco's downtown and reconnect the city with the water's edge.

San Francisco's open space is vast, despite the city's density. From large urban parks to pocket parks, civic plazas to outdoor cafes, distinct neighborhood streets to waterfront piers, San Franciscans are blessed with vibrant and varied outdoor spaces which can serve as an example to all cities as they densify.

"a hilly Paris by the Golden Gate" Daniel Burnham

City Statistics

City Population: 776,733

City Area: 30,080 acres

Density Level: 25.8 persons/acre

Park Acreage: 7,756 acres

Park acreage per 1000 residents: 9.99

Governing bodies: Recreation and Parks Dept, National Parks Service, Presidio Trust, Port of San Francisco

Expenditure per person: $150.50 (Parks Dept. only)

http://www.ci.sf.ca.us

A Brief Timeline of Major Open Space Events

1776 - Mission Yerba Buena founded. 1847 - After annexing Yerba Buena the previous year, the U.S. renames the city San Francisco. 1848 - Gold is discovered, prompting a massive influx of new immigrants

1860 - Private citizens hire Frederick Law Olmsted to create a parks plan. The plan is never implemented.

1870 - Barren dunes are acquired at the city's edge for a park. After 2 1/2 feet of topsoil is hauled in to cover the dunes, the site becomes Golden Gate Park.

1905 - Private citizens hire Daniel Burnham to create a city plan. The 1906 earthquke provides a once in a lifetime opportunity to implement that plan. Instead, the city is rebuilt along its previous outlines.

1915 - The Marina district and much of the Presidio are developed to host the Panama Pacific International Exhibition. The Presidio later becomes a major military base.

1957 - San Franciscans revolt against plans to cut through the city with freeways. Unfortunately, resistance comes too late to prevent the Embarcadero Freeway from being built.

1989 - The Loma Prieta earthquake causes closure of the Embarcadero Freeway. This time, San Franciscans seize the opportunity presented by the earthquake to reimagine the city's urban form. The freeway is pulled down in 1991.

1940's-1996 - Parks infrastructure falls into disrepair. Morale becomes so low in the Recreation & Parks Dept. that staff stop wearing their uniforms on the job.

www.sfgate.com/maps/

1996 - Newly elected Mayor Willie Brown makes renewed investment in the city's ailing parks system a city priority.

1996 - Congress establishes the Presidio Trust. The Trust is a new economic model for a park, mixing open space with historic preservation and commercial activity.

1997 - The San Francisco Waterfront Plan is adopted to provide for public/private mixed use and open space along the Embarcadero waterfront.

1997 - The Natural Areas program is established in the Recreation & Parks Dept. to focus on preserving and restoring ecological habitat within the city.

1980's-present - Decommissioning of military bases expands the city's open spaces

Major Components

a. Connective corridors - Green connective corridors ring the City. It is possible to bike or walk from the Ferry Building at the foot of the Bay Bridge, all the way around the waterfront to the Pacific Ocean and Lake Merced. This connective ring is possible due to the integration of San Francisco's city parks system with the Golden Gate National Recreation Area, a federally managed open space system.

Within the City itself, streets function as the primary corridors, connecting parks with civic plazas and neighborhood centers.

b. Anchors - San Francisco's park system is anchored by major open spaces which ring the city. Golden Gate Park reaches from the shores of the Pacific into the city, extending even further inward by way of the narrow Panhandle. South of Golden Gate Park along the Pacific shore, one encounters Lake Merced. Lincoln Park perches north of Golden Gate Park. The park system continues eastward around the city through the Presidio, Chrissy Field and Fort Mason.

c. Civic - Important social and civic spaces are scattered throughout the city. Sitting at the eastern end of Market St., the Ferry Building serves as the gateway to the city for ferry commuters and also hosts an indoor/outdoor farmers' market. One can walk, bike or take the streetcar along the newly restored Embarcadero waterfront to Fisherman's Wharf, Chrissy Field and the Palace of Fine Arts. Moving up Market St. from the Ferry Building, San Francisco MOMA and the Moscone Center have revitalized the once moribund South of Market area. Walking east from MOMA takes the visitor to Union Square, the heart of San Francisco's major retail area. A few blocks north of Union Square, one finds the Civic Center, San Francisco's seat of government.

d. Neighborhood Parks - San Francisco's major parks and civic anchors are complemented by numerous neighborhood parks. Many of these smaller parks are landmarks in their own right. They include Telegraph Hill/Coit Tower, Buena Vista Park Alamo square (flanked by the famous seven sisters houses), Duboce park, and Mission Dolores park.

e. Other- Part of what makes San Francisco truly unique is its neighborhoods and streetscapes. The city's stunning Victorian architecture provides visual continuity across districts, while each neighborhood's particular demographic mix and views make it unique. One cannot mistake the mexican flavor of the Mission for the ex-hippie ambiance of Upper Haight St. or the Italian/Asian mix of North Beach. Although there has been much concern in recent years that San Francisco's expensive real estate market is driving out the very residents that give each neighborhood its flavor, so far, the city's districts have retained their distinctive personalities. There is always something to see when strolling San Francisco's streets, and always something different around every corner.

Upper Haight
whit & maya's road trip.
www.personal.psu.edu/users/j/w/jws253/2004-06-maya_road_trip/

Map of Golden Gate Park
http://www.parks.sfgov.org/site/

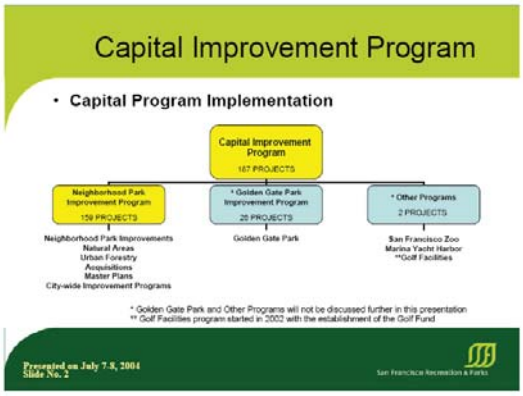
Funding and Planning

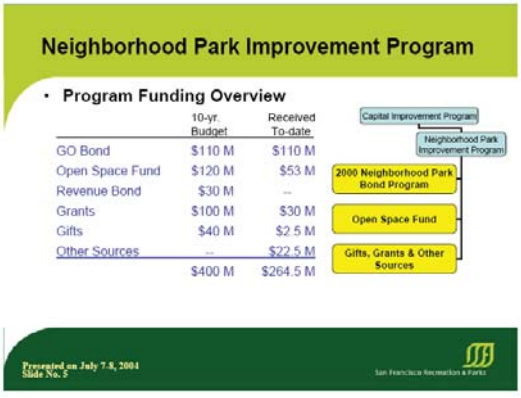
As much of San Francisco's open space is held by various state and federal government agencies, there are many overlapping but cooperative authorites managing a wide array of sites.

San Francisco's city-owned recreation and open spaces are managed by the city's Recreation and Parks Department. The annual operating budget of $116.6 million is comprise of money from the following sources (figures are projected FY 2005-2006, as cited by the department summary report, July 31, 2005)

General Fund monies	$24.9 M
•permit and facility rental fees/parking fees/recreation program fees/admission fees/concessions/	
Golf Fund	$10.9 M
Yacht Fund	$1.8 M
Open Space Fund	$27.8 M
•property taxes/	
Bonds	$3.5 M
Other	$0.6 M

Capital Improvement





The mission of the San Francisco Recreation and Park District's Capital Improvement Division:
Creating unique, enduring parks for our diverse community which inspire positive interactions with the environment.

Statement for Capital Improvment DIvistion:

In March of 2000 the citizens of San Francisco passed Proposition A, a $110 Million General Obligation Bond, and Proposition C, a continu ation of the Open Space Fund established in City Charter Section 16.107. PARK, RECREATION AND OPEN SPACE FUND. In addition to grants, gifts and other sources, both Propositions established sources of funds which would be used to implement the Recreation and Park Department's (RPD) Capital Improvement Plan.

The Capital Plan, originally (in 1999) estimated to cost approximately $400 million (please see 98-99 Park Assessment documents), outlines the proposed renovation of RPD's facilities in at least 440 projects over a ten-year period. The Capital Plan was estimated to start in Fiscal Year 2000-2001. In order to implement the Capital Plan, the department created a Capital Improvement Division (an expansion of the former Planning Division), which would be charged with planning, direction and overseeing construction projects included in the Capital Plan.

Lessons Learned

- •Identify historic and cultural locations to use as core anchors
- •Take advantage of opportunities
  - •Natural disaster recovery
  - •Infrastructure replacement
  - •Military or other large-land holding organization downsizing
- •Rethink spatial planning assumptions
  - •Freeways
- •Urban ecology is possible & important
  - •Habitat restoration and improvement
    - •Chrissy Field
  - •Significant Natural Areas Management Plan
- •Layer functions on open space
- •Neighborhood identity
  - •Architecture, streetscapes, dog policy, etc.
- •A good mass transit system is CRUCIAL
- •Coordinated, citywide activism
- •Cooperative management
  - •Public Organizations: Federal, State, City level governments and agencies
  - •Private Organizations and Non-Profit Groups
    - San Francisco Parks Trust
  - •Citizens!

http://www.crissyfield.org

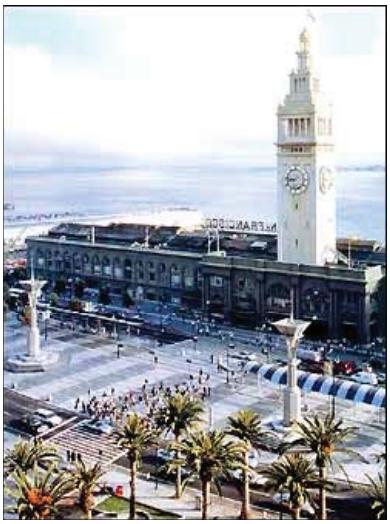
San Francisco's Dogs: A Powerful Constituency
Canine Influence on Park Policy

Dogs and dog owners have developed powerful influence in the way San Francisco's parks are managed and used. The 10-year $400 million capital improvement plan addresses dogs quite prominantly, as does the developing language for the Significant Natural Areas Management Plan. The following statement by the Department of Recreation and Parks exemplifies the importance it places on the use of parks by dogs and their owners

The Department recognizes the strength and character of the communities that have developed while recreating with a dog. It is the intention of the Department to increase opportunities for these unique communities to develop. We recognize the positive influences these communities bring to neighborhood parks. While the policy, on the face of it, appears to be restrictive, its purpose is to create more places for legitimate off leash use in our parks. Just blanket enforcement of the current law would definitely undermine that use. Inadvertently, off leash use has created conflict with the rich breadth of uses our parks are host to. The Department is committed to facilitating solutions that allow these uses to coexist peacefully.

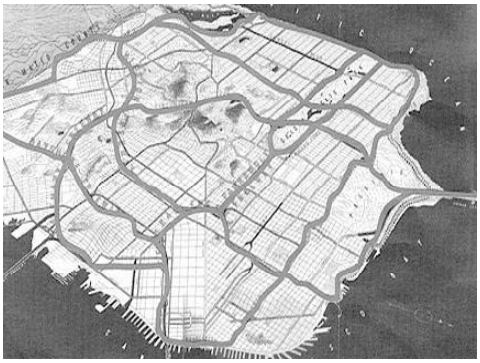
Since releasing the draft dog policy on June 12, 2001 the Department has reviewed and considered over 2,700 responses to that document. Nearly 300 staff hours were spent reading, evaluating and incorporating suggestions from the public. While many said they disagree with the policy we found several areas of common ground. Most citizens, whether dog owners or not, like the idea of having designated off leash zones. Most citizens would also like the clean up laws enforced and a majority would like the leash laws enforced. However, that said, it is clear that there was a tremendous amount of confusion surrounding the draft dog policy. The purpose of the policy is to provide guidelines and rules so that civilized compromises can be reached in each community for balancing many conflicting land uses.

Michael Macor, SF Chronicle



Embarcadero: Reconnecting the City to its Waterfront

San Francisco's early automobile corridor planning called for the city to be covered in a grid of freeway structures, of which the Embarcadero freeway, a double decker elevated roadway, was a part. The massive transportation structure cut-off San Francisco from the waterfront that gave birth to The City by the Bay, Though it was considered oppresive and an unwise use of real-estate, fear of change and anticipated traffic gridlock lead to a defeat by public vote of a 1986 ballot measure to replace the Embaradero Freeway with a public waterfront promenade. It took the 1989 Loma Prieta earthquake to render the waterfront freeway structurally unfit and a renewed, citizen-fueled campaign to recover the space, reconnecting the city to the sea and the pedestrian to the waterfront. Today the Embaradero redevelopment is considered an example of succesful waterfront redevelopment, not only for the creation of a great public space, but for the vision and courage that drove it.



Partnerships in San Francisco Open Space

A partial list of organizations involved in the use, maintenance, and well-being of San Francisco's open space:

PARK ORGANIZATIONS
Golden Gate Park Concourse Authority
San Francisco Parks Trust
California State Parks Foundation
Crissy Field Center
Golden Gate National Recreation Area
National Parks & Conservation Association
Neighborhood Parks Council
The Park People
Parks & People Foundation

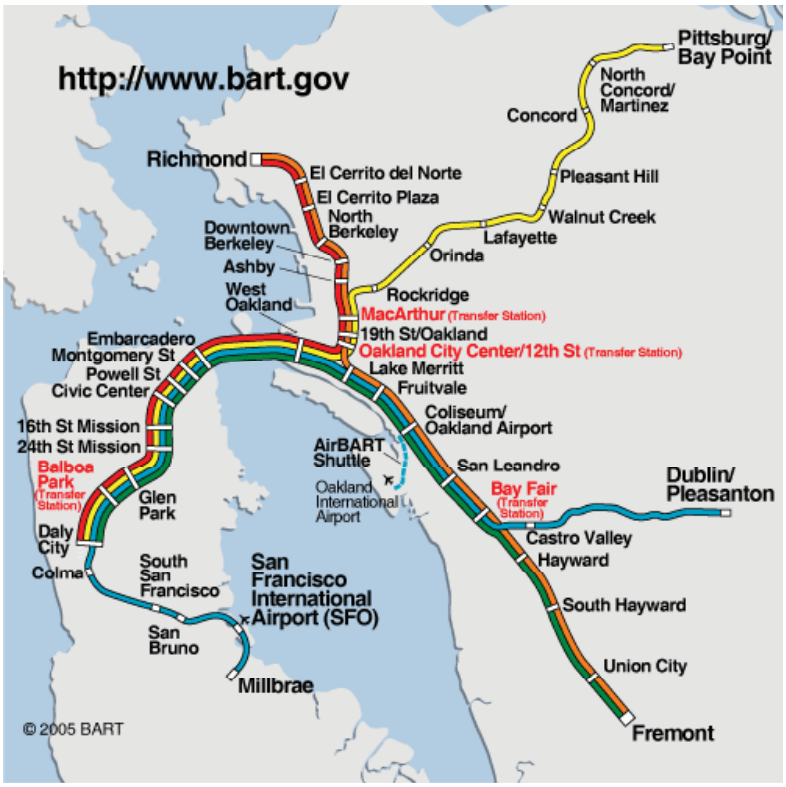
COLLABORATIVE ORGANIZATIONS
Boundless Playgrounds
Eco Gateway Urban Parks, Trails & Paths
National Audubon Society
The Playground Institute
Project for Public Spaces, Inc.
Rails to Trails Conservancy
Rides
San Francisco Botanical Garden Society
Sierra Club
Spark: School Park Program
Trust for Public Land
Walkable Communities

SAN FRANCISCO SITES
California Palace of the Legion of Honor
Camp Mather
Exploratorium
Palace of Fine Arts
The Presidio
Randall Museum
San Francisco Croquet Club
San Francisco Zoo
Sharon Art Studio
Stern Grove Concerts

SAN FRANCISCO LINKS
Bay Area Transit Info
Bay City Guide
Better Neighborhoods
Bicycle Coalition
Friends of the Urban Forest
Go City Kids
Golden Gate Audubon Society
NeighborNet
SF Arts Commission
San Francisco Beautiful
SF Clean City Coalition
SF Environment Ocean Beach
San Francisco Public Library
San Francisco Convention & Visitor's Bureau
San Francisco Green Schoolyard Alliance
SF Dog Owners Group
San Francisco League of Urban Gardeners (SLUG)
SF Model Yacht Club
San Francisco Planning and Urban Research Association (SPUR)
San Francisco SAFE (Safety Awareness for Everyone)
SF Skaters
San Francisco SPCA
SF Swimmers
Youth Sailing at Lake Merced

OTHER PARK LINKS
East Bay Regional Parks
Golden Gate National Parks Conservancy
State Park System

“The City by the Bay”



Resources

All photos were taken from the web. If credit is not attributed, the author could not be identified. Permission has not been obtained for the use of any of the photos herein.

Burnham, Daniel and Bennett, Edward H. Report on a Plan for San Francisco Berkeley: Urban Books (1906, reprinted in 1971).

City of San Francisco website. www.sf.gov

Port of San Francisco. Waterfront Land Use Plan San Francisco: Port of San Francisco, 2000.

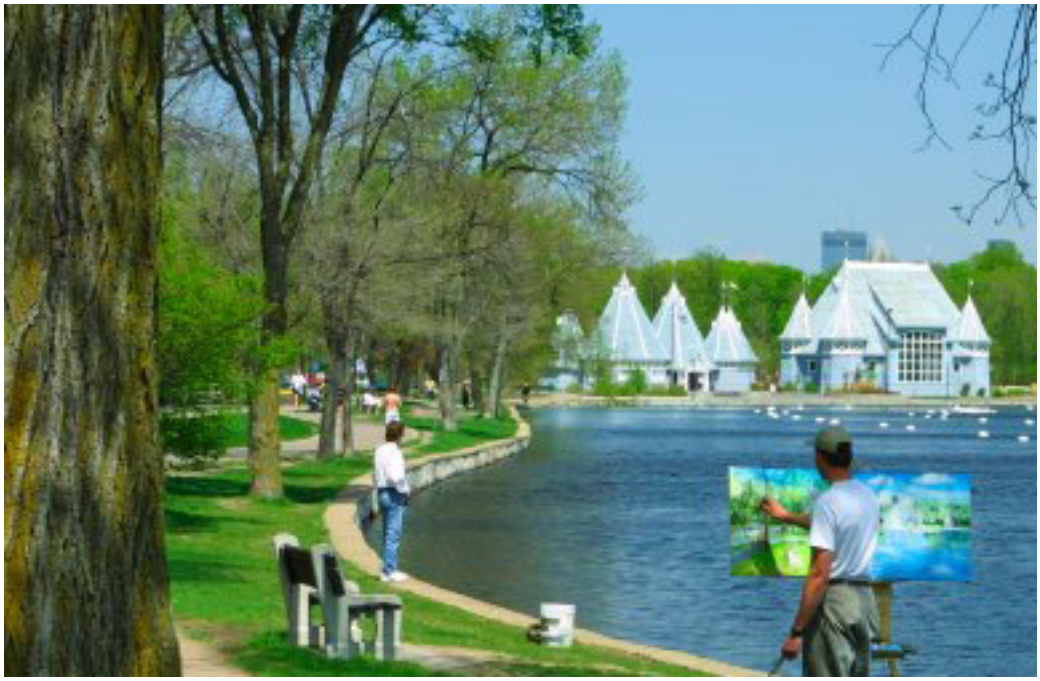
The Presidio of San Francisco. www.presidio.gov

Scott, Mel. The San Francisco Bay Area: A Metropolis in Perspective (2nd ed.) Berkeley: University of California Press, 1985

Minneapolis, Minnesota

Elizabeth Umbanhowar

Minneapolis Waters:
Life of the City



Lake Harriet
Source: Photopixels.com

"In all my life, I never saw or dreamed of so beautiful a sight as the rolling prairies. Nothing can equal the surpassing beauty of the rounded swells and the sunny hollows, the brilliant green of the grass, the number less varieties and splendid hues of multitudes of flowers. I gazed in admiration too strong for words." (Ellen Bigelow, 1835, in Sullivan, p.14)

The Minneapolis Park system has been held up as a paragon of design innovation, community involvement and administrative efficacy by users and professionals alike. In a land of 10,000 waters, Minneapolis is bejewelled with a ring of streams, rivers and over 20 lakes, including lakes Brownie, Calhoun, Cedar, Diamond, Harriet, Hiawatha, Mother, Nokomis, Sweeney, Twin, Wirth and host of smaller "puddles". Although presently faced with budget shortfalls, Minneapolis parks and open spaces continue to enjoy ongoing public support and heavy use by residents and visitors alike.

Conceived in the early 1880s by a forward-thinking board of trade, the Minneapolis park system was established by legislative mandate in 1883. The Minneapolis Parks and Recreation Board (MPRB) system retains much of its original character, including an independently elected park board, as well as the authority to levy taxes. As Alexander Garvin notes, "...Minneapolis park officials [have] more autonomy and accountability than their peers in every other big city in the country."

The first board hired Horace W.S. Cleveland, a landscape architect and protégé of city planner Frederick Law Olmsted, whose work included New York's Prospect Park and Chicago's South Park Commission. Cleveland designed a linear open space system for Minneapolis organized around natural hydrological systems (rivers, streams, lakes). Cleveland's signature work survives nearly intact, including the Grand Rounds, a 53-mile parkway comprising bicycle and pedestrian trails, links most of the major lakes, the Mississippi River and residential and business neighborhoods.

Since then, the board has been remarkably stable due in good measure to the long tenures of its park superintendents, including the first park leader, Theodore Wirth, who remained with the MPRB for 29 years.

Manhole Cover by Kate Burke
Source: Manhole.ca

Minneapolis Parks and Recreation Board received a 4-star rating in 2000 from Trust for Public Lands and was described as the "closest to park nirvana."

STATISTICS

City Population: 382,618
City Area: 35,156 acres
Density Level: 10.2
Park Acreage: 6,400
Park acreage per 1000 residents: 16
Park Governing Bodies: Minneapolis Parks and Recreation Board Citizen Advisory Committee
Expenditure per person: $176

Source:
Minneapolis Parks and Recreation Board (MPRB) http://www.minneapolisparks.org/home.asp and Alexander Garvin and Gayle Berens *Urban Parks and Open Spaces* (1997)

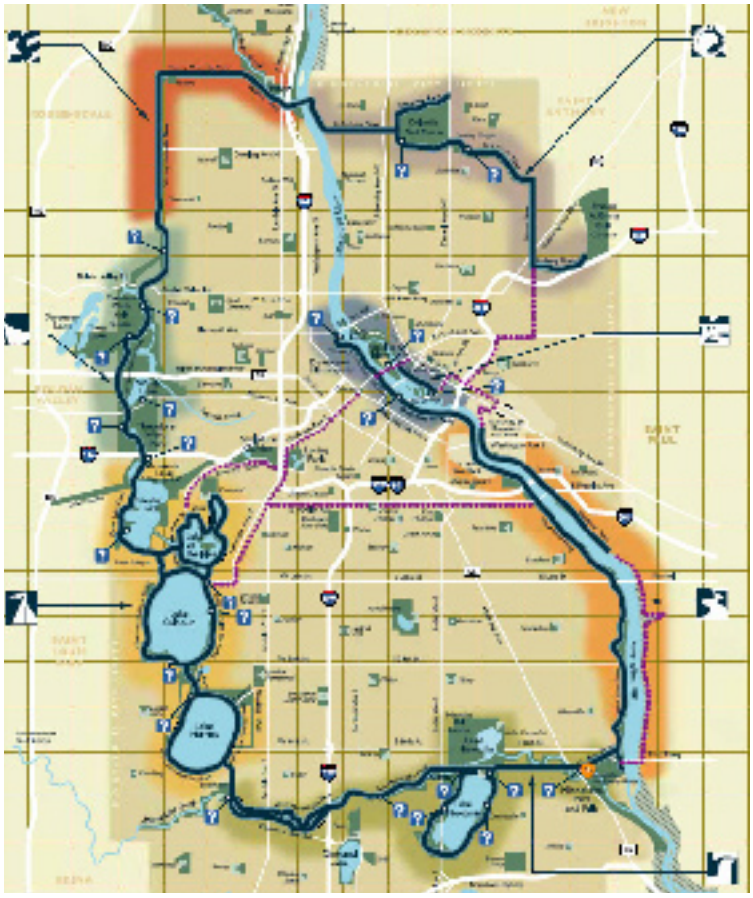
Context

When the first Europeans arrived in Minneapolis, they settled near the Mississippi River at St. Anthony Falls. The city was poised at the confluence of three major rivers--the Minnesota, Mississippi and St. Croix--and at the intersection of the Big Woods (a mixed hardwood forest that once occupied much of Wisconsin and eastern Minnesota) tallgrass prairie and oak savannah biomes.

W.S. Cleveland conceived of the Minneapolis park system master plan against this background. Water bodies, existing and created, lay at the heart of his design vision. Indeed, most of the lakes that comprise the Chain of Lakes on the Grand Rounds Parkway are dredged. Only Lake Harriet is completely natural. The other lakes were deepened or reshaped or created anew from marshlands. However, while many cities were busy filling wetlands to expand buildable lands, Minneapolis preserved over 1,000 acres of lakes and parkways. Water levels in the lakes are maintained through a complex system of pipes, pumps and channels from the Mississippi.

In response to the need for environmental advocacy, the MPRB assumed a proactive stance to address a variety of issues. Early on in the midst of conflict over the construction of major freeways in the Twin Cities metropolitan area in the 1960s, the MPRB adopted a radical policy of "No net loss of parkland", whose impact guaranteed every citizen the ability to reach a park within six blocks of their residence.

Currently the board is taking additional steps to enhance parks: restricting building heights around area lakes; converting lawn turf to native plants and grasses to reduce maintainance and pesticide use and enhance native species; creating artificial wetlands to contend with stormwater; addressing auto traffic, the single major pollutant of city lakes.



Source: MPRB

Board Structure and Governance

The MPRB consists of nine elected commissioners and an appointed superintendent. It is a semi-autonomous board. Six of the nine commissioners are elected from geographically defined parks districts. The other three are elected at large. Commissioners are elected every four years, on the same schedule as the Mayor and City Council Members. The board oversees the maintenance and operations of Minneapolis parks and recreation facilities and hires the superintendent, who is the chief supervisor of the department staff.

Public participation in park construction and planning is mandated by local ordinance. Residents take an active role in construction and planning projects under the aegis of Citizen Advisory Committees. Committee recommendations are forwarded to the Park Board's Planning Committee for public hearings.

Park Structures

The Minneapolis Park and Recreation Board is responsible for several major areas of oversight which include:

• Maintaining and developing the Minneapolis park system.
• Enacting ordinances governing the use of neighborhood and regional parks, parkways, beaches, lakes, and special use facilities such as pools, ice arenas and municipal golf courses.
• Providing recreational opportunities
• Caring for street trees
• Policing of park properties

Facility Typologies

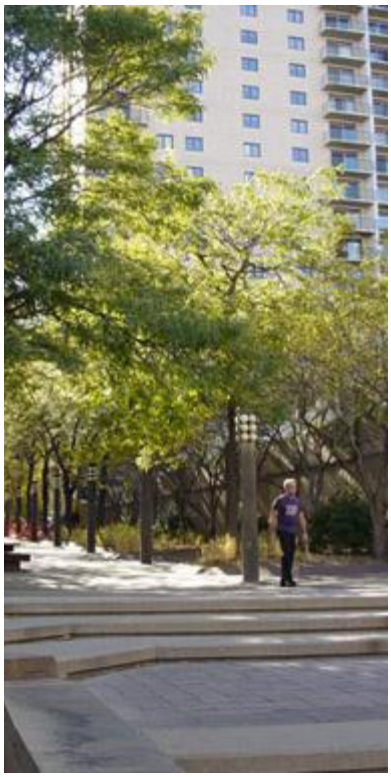
The MPRB maintains and preserves a variety of environmental, recreation and community/cultural sites. They are characterized by multimodal linkages and firm foundations in both the natural and cultural landscape. They include a variety of small and large sites, from skateparks to off-leash dog areas, from schools to interpretative centers. They include:

a. Connective corridors
Grand Rounds, Cedar Lake Trail, Chain of Lakes, West River Parkway, East River Parkway, Godfrey Parkway, St. Anthony Parkway, 5th Avenue, Lake Nokomis, Minnehaha Creek, Memorial Parkway, Wirth Parkway, Main Street, North Mississippi
b. Anchors
Cedar Lake, Lake Calhoun, Lake Calhoun Parkway, Lake Harriet, Lake Nokomis, Lake of the Isles, Theodore Wirth Park
c. Historic Sites
Ard Godfrey House, Father Hennepin Bluff, First Bridge Park, Fort Snelling, Historic Main Street, Longfellow House, Princess Depot, Stevens House, Stone Arch Bridge
d. Neighborhood Parks
Armitage Park, Audubon Park, Bassett's Creek, Beards Plaisance, Beltrami Park, Bethune Park, Bohanon Park, Boom Island, Bossen Park, Bottineau Park, Brackett Park, Brownie Lake, Bryant Square Park, Bryn Mawr Park, Calhoun 32nd Beach, Calhoun North Beach, Calhoun Thomas Beach, Cavell Park, Cedar Point Beach, Cedar South Beach, Central Gym Park, East River Flats Park, Edgewater Park, Edward C. Solomon Park, Elliot Park, Farview Park, Farwell Park, Father Hennepin Bluff, First Bridge Park, Folwell Park, Franklin Steele Square, Fuller Park, Gateway Park, Keewaydin Park, Kenny Park, Kenwood Park, Linden Hills Park, Logan Park, Longfellow Park, Loring Park, Lyndale Park, Lynnhurst Park, Marshall Terrace Park, Martin Luther King Park, Matthews Park, McRae Park, Mill Ruins Park, Minneapolis Riverfront District, Minnehaha Park, Morris Park, Murphy Square, Nicollet Island Park, Nokomis Beach, North Commons Park, North Commons Water Park, North Mississippi Park, Northeast Park, Painter Park, Pearl Park, Peavey Park, Van Cleve Park, Victory Park, Wabun, Waite Park, Washburn Fair Oaks Park, Webber Pool, Whittier Park, Willard Park, Windom Park, Windom South Park, Wirth Beach
e. Gardens
Eloise Butler Wildflower Garden and Bird Sanctuary, Longfellow Gardens, Loring Park Garden of the Seasons, Lyndale Park Gardens, Minneapolis Sculpture Garden, Nokomis Naturescape Gardens, Peace (Rock) Garden, Perennial Trial Garden, Pergola Garden, Quaking Bog, Rose Garden
f. Recreational and Community Centers
49 neighborhood recreation centers

Stormwater management project at Lake Harriet

Source: Kestrel Group

For every public dollar spent on parks, there are $10 dollars in private expenditures



Source: MPRB

Funding Mechanisms and Public Support

Minneapolis parks and open spaces have historically enjoyed substantive citizen support. From its inception, the Minneapolis Park and Recreation Board has been buoyed by strong residential advocacy for open space. Garvin argues that historically the relative cultural, economic and ethnic homogeneity of Minneapolis contributed to political concensus. In addition to beautifying and strengthening neighborhoods, Minneapolitans have embraced the notion that parklands increase property values and contribute to increased tax base. Indeed the City considers their parks to be a substantive asset, one which also stimulates private reinvestment. Minneapolis parks attract over 5.5 million visitors annually, attesting to the economic significance of open and recreational spaces.

The annual operating budget of the MPRB is $57 million. 69% of the budget is garnered from property taxes, 22% from local government aid, 3% from state grants and 5% in other revenues and transfers. The board spends $176 per resident on its parks, one of the highest rates of per capita spending on parks in the country.

Currently, under the leadership of Superintendent Jon Gurban, the MPRB is pursuing a five-year, $10 million capital campaign.

Source: MPRB

Issues

The Minneapolis Park and Recreation Board has faced a number of economic challenges in recent years, including a severe budget shortfall which forced a budget moratorium on any new construction. Like many organizations recovering from the economic setbacks following September 11, 2001, the MPRB has sought alternative funding to supplement lost revenues from property taxes.

Proposals to allow vendors in city parks has also fostered mistrust among citizen activist groups wary of the delicate balance between private interests and public needs.

Despite advances in restoration work, MPRB struggles to find a happy medium in terms of park users. Auto congestion plagues streets around many of the lakes in the Chain of Lakes area and contributes to high levels of pollutants, in addition to phosphorus. Cars remain a contentious issue. In addition, the board has met with some resistance as they convert grass lawns to native grasses and plants. Of late, the parks have also suffered tree loss due to Dutch elm disease as well as increased crime in certain parks.

Finally, the increasing diversity of users presents incredible opportunities for exploring new forms and methods to provide and maintain green, open space and other recreational engagement. At the same time, the needs of diverse users has placed “an enormous strain” on the park system in terms of meeting varying needs and expectations.

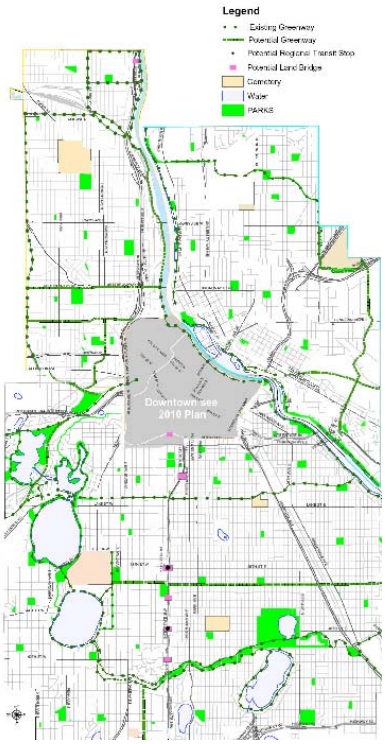
Lessons Learned

Minneapolis parks and open spaces are notable for being rooted in the natural topography and hydrology of the region. The forethought of park founders ensured coherent and linked spaces that provide opportunities for multiple users, while at the same time offering aesthetic and ecological functionality. The linkages, which occur at both a small and large scale are both logical and accessible.

The structure of the semi-autonomous elected board itself enhances the ability of the organization to be innovative and at the same time ensures accountability to citizen expectations. The park structure also allows for citizen involvement in design and construction of sites. Indeed citizen groups have instigated the purchase and restoration of several sites that the park board deemed unfeasible, including the very popular Cedar Lake Trail and the Midtown Greenway.

Park policy is guided by the original master plans, as well as the cogent set of programmatic goals that focus on environment, recreation and community. In addition, Peter Harnik praises the quality, lucidity and frankness of MPRB annual reports. Public accountability plays a role in guaranteeing recognition of volunteer and organization contributions in this publication, as well as open discussions of problems faced by the board.

Finally, despite recent economic setbacks, the stability of the MPRB is underscored by a consistent and coherent planning process, a citizen-elected board, strong community partners, a citizenry that values parks and open spaces, and an emphasis on ecology and community.



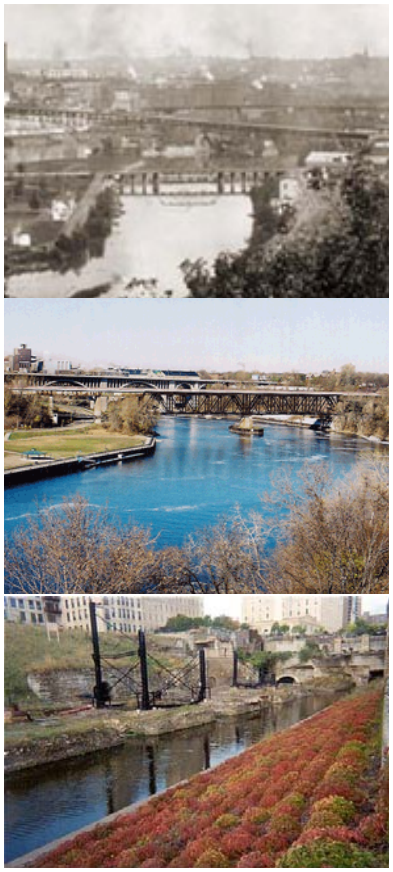
Open Space and Connectors
Source: MPRB

Returning to the River

Like many cities throughout the United States, historically Minneapolis turned its back on the Mississippi River. The banks were lined with industries from timber mills to grain elevators, each of which contributed to the pollution of the river.

As the city re-orients toward the Mississippi, attempts have been made to redress the impacts of heavy industry through ecological restoration and cultural preservation. Several proposals have been put forward recommending removal of the dams, which no longer serve the volume of boat traffic they once did. While removal of the dams is not immediately forthcoming, other groups, such as Friends of the Mississippi River, are leading other efforts in partnership with American Rivers, the City of Minneapolis and MPRB to coordinate a study of potential redevelopment scenarios for the Upper Harbor Terminal (UHT) site and surrounding area, including a proposal for an EcoPark.

The MPRB has also re-focused its energies on the river, and is actively acquiring riverfront property. Most of the properties south along the river are owned by the Park Board or the University of Minnesota. Recently Mill Ruins Park opened, unveiling a lost history of foundations, ducts and wells from lumber mills that once lined the river banks. As a result of MPRB efforts, the riverfront is cleaner and less congested than even the lakes. Much of the private development is similarly sensitive to citizen needs, focusing on housing and public spaces, garnering a “higher and better use” than the equivalent in standard commerce.



Source: MPRB/New Yorkers for Parks

The Minneapolis park system has been called "...the best-located, best-financed, best-designed, best maintained public open space in America."
Alexander Garvin *The American City: What Works, What Doesn't*

Source: MPRB

Song of Hiawatha
(excerpt from Henry Wadsworth Longfellow)

With him dwelt his dark-eyed daughter,
Wayward as the Minnehaha,
With her moods of shade and sunshine,
Eyes that smiled and frowned alternate,
Feet as rapid as the river,
Tresses flowing like the water,
And as musical a laughter:
And he named her from the river,
From the water-fall he named her,
Minnehaha, Laughing Water.

Source: MPRB

Source: Kestrel Group

Resources

Garvin, Alexander and Gayle Berens. *Urban Parks and Open Spaces*. Washington DC: Urban Land Institute, 1997.

Harnik, Peter. *The Excellent City Park System: What Makes It Great and How to Get There.* Trust for Public Land, 2001.

Metro Greenways: Seven-County Twin Cities Region, Minnesota Metropolitan Design Center: Minneapolis, 2003.

Minneapolis Park and Recreation Board
http://www.minneapolisparks.org/home.asp

The Minneapolis Plan: the City of Minneapolis' Comprehensive Plan
http://www.ci.minneapolis.mn.us/citywork/planning/planpubs/mplsplan/plan.html

Mosedale, Mike. "Let the River Run." *CIty Pages.* Volume 23: Issue 1140 (October 9, 2002)
http://www.citypages.com/databank/23/1140/article10764.asp

New Yorkers for Parks. *The Minneapolis Parks Board.*
http://www.ny4p.org/parks/minneapolis.php

Minneapolis Waters: Life of the City

“Look forward for a century, to the time when the city has a population of a million, and think what will be their wants. They will have wealth enough to purchase all that money can buy, but all their wealth cannot purchase a lost opportunity, or restore natural features of grandeur and beauty, which would then possess priceless value…”

— Horace W. S. Cleveland, Minneapolis Park System Landscape Gardener, 1883

Thomas Wirth Park
Source: J. Quistershot

Vancouver, Canda

Nathan Brightbill, Elizabeth Powers

Lively and Diverse by Nature

Vancouver's Downtown Central Area (left) includes extensive waterfront greenways and parks at False Creek North and South as well as Coal Harbor and Stanley Park in background. Stanley Park is the first park created in Vancouver. Its close downtown proximity and multitude of activities make it a beloved place to visit. (photo: www.seevancouverbc.com)

Dr. Sun Yat Sen Garden (below) is an urban oasis in Vancouver's Chinatown. It is a classical Chinese garden run by the Dr. Sun Yat Sen Garden Society of Vancouver. (Photo: Nathan Brightbill).

Vancouver is a city of an estimated 560,000 with a robust parks system particularly noted for its large urban open spaces, like Stanley Park, and its attention to greenways and other pedestrian amenities. The total land area is 106.7 square kilometers, excluding Stanley Park which covers 3.9 square kilometers. Other parks, golf courses and open space total 11.9 square kilometers. The city's Parks Board is unique in Canada because it is an autonomous and separately elected committee, rather than appointed by council. The board was formed during the creation of Stanley Park in 1886 (see *Stanley Park: Vancouver's First Park*). Vancouver contains over 200 parks. The Parks Board mission is to "Provide, preserve and advocate for parks and recreation services to benefit people, communities and the environment." Parks principals are based on integrity, responsiveness, learning, leadership , inclusiveness, and accountability.

Some say Vancouver is a "setting in search of a city." The parks strategy plays a significant role in maintaining integration between the city and its environment. Much attention is not only paid to park quality and mobility between them, but also to views out of the city to capitalize on its rich natural setting. The city is currently engaged in encouraging families to move to the center city, by adopting a "living first" strategy. The city has recognized that providing housing is not sufficient, but rather a whole array of services including open space, pedestrian connectivity, schools and community centers is vital. A large part of this strategy has been to dedicate waterfront areas to the public and use developer fees to fund parks.

Since 1986 with the World Exposition and timing of Hong Kong investors seeking land elsewhere, Vancouver has experienced a building boom and urban design renaissance. It's methods have been coined the "Vancouver Style" and influence design worldwide for better or worse. Open space is seen as an integral piece in Vancouver's strategy.

Few cities' possess such a combination of nearby natural resources, a splendid harbor, a terrain ideally suited for urban use, an equable climate, and a setting of great natural beauty. -Harland Bartholomew, 1928

City Statistics

City Population: 560,000

City Area: 27,293 acres

Density Level: 20 people per acre

Park Acreage: 3,904 acres

Park acreage per 1000 residents: 6.97
Including Pacific Spirit Regional Park: 10.33

Governing bodies: City Council, Parks Board, School Board

Expenditure per person: $150

Context

Located on the southwest corner of the mainland of British Columbia, Vancouver is bounded on three sides by water. To the city's north, the Burrard Inlet separates Vancouver from North Vancouver and West Vancouver. On its western boundary is the Pacific Ocean's Strait of Georgia. To the south, the Fraser River separates Vancouver from its smaller satellite communities. This area is Canada's primary Pacific port and the economic hub of British Columbia.

30 historical streams have been diverted or buried. Spanish Banks creek is a recently restored salmon run. Urban habitat includes 4 creeks, a lake and lagoon in Stanley Park and another lake. Native vegetation includes western hemlock, amablis fir, doug-fir western red cedar and sitka spruce.

Vancouver is governed by the ten-member Vancouver City Council, a nine-member School Board, and a seven-member Parks Board, all elected for three-year terms through an at-large system. The last elections were held in November 2002. The leftist Coalition of Progressive Electors (COPE) swept the elections.

Vancouver also benefits from a large regional park system, one of which lies between the city and the University of British Columbia campus to the west. These parks are run by the Greater Vancouver Regional District (GVRD), a regional governmental body of 21 municipalities dealing with services of air, water, recycling, garbage, sewerage, regional parks, housing, regional development and labor relations.

Lively and Diverse by Nature

Major Components

Vancouver has over 200 parks, 400 playing fields and sport courts, and 11 miles of beaches. 58% of the waterfront is currently public.

Connective corridors
Vancouver has an extensive city greenway system that continues to be expanded. Because Vancouver has actively preserved its seawalls for public use, 30% of the network was in place before the greenways program was established. Street right-of-ways will make up 50% of the network. The intent of the program is to ensure that no home is more than a 25 minute walk or 10 minute bike ride from a greenway. Neighborhood greenways are smaller and established as links within communities rather than between them. They are locally initiated and enacted through city/community partnerships.

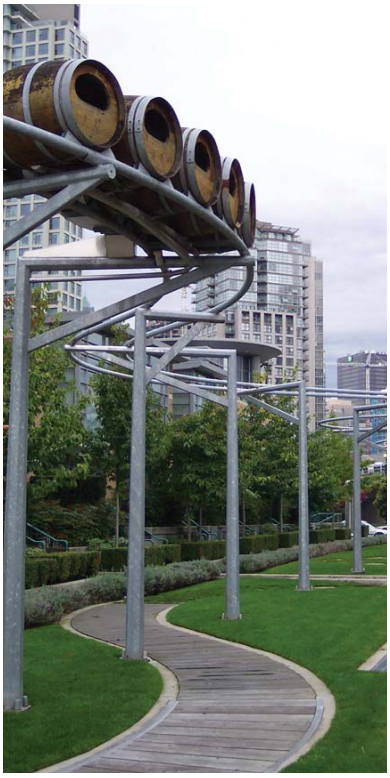
Goals of a City Greenway are:
- Make walking more interesting
- Make cycling safer and more convenient
- Reduce the impact of the car
- Make the Greenway 'greener'
- Use public art to make the Greenway more interesting

Anchors
Stanley Park is Vancouver's most notable and primary park. There are several other anchors. **Queen Elizabeth Park** and **Van Dusen Botanical Garden** are located toward the south of the city. Queen Elizabeth Park contains the highest point in the city as well as the Bloedel Floral Conservatory. The site is on a former stone quarry redeveloped in the 1950s. Van Dusen Botanical Garden was once a golf course and has been home to thousands of rare and exotic plants since the 1960s. **Hastings Park** is a 162 acre area currently being redeveloped as a multi-use park. It will become the second largest park in Vancouver and provide an eastern anchor to the city's park system. **Pacific Spirit Regional Park** borders Vancouver but is not actually part of the city. It is part of the University of British Columbia's endowment lands, but provides a myriad of outdoor activities to Vancouver residents. The park covers 1,885 acres and significantly increases the amount of open space immediately available to Vancouver residents.

Civic, Downtown and Social Spaces
Vancouver is exceptional in its model of linking community centers with schools and parks. There are three of these downtown either existing or in development. A notable example is the Roundhouse community center, which was redeveloped from a roundhouse once used by the railroad. This has played a significant role in helping attract families into the downtown area.

Neighborhood Parks
Neighborhood parks are often attached to community centers and schools. There are 23 community centers, 3 of which are downtown. Of late, much attention has been paid to the development of downtown parks leaving some neighborhood parks unprogrammed and in need of maintenance.

Community Gardens
There are 10 community gardens. They are located on parkland but are organized by neighborhood groups. Strathcona Community Garden is a notable example.



Many new developments feature mews combined with public art. Roundhouse Community Center below. (photo: Nathan Brightbill)


The Changing City: False Creek North, 1978

Community Amenities Contributions Through Rezoning
Community Amenities Contributions (CAC) policies were enacted by Vancouver in 1999. They apply to projects that receive an increase in density when the land is rezoned. Fees apply only to the additional square footage allowed by the zoning increase. The fee amount can vary depending on the circumstance, but is usually $3 per square foot.

CAC funds can be used in many ways, depending on what the city desires from a particular project. They have been applied to many new downtown to projects and have paid for many amenities such as the waterfront at Coal Harbour pictured below. (photo: Nathan Brightbill)

Funding and Planning Mechanisms

The parks operating budget comes primarily from the City of Vancouver through taxes (61% in 2004). User fees for golf courses, community centers, pools, rinks, fitness centers, marinas, Stanley Park, Van Dusen Gardens, and Bloedel Conservatory, parking fees, and concessions make up the rest of revenue. In 2004, Parks revenue was $83.9 million (Canadian). The capital budget is mostly funded through the City's three year Capital Plan approved by the Council and residents split between park and recreation needs. For 2003-2005 the Capital Plan total is $45.5 million (Canadian).

The 2005-2010 Strategic Plan focuses on strengthening fiscal responsibility and pursuing alternative sources of funding. The Vancouver Parks Board plans to provide more access to data and involve the public more in allocation of funds, develop a comprehensive fundraising program with more community partners, and seek creative solutions for long-term fiscal stability.

Vancouver also has a system of discretionary zoning with design review that allows the creation of bylaws to allow density bonuses in exchange for community amenities. Recently large development projects such as False Creek North and Coal Harbour have funded many new parks and waterfront greenways.

Initiatives

The 2050-2010 Strategic Plan focuses on five areas, development of sustainable policies and practices, integrating wellness and recreations services, public involvement, strengthen fiscal responsibility and pursuing alternative funding, and addressing expected population growth and the 2010 Olympic and Paralympic Winter Games.

1. The Parks sustainability initiatives focus on sustainable parks operations and maintenance practices, green building, policy development, and a healthy urban environment.
2. To support wellness of city residents, Vancouver Parks is developing ways to reduce barriers to participation in parks and recreation services, increasing universal accessibility, promoting and developing programs for wellness, and making arts part all activities.
3. Public involvement strategies include developing a formal involvement strategy, building partnerships to provide services and involve communities, and more collaboration with City departments.
4. Vancouver Parks financial resources seem to be in good shape. The financial goal focuses on maintaining that fiscal responsibility, increasing transparency, developing a comprehensive fundraising program to broaden their financial base, and looking for creative ideas for the future.
5. To address expected population growth the Parks is pursuing a long-term strategy for facility renewal, assessing growing recreational needs, expanding services, and developing a long-term acquisitions strategy. The 2010 Olympic and Paralympic Winter Games are seen as an opportunity for new facilities.

The largest upcoming project is the Southeast False Creek Olympic Village which will be a showcase of green building and provide new housing and open space close to downtown (See SEFC Story).

Partnership for Parks is a three year old initiative to "develop and enhance park stewardship." There are 50 community groups involved in some form or another.

Lively and Diverse by Nature

Lessons Learned

- Keeping waterfront space public vastly improves neighborhoods and is crucial to connectivity.

- Combine parks, community centers and schools to increase the value of each.

- Within an overall vision consider zoning of projects case by case in order to capitalize upon the unique aspects of particular sites for the public benefit.

- Density requires pedestrian connectivity and scale and downtown amenities. Increasing these, in conjunction with seeing congestion as an ally promotes downtown living.

- Regulate new development to pay for the cost of public amenities rather than burdening the existing tax payer.

- An independent parks board increases the significance of parks and improves systemwide coordination, but limits ability to integrate with other city initiatives.

- Connectivity is well-established in Vancouver but opportunities to establish urban ecology could be better exploited.

The Cambie Bridge becomes a shelter for play space. (photo: Nathan Brightbill)

Stanley Park: Vancouver's First Park

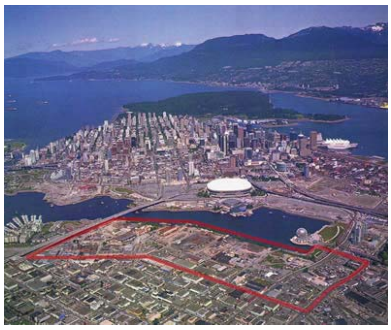
"To the use and enjoyment of people of all colours, creeds and customs for all time." - Lord Stanley, Governor General of Canada, in 1889, at the dedication of Stanley Park

"First resolution of the first City Council in 1886 was to petition the Federal Government for the use as park, a 1,000 acre (404 hectares) peninsula which we now know as Stanley Park. Shortly after this fortuitous request, Council designed an appointed Park Committee to manage its new charge by building trails and gardens. The park had already been logged from the 1860-1880s with only the largest trees left (they were too big to cut down even then). By 1890, the Park Board had become an elected body and remains the only Canadian board of its kind."

Photo: http://www.city.vancouver.bc.ca/parks/parks/stanley/history.htm

Displacement of native tribes, however, was a result of creating the park. Today nearly 8 million people visit the park annually. It is the third largest city park in North America. Unlike Central Park, it did not arise through one designer's vision but evolved through the visions of many in the early stages of the city.


The Changing City: False Creek North, 2005



The development area and plan for Southeast False Creek. http://www.city.vancouver.bc.ca/commsvcs/southeast/index.htm.

Southeast False Creek and Olympic Village

Southeast False Creek (SEFC) has been a project long in coming. City Council determined in 1991 that the portion of land hilighted at upper left, south of downtown and near the former Expo '86 lands, "be developed as a residential community that incorporates principles of energy efficient design in its area plan and explore the possibility of using SEFC as a model sustainable community."

In 2010 Vancouver will play host to the Olympic Games. Southeast False Creek lands will be used to develop the Olympic Village, which will be the first phase of this latest mega-neighborhood project. This project will be a departure from some of Vancouver's other recent developments in that the city owns over half of the land allowing more control, and ecology will play a much larger role.

Like Coal Harbour and North False Creek, open space and greenways will be a significant piece of the development, helping extend Vancouver's greenway network, but the city is beginning to see parks as a multi-serving part of the infrastructure. The hinge park seen in the plan at lower left, will play a significant role in stormwater management, for example. Other plans include ambitious energy efficiency and urban agriculture proposals. The development is billed as a sustainable neighborhood, and will likely be one of the most ambitious green building projects ever undertaken.

Resources

Davis, C. 1997. The Greater Vancouver Book: An Urban Encyclopedia. Vancouver: Linkman Press. http://www.discovervancouver.com/GVB/index.asp

Vancouver's New Neighborhoods: Achievements in Planning and Urban Design, City of Vancouver 12/03

Punter, J. 2003. The Vancouver Achievement. Vancouver: UBC Press.

Vancouver Board of Parks and Recreation: http://www.city.vancouver.bc.ca/parks/

City of Vancouver: http://vancouver.ca/

Greater Vancouver Regional District: www.gvrd.bc.ca

City Greenways: http://www.city.vancouver.bc.ca/engsvcs/streets/greenways/city/index.htm

Community Services: http://www.city.vancouver.bc.ca/commsvcs/

City Plan: http://vancouver.ca/commsvcs/planning/cityplan/Visions/index.htm

The Changing City: http://www.city.vancouver.bc.ca/commsvcs/fade/fade.htm

2010 Olympics: http://www.vancouver2010.com/En/default.htm

Lively and Diverse by Nature

Emery Barnes Park in Yaletown, Downtown Vancouver. (photo: Nathan Brightbill)

Southeast False Creek: http://www.city.vancouver.bc.ca/commsvcs/southeast/index.htm

A Sustainable City: http://vancouver.ca/sustainability/

Green Streets Program: http://vancouver.ca/engsvcs/streets/greenstreets/index.htm

Still Creek Enhancement: http://vancouver.ca/commsvcs/cityplans/stillcreek/

Science World: www.scienceworld.bc.ca/newsite/info

Vancouver maps page: http://www.city.vancouver.bc.ca/maps.htm

Discover Vancouver: http://www.city.vancouver.bc.ca/commsvcs/southeast/index.htm

Pictures: http://www.seevancouverbc.com/

New York City, U.S.

New York's 28,000 acres of green spaces both support and provide an escape from one of the world's most dynamic urban centers.

With almost 27% of its acreage set aside as parks, open spaces or greenways, New York City qualifies as the greenest big city in the country (Harnik, 2000). The complex system of city, state, national and private lands is woven together to form an interconnected and interdependent web that supports a population of 7.5 million permanent residents and even more visitors. The success of the system is dependent on a combination of public and private funding sources and the dedicated efforts of community volunteers and local open spaces stewards. Riding on the motto "It's My Park", the Partnerships for Parks Program, a joint program of the City Parks Foundation and the New York City Department of Parks and Recreation, speaks to the city's awareness of the important role that individuals and their connections to small green spaces play in weaving a functional green infrastructure in dense, diverse, dynamic urban environments.

In addition to supporting a large and demanding human population, New York City's landscape lies at a critical confluence of multiple larger environmental systems. The 500+ miles of waterfront that border New York's terrestrial landscape connect the city and its processes to one of the country's largest estuarine systems, as well as those marine and terrestrial landscapes lying both upstream and downstream of the city. The Waterfront Park Coalition has tackled the important role of New York's waterfront with the creation of the Waterfront Blueprint Plan. This comprehensive approach to re-envisioning New York's waterfront addresses the ecological, cultural and economic importance of reclaiming New York's industrial waterfronts to form a functional, healthy bridge between New York's vibrant public open spaces and the larger landscape within which the city resides.

Building an Open Space System:

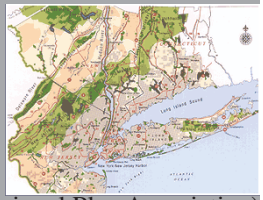
The People

(Partnerships for Parks)

The Partnerships

(Central Park Conservancy)

The Foundations



(Regional Plan Association)

Context

New York city's park and open space system must address not only the needs of its 7.5 million permanent residents and millions of visitors but also the diverse natural systems that converge at the mouth of the Hudson River. With 500+ miles of waterfront, the landscapes of New York City's five boroughs must play an active role in maintaining the health of the New York-New Jersey estuarine system while also contributing to the livability of one of the planet's densest urban centers.

NYC Open Space
(Harnik, 2000)

City Population: 7,381,000

City Area: 197,696

Density Level: 37.3

Park Acreage: 52,938 (26.6% city area)

Park acreage per 1000 residents: 7.17

Governing bodies:
City of New York
New York State
National Park Service

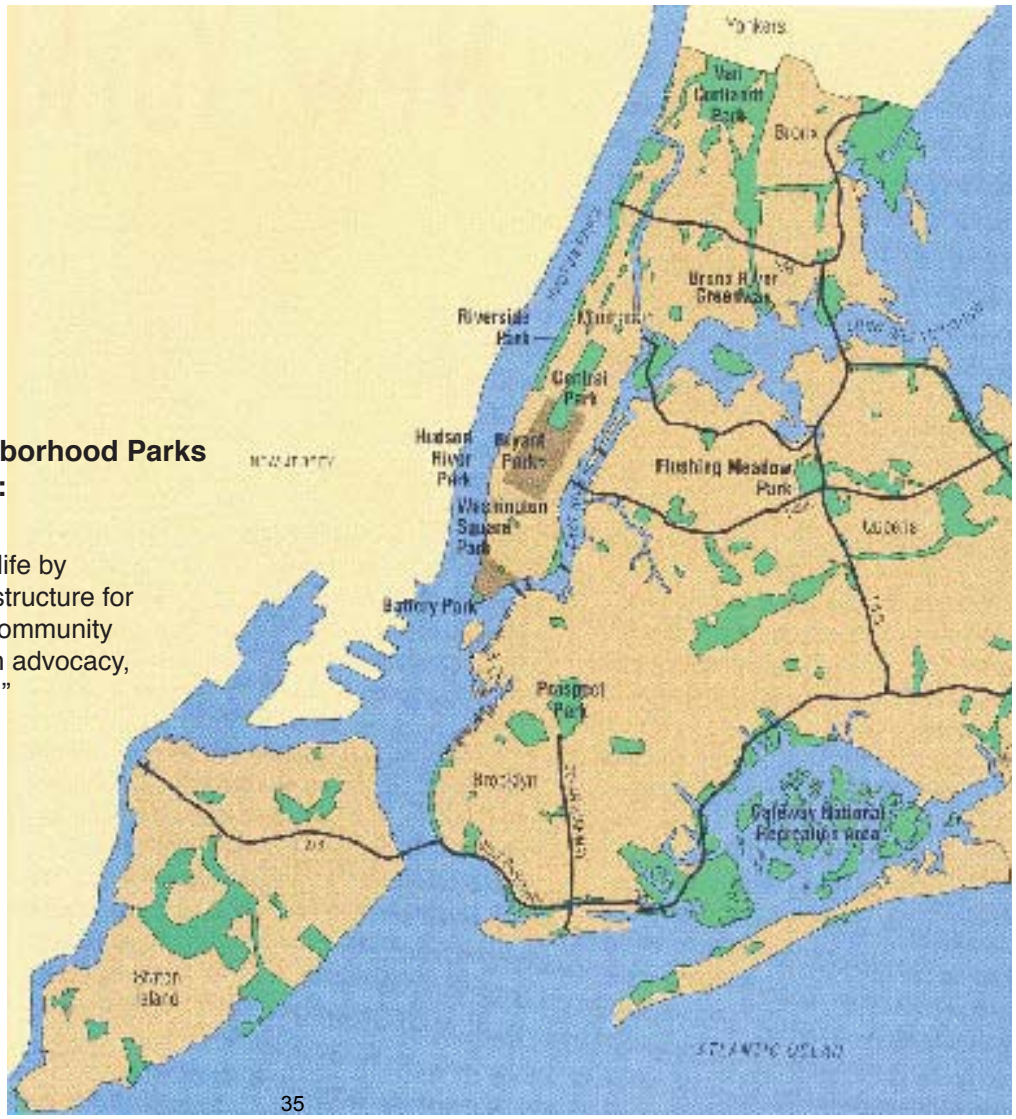
Expenditure per person: $41

Commited to Greenways:

"New York City is committed to making cycling part of the City's transportation system and encourages individuals and communities to participate in the implementation of this Plan."
(NYC Department of Planning
www.nyc.gov/html/dcp/html/bike/mp.shtml)

Built on a Foundation of Neighborhood Parks and Active Community groups:

Active community members are "dedicated to improving New York life by expanding and enhancing its infrastructure for public health: parks, waterfronts, community gardens and open spaces, through advocacy, research, education, and planning."



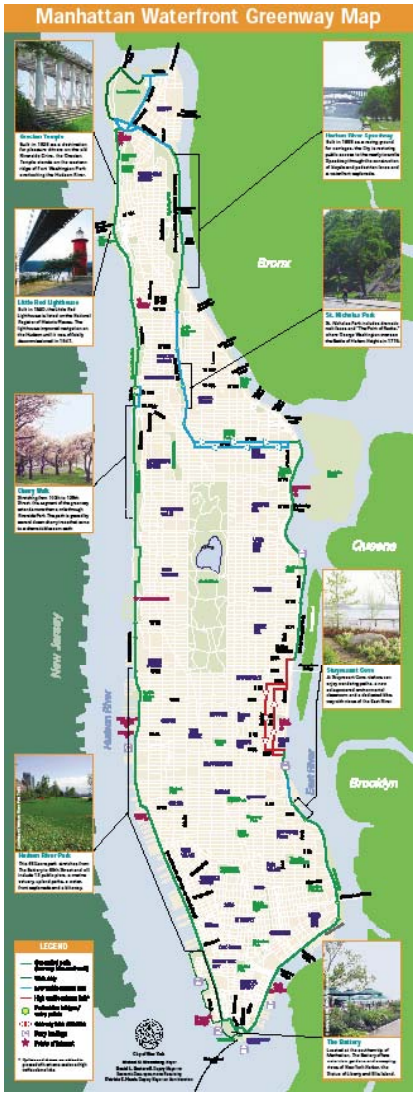
Major Components of the New York City Open Space System

Connective corridors

The New York City Open Space system is held together by a network of green corridors. Building on the first Parkway **Greenway Plan (1993) and Bicycle Master Plan (1997)** Bicycle Network Development: Partnership between Departments of Planning, Transportation and Parks to develop 350 miles of bicycle and pedestrian paths.

These Greenways will connect to the larger East Coast Greenway.

Manhattan Waterfront Greenway
Bronx River Greenway
Brooklyn Waterfront Greenway
Hudson River Greenway



Anchors

Central Park- Located in the heart of Manhattan, Central Park's 840 acres are visited by over 20 million visitors per year. The park is managed and maintained by the Central Park Conservancy with an annual endowment of $65 million.

Prospect Park- Located in Brooklyn, this 585-acre Olmsted-designed park contains a zoo, the nation's first Audubon Center and is maintained through a public-private partnership**.**

Jamaica Bay Wildlife Refuge

Located on the southern edge of Long Island in Brooklyn and Queens, this unit of the Gateway National Recreation Area is home to unique marine resources as well as historic airfields and one of the nation's first parkways, "Plumb Beach".

Neighborhood Parks

With over 1000 neighborhood parks and community gardens, the health of New York's park and open space system is dependent on small green spaces to provide the necessary breathing room for its 7.5 million residents. The maintenance of these sites would not be possible without active community stewardship groups.

Funding Mechanisms:
Maintaining and Enhancing New Yorks Open Space System Requires a Combination of Public and Private Dollars

At $41 per person, the City of New York has a very low per capita expenditure on its green infrastructure. In addition to the public funds from the Parks and the Transportation Departments, New York's green system depends on support from the National Park Service, New York State Parks as well as significant support from its private citizens and non-profit organizations.

City Parks Foundation was formed in 1989 by the Parks Commission to facilitate the contribution of private dollars to support recreation, education, and arts in parks.

Central Park Conservancy is a non-profit organization that uses a combination of public money (from NYC Parks), private donations and grants to manage and maintain Central Park. Begun in 1980, by 1999 it had a staff of 250, 1,200 volunteers and $65 million endowment. Similarly, the **Bryant Park Restoration Alliance**, **Prospect Park Alliance and the Bronx River Alliance** use private dollars to support the maintenance, improvement and programming of two of New York's most popular parks.

The **Adopt-A-Park** program is an avenue through which individuals and organizations can contribute directly to the park of their choice

New York City has 581 miles of waterfront!

Developing a Citywide Waterfront Open Space Plan

New York City is tackling the challenge of living with almost 600 miles of waterfront by developing an open space plan that addresses the ecological, economic and cultural advantages amd requirements of a dynamic living waterfront.

Waterfront Park Coalition *(from New York League of Conservation Voters website)*

"The Waterfront Park Coalition is an alliance of environmental, civic and community groups that support revitalization of the New York City waterfront with public open space and restored ecological habitat. These groups have come together as a coalition to promote: (1) public access to the city's waterfront and waterways in each of the five boroughs; (2) adequate and equitable financing for waterfront public space and access; and (3) protection and improvement of waterfront habitat.

Creating a Waterfront Blueprint for New York City

"WPC has published a comprehensive inventory of opportunities for waterfront open space and habitat protection in each borough. This inventory outlines nearly 150 opportunities for open space and habitat conservation on the City waterfront, and is backed up by a database of factual information about each project. It includes plans for greenways, public piers, open meadows, boat launches, waterfront promenades, and green open spaces, and would offer waterfront access and open space to city residents. The Blueprint provides a practical guide for the future of the City waterfront, with the information required to guide decision-making and investment."

(images: Waterfront Park Coalition)

Lessons Learned

Community Involvement is Key-
Personal ownership of parks in New York City depends on its community members to maintain and enhance its expansive system of neighborhood parks.

Partnerships for Parks is a joint program between the New York City Parks Department and City Parks Foundation that assists and builds connections between over 250 "Friends of" groups throughout the five borroughs.

The **Neighborhood Open Space Coalition** is a community-led, city-wide organization committed to improving the livability of New York City. Through advocacy, education, research and planning, the Coalition works to preserve, enhance and increase the city's "infrastructure for public health", its parks, open spaces, greenways and community gardens (www.treebranch.com).

(image: Partnerships for Parks)

Public-Private Partnerships Expand Opportunities for Park Support
Private resources contribute significantly to the support, maintenance and programming of New York's open spaces.

City Parks Foundation
Partnerships for Parks
Bryant Park Restoration Corporation
Adopt-the-River Program
Greenbelt Conservancy
Central Park Conservancy
Prospect Park Alliance
Bronx River Alliance . . .

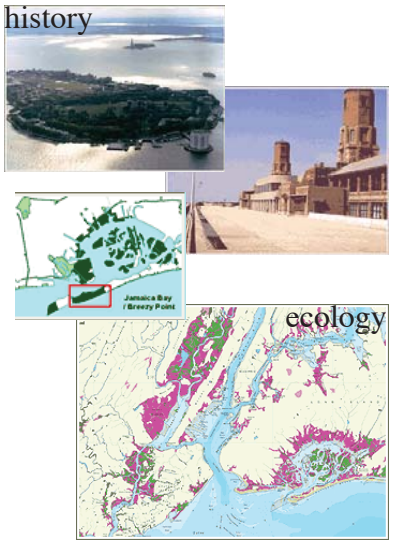
The Metropolitan Greensward: Planning within a Larger Open Space System

Regional Plan Association
from RPA web:
"The Metropolitan Greensward is RPA's vision of a system of protected landscape and water bodies that distinguish the cities and suburbs of the New York/New Jersey/Connecticut metropolitan region. These region shaping open spaces harbor the Region's most critical natural resource systems, its recreational opportunities and its working landscapes of farms and forests. Together, these protected open lands will help shape future patterns of growth in the Tri-State Region by limiting development at its periphery and enhancing the quality of life in its cities and suburbs.

To realize the Greensward vision, Regional Plan Association is now working with a variety of public and private partners to conserve three critical region-shaping landscapes: New York - New Jersey Harbor, Long Island Sound, and the Appalachian Highlands in New Jersey, New York, and Connecticut. "

Brooklyn Waterfront Greenway

Governor's Island - historic preservation and public access
Riis Park (Queens) – historic preservation and waterfront access
New York-New Jersey Harbor Estuary – wildlands preservation
Brooklyn Waterfront Greenway- reclaiming industrial landscapes for diverse uses & needs



(images: Regional Plan Association)

Issues and Initiatives

New York City programs its parks, open spaces and greenways to accomodate the needs of diverse user groups.

Balancing User Groups with Flexible Access Hours:

Vehicles:

no vehicular access:
- Forest Park Drive, Queens (isolated segments)
- Rockaway Beach, Queens

vehicular access during rush hour only:
- Prospect Park, Brooklyn
- Central Park, Manhattan

vehicular access on weekends only:
- Silver Lake, Staten Island

Bicycles:

bicycle access limited to rush hour and recreational hours:
- Coney Island Boardwalk, Brooklyn

Dogs:

In many city parks, dog owners are given priority and allowed to walk their dogs off-leash during hours when green spaces traditionally see a reduced volume of visitors - early in the morning and late in the evening.

Resources

Inside City Parks. Peter Harnik (2000). The Urban Land Institute and Trust for Public Land, Washington, D.C.

Central Park Conservancy
http://www.centralparknyc.org/

City Parks Alliance
http://www.cityparksalliance.org/

Neighborhood Open Space Coalition
www.treebranch.com

Parternerships for Parks
http://itsmypark.org/

Project for Public Spaces – Urban Parks
http://www.pps.org/upo/?referrer=pps_navba

Prospect Park Alliance
http://www.prospectpark.org/

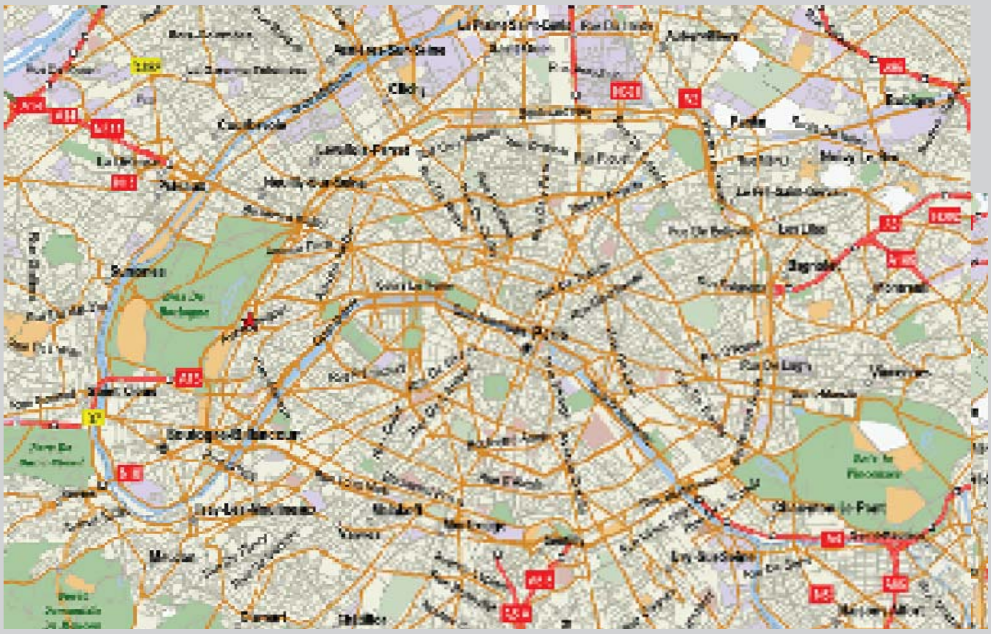
Regional Plan Association
http://www.rpa.org/aboutrpa/welcome.html

Waterfront Park Coalition
http://www.nylcv.org/Programs/WPC/Waterfront_Park_Coalition.htm

Paris, France

Tauschia Copeland

The City of Light



City of Paris
Green space showing the major parks

(Mapquest)

Paris has one of the richest histories of any city that is still considered an important hub for international commerce. The city has not always been the tourist attraction that it is today. It was in the 1850s when the city began its transformation into the city that it is today. One of the main reasons why the city went through this transformation was because the windy medieval streets made the city a dirty, dark and unsanitary place. The park system within Paris today is not necessarily a system, but rather, a rehabilitation effort to make Paris a more enjoyable, breathable city. Though the parks, gardens and forests within the city limits today were meant to air out the city, the French traditions of elaborate gardens and landscaping still hold true with every green space within the city limits. There are three distinct types of official green space in Paris, though many small neighborhood parks are not counted among the city's official parks. They are parks, gardens and forests. The two forests on the NW and SE corners of the city have many activities within them such as: the floral park of Paris, the French national sports institute, a horse ranch, and even a XVI century castle. Parks in Paris are parks when they have a more natural look to the organization of the wildlife, and gardens contain more controled French garden patterns and landscaping. Paths through all of these places, even what is considered forest, are either paved and narrow, or wide and permeable. Since many of these parks are connecting offices to residents to commercial areas, paths are needed or the parks will not be used to get from one place to another. The other open space in Paris is made up of boulevards, plazas, courtyards, ect. Every public building has some type of open space in front of it creating meeting places and space for people to reside, as well as space for events such as concerts or markets. It is the grand boulevards that connect all of the landmarks in Paris that make the city such an easily navigated one. These boulevards do not have the purpose of connecting green space, but usually there are parks on either side and/or they eventually lead to some sort of open space whether it be the gardens in front of the Louvre, or the plazas in front of the governmental buildings.

Parc Montsouri

Known for its causeways and nautral scenary.

City Statistics

City Population:
2 125 800

City Area:
177 km2

Density Level:
12,000 / km2

Park Acreage:
37 official Parks

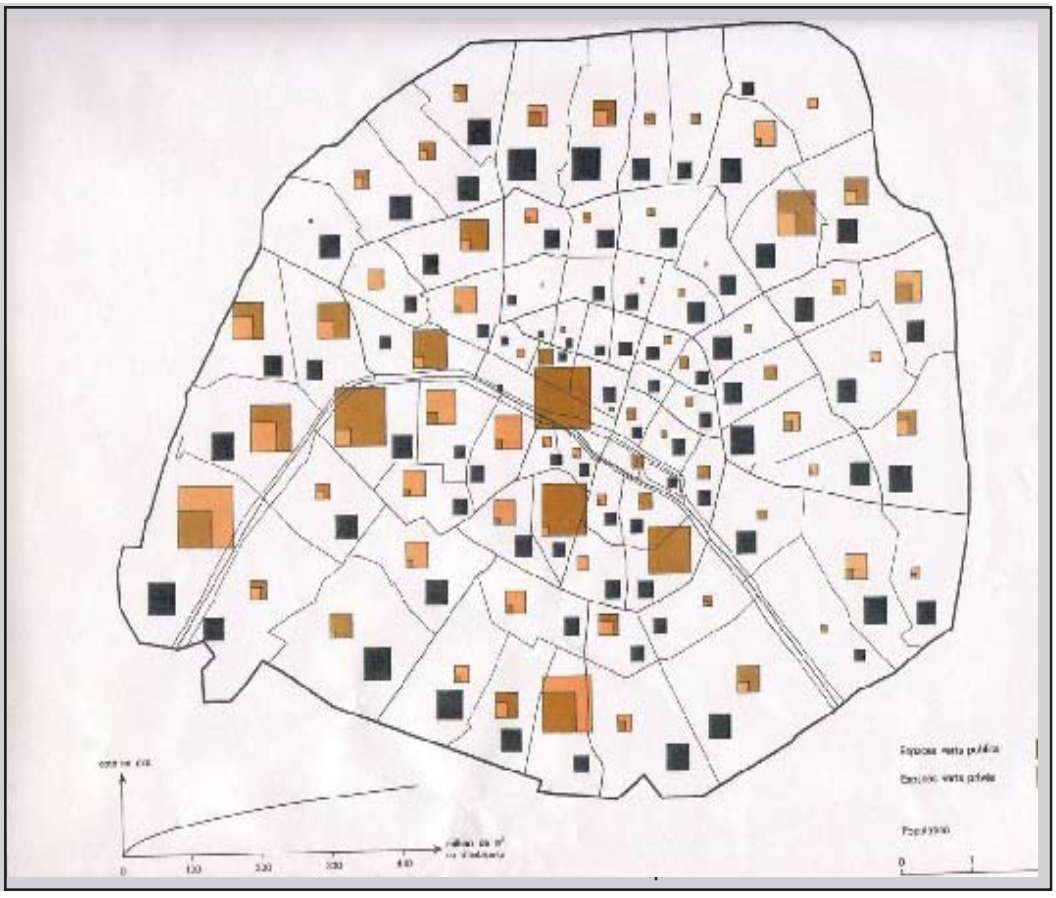
Governing bodies:
European Union
President of the Republic
Mayor of Paris

(pictureguide)

Context

During the French Renaissance, Paris was considered one of the most dark, overgrown and unsanitary cities of Europe. The weather is poor, and the narrow, windy streets made it rather difficult to navigate. Then in 1858, Haussmann began to transform Paris into the city that we know today: grand tree lined boulevards, plazas and parks always within walking distance, and their infamous roundabouts to name a few of the things that one thinks of when Paris comes to mind.

Below on this page, there is a diagram showing the open space recorded in 1962. As the diagram shows, these spaces are not connected to each other by any sort of main cauway. The open space in the form of plazas and landmarks are what Haussmann chose to connect visually and physically. Parks were a part of his plan to navitage a pedestrians to major landmarks, for eample, the park between La Place de la Concorde and Champs Elysee.



Open Space Map of Paris
drawn in 1967
Atlas Published by the Mayors Office in Paris
Brown - public space
Orange - private space
Black - population dispersal

(Beaujeu-Garnier, Jacqueline. Atlas de Paris et de la région parisienne: Paris, 1967.)

Major Components

a. Connective corridors

Haussmann Blvds (tree lines, sidewalks)
pockets parks present as a part of walking path through the city
paths with permeable surfaces through city parks which connect neighborhoods

b. Anchors

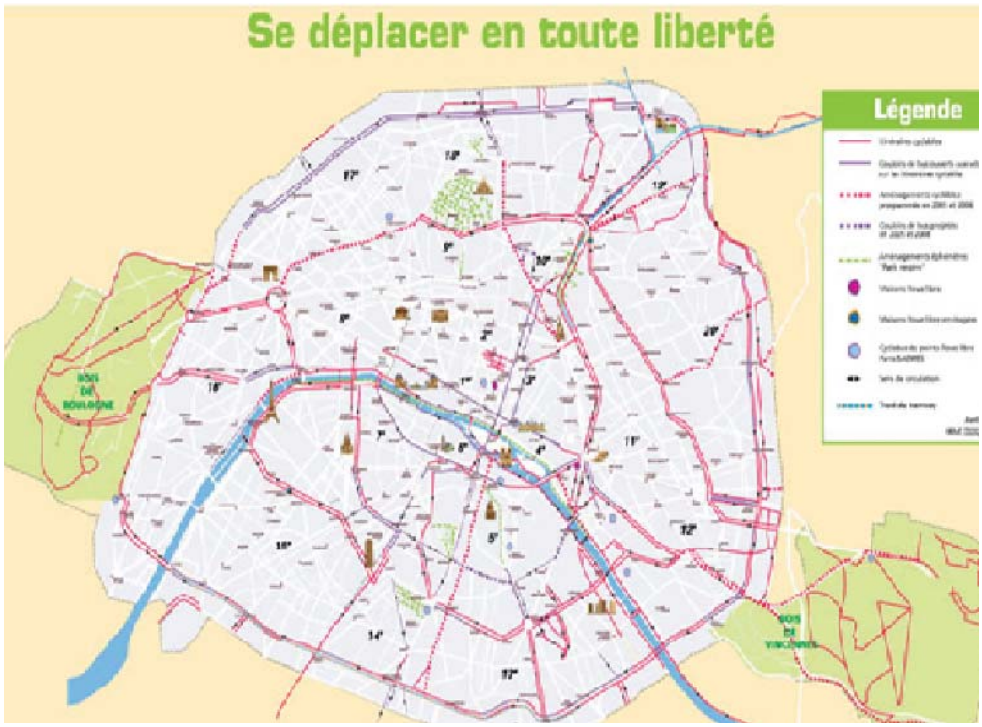
2 main forests on NW and SE corners of the city
interior gardens with purposeful space meant for both tourists and residents
are instalations and historical refernces involved in every park.

c. Civic

Plazas and coutyards exists in front of the majority of the civic buildings open for public use.

Example of Haussman Boulevards

www.greatbuildings.com



The red lines on this map indicate the painted bike routes in Paris.

(paris.fr)

Though the city has not converted their roads to be more fitting for bike riders, it is still pedestrian, mass transit and auto friendly.

Funding and Planning Mechanisms

France is one of the more socialist countries in Europe and therefore, citizens are taxed for everything. After a certain amount of earnings, you can have up to 50% of your income taken for taxes. Funding parks and open space in France has come to the French with a bit more ease than Seattle and other American cities because parks and gardens are an important part of the French culture, not created as an aesthetically pleasing and healthy alternative to traditional city structures. Having said that, the agency that is in charge of insuring the protection of green and open spaces within Paris (L'Agence régionale des espaces verts d'Île-de-France created in 1975), is funded primarily from market based programs and donations.

The document in the column is the French equivalent to the US Growth Management Act which asked Washington cities to put together in the early 1990s. The logo underneath the booklet cover is the French green party who is publicly fighting this document's implementation for they feel as though the environment does not carry as much importance in their growth management as it should.

Initiatives

There is also an effort to get residents involved in caring for the open green spaces. The advertisement on the left is a way that the agency in charge of forest caretaking has tried to get youth involved the keeping their forests preserved.

Many Parisians, in fact surprisingly most that are French, take a month long vacation over the summer to leave their concrete surroundings and head for the coast. There are two things that have come out of this migration. Historically, it has simply greatly decreased traffic on the roads and passengers in the metro, but recently, Paris decided to take one of these lightly used roads and turn it into a beach for those Parisians that are still left to dwell in the city between July 15 and August 15th. The city took a road which runs along the Seine (during the auto-crazed years of Europe, most waterways were lined with roads on either side), brought in ton after ton of sand, a couple palm trees, and created a great open space in the middle of one of the most dense cities in the world for residents and tourists alike to enjoy

www.aev-iledefrance.fr

Lessons Learned

1) **Monumental Blvd connecting monumental structures**

2) **Not connecting people to green space but rather creating an enjoyable walk to the work place, the market, and for tourists.**

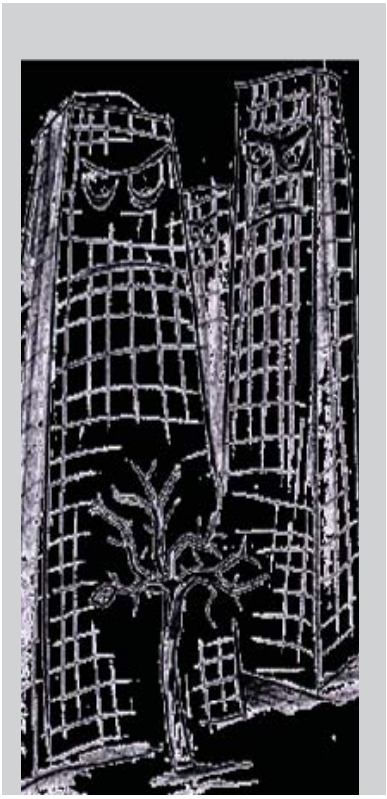
3) **The space in the parks has an evident purpose and accessibilities for those who wish to use that space for that purpose (concerts, flying kites or model airplanes)**

4) **The lower height restrictions make the park experience more natural for the buildings of the city are not seen while one resides in the interior of the park, even the small scale pocket parks.**

Paris Plage

www.parishotel.com

Resources:



* Beaujeu-Garnier, Jacqueline. Atlas de Paris et de la région parisienne: Paris, 1967.
* www.ph-ludwigsburg.de/html/2b-frnz-s-01/overmann/baf4/etudiants/parisen.ppt: Denis Stochnoil, Oct. 2004
* http://fr.wikipedia.org/wiki/Paris
* http://fr.wikipedia.org/wiki/Agence_r%C3%A9gionale_des_espaces_*verts_d%27%C3%8Ele-de-France
* http://www.lesverts.fr/
* http://www.aev-iledefrance.fr/
* http://users.stargate.net/~iacas/arc.html
* http://www.greatbuildings.com/buildings/Paris_Opera.html
* http://www.megacities.uni-koeln.de/_frame.htm?http://www.megacities.uni-koeln.de/documentation/paris/photos.htm
* http://www.flybirdy.com/Maps.aspx?Name=Paris&View=Map&Page=
* http://www.v1.paris.fr/fr/environnement/jardins/arbres/diversification.asp
* http://www.parisrama.com/thematiques/thematiquepplage2003.htm
* http://www.mapquest.com/maps/map.adp?address=19%20Blvd.%20Suchet&city=Paris&zipcode=75016&country=FR&style=3&cid=lfmaplink
*http://www.matr.net/article-11180.html

Pittsburgh, PA USA

Jocelyn Freilinger

Imagining the Post-Industrial City

The J&L Steel Mill on the shore of the Monongahela River, with the University of Pittsburgh's Cathedral of Learning in the distance.

photo: W. Eugene Smith
c. 1955

Emerging from the collapse of the steel industry has been neither quick nor easy for Pittsburgh. Over the last two decades, the loss of the city's primary economic engine has given way to new industries and to the rediscovery of the region's scenic and ecological heritage, in its extensive forests and three major rivers.

Another legacy of the steel industry lay in the many riverfront brownfields near or in the city. With prime real estate becoming available for remediation and redevelopment, the city has seized the opportunity to develop a comprehensive waterfront development vision.

Currently, Pittsburgh's park system is anchored by four major city parks which date back to the beginning of the 20th century. Schenley, Frick, Highland and Riverview Parks were acquired through a combination of the city's philanthropic tradition and crosstown rivalries. In addition, Point State Park, completed in 1974, holds National Landmark status and has quickly become an icon for the city.

"...If any one would enjoy a spectacle as striking as Niagara, he may do so by simply walking in Pittsburg, and looking into hell with the lid taken off."

—James Parton, writer, in *Atlantic Monthly*, January 1868

Three Rivers Park: A New Vision for Pittsburgh's Waterfront

City Statistics

City Population: 369,879

City Area: 35,584 acres

Density Level: 9.8

Park Acreage: 2,735

Park acreage per 1000 residents: 7.39

Governing bodies: Public Works Department, Parks and Recreation Department, and various public-private partnerships

Expenditure per person: $26.

In 2001, the Riverlife Task Force, a public-private partnership of community leaders, published "A Vision Plan for Pittsburgh's Waterfronts." This plan was the product of more than 18 months of public meetings and forums, and proposed "to create in the heart of Pittsburgh a great urban river park that will open the rivers up to the community, bring people back to the water, bring life back to the city and transform the region's image. The focus of the plan is simple: to provide continuous public access to the rivers and along the edges, connecting and expanding on the parks that now punctuate the shoreline in a continuous flow of trails, bridges, green space, and waterfront amenities. The park is envisioned as a series of interconnected places and destinations that altogether will comprise a single, grand public space called "Three Rivers Park."

The Riverlife Task Force continues to actively promote this vision as a long-term goal.

www.riverlifetaskforce.org

Major Components of Pittsburgh's Open Space System

a. Connective corridors
- Three Rivers: Allegheny, Monongahela, Ohio
- Bridges and tunnels
- Trail System (development ongoing), including Allegheny Riverfront Park

b. Anchors
- Four major city parks: Schenley, Frick, Highland, Riverview
- Point State Park

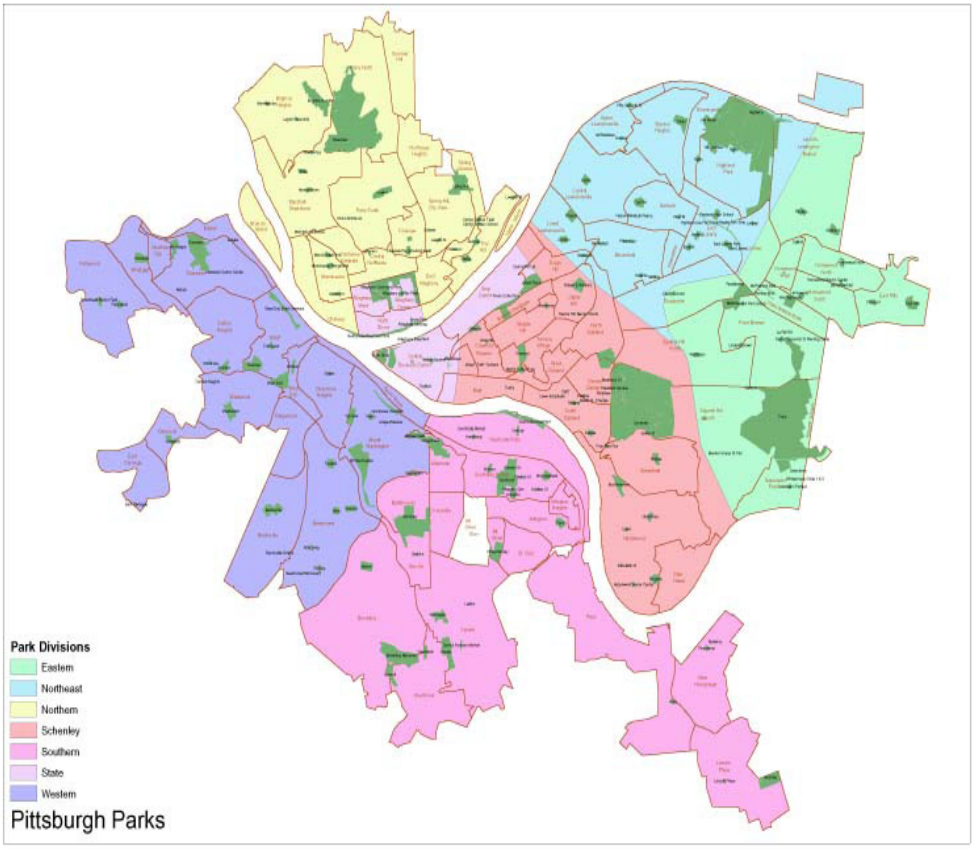
c. Neighborhood Parks (152)

d. Brownfield Remediation
- New uses include parks, greenways, commercial and mixed-use

e. Regional Greenways
- City agencies and special interest groups foster building connections with larger trail systems and greenways

f . Other
- Mount Washington -- steep grade precludes intensive development
- Open spaces owned and managed by corporations, universities, and other institutions
- Sports complex parking -- doubles as social gathering space on game days and occasional special event space

On May 13, 2005, Pittsburgh Mayor Tom Murphy was named an Honorary Member of ASLA for his work in transforming the physical environment of the city.



Pittsburgh's Parks.

http://www.city.pittsburgh.pa.us/pw/assets/maps/park-maintenance-map.pdf

Funding Mechanism and/or Planning

- Maintenance and Repair for city parks is funded by a variety of sources. In 1998, the Department of Parks and Recreation had the following budget (Harnik):

General Funds	$5,195,000
Fees	$1,213,000
Private Grants and Donations	$ 580,000
State and Federal Support	$1,737,000
Capital Income	$1,139,000
TOTAL	$9,864,000

-The park system also relies heavily on volunteers (2,800: Harnik) and “friends of” groups such as the Pittsburgh Parks Conservancy for maintenance and programs.

- Public-Private partnerships, such as the Riverlife Task Force and the Pittsburgh Parks Conservancy, are funded by a combination of private grants (listed below), and the support of city and state agencies. In some cases, specific projects may also qualify for Federal monies.

Funders - Riverlife Task Force

Alcoa Foundation
Beckwith Machinery/Beckwith Family Foundation
Continental Pursuits LLC
Dollar Bank
Eden Hall Foundation
Forest City Enterprises
Garden Club of Allegheny County
Grable Foundation
Laurel Foundation
McKenna Foundation
Mellon Financial Corporation Foundation
Oxford Development
Pennsylvania Department of Conservation & Natural Resources
Pennsylvania Department of Transportation
Pittsburgh Steelers
PNC Advisors Charitable Trust Committee
PNC Foundation
Richard King Mellon Foundation
Rob Roy Industries
The Heinz Endowments
The Hillman Foundation
The Pittsburgh Foundation
UPMC Health Systems
Woodmere Foundation

Pittsburgh
Open Space System

Lessons Learned

In the last three decades, Pittsburgh has transformed itself from one of the most polluted cities in the country and is on its way to becoming one of the greenest. From an economy reliant on heavy industry, to unemployment twice the national average in the 1980s, Pittsburgh is now viewed as a city with great potential for new economic development. Now a leader in green building, its momentum in the remediation and redevelopment of urban brownfields is also growing.

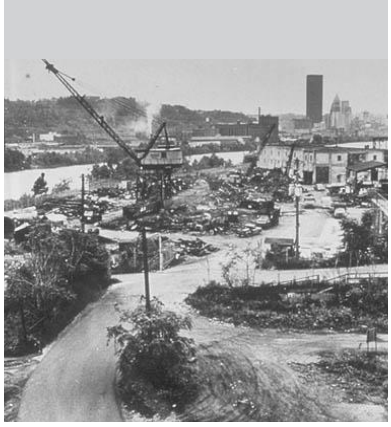
www.pittsburghgreenstory.org

Story in a Box - Nine Mile Run

Nine Mile Run is a 6 square mile watershed which runs underground in three suburbs of Pittsburgh's east side before resurfacing in Frick Park and eventually flowing into the Monongahela River. It has been heavily impacted by both industrial and municipal waste. The catalyst for restoring the watershed began at the STUDIO for Creative Inquiry at Carnegie Mellon University, and the idea of restoring this post-industrial open space inevitable caught on with civic leaders. Now underway with the help of the city of Pittsburgh and the Army Corps of Engineers, the restoration efforts are progressing in close partnership with community stakeholders and artists.

Stream restoration techniques include stream channel reconfiguration, installation of pool and riffle sequences, and stream bank stabilization. Invasive plant species are being removed and replaced with natives. Constructed wetlands will enhance the watershed's ability to handle stormwater runoff, as well as native species habitat.

These restoration efforts are strongly coupled with programs to engage citizens in caring for the watershed, including a rainbarrel program and an Urban Ecostewards program in which citizens can assist in monitoring the ongoing restoration efforts of Nine Mile Run.



The Urban Redevelopment Authority of Pittsburgh

By securing funds from a variety of public and private sources, the Urban Redevelopment Authority of Pittsburgh has developed a successful track record in remediating former industrial sites and developing them for new uses. Showcase projects include:

Washington's Landing on Herr's Island (shown at left)
mixed-use, residential and recreational
The Pittsburgh Technology Center
office, research and meeting space
South Side Works
mixed use - retail, office, entertainment, housing
Summerset at Frick Park
new housing

Resources

A Vision Plan for Pittsburgh's Riverfronts. Riverlife Task Force, October 2001.

"ASLA Names Eight New Honorary Members." http://www.asla.org/press/2005/release0516.htm

Dettore, Jerome N. "Brownfield Development in Pittsburgh: Recycling and Reuse of the Steel Industry's Abandonded Mills." Oct. 16, 2005. www.pittsburghgreenstory.org/html/brownfields.html

Harnik, Peter. Inside City Parks. Washington, D.C. Urban Land Institute, 2000. pp. 87-93.

"Nine Mile Run, Allegheny County, Pennsylvania" http://www.lrp.usace.army.mil/pm/9mile.htm

"Nine Mile Run Greenway Project Conversations in the Rust Belt: Brownfields into Greenways" http://slaggarden.cfa.cmu.edu

"Nine Mile Run Watershed Association" http://www.ninemilerun.org/main.html

"Pittsburgh Mayor's Office" http://www.city.pittsburgh.pa.us/mayor/

"Pittsburgh to Harrisburg Greenway" http://www.alleghenyridge.org

Point State Park Comprehensive Master Plan, December 2, 2003.

"Riverlife Task Force" http://www.riverlifetaskforce.org

Stephenson, Sam, ed. Dream Street: W. Eugene Smith's Pittsburgh Project. New York: W.W. Norton & Company, 2001. p. 9.

Urban Redevelopment Authority of Pittsburgh. "Showcase Projects" http://www.ura.org/showcaseProjects_washLanding.html

Chicago Ilinois, USA

Noelle Higgins & Betsy Severtsen

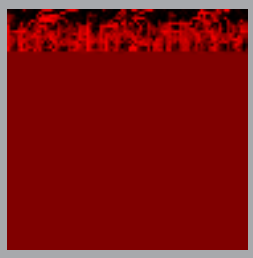
City in a Garden

- City motto

Millenium Park, opened in 2004 URSCorp. http://www.urscorp.com/URS_Division/projectsDetail.

Ogden Park Chicago, http://www.chicagoparkdistrict.com/index.cfm/fuseaction/custom.

Chicago is a magnificent city famed for its thriving arts, friendly people, celebrated architecture and tasty deep-dish pizza. World-renowned open space may soon top this list of famous components of the city. While many American cities have completed open space plans, Chicago is exceptional because the proposed open space components have been largely implemented. In spite of several cycles of open space deterioration in the past, the city's green space has once again been turned around through innovative and effective strategies organized under the strong, focused agenda of "nature in the city."



"Loving Chicago is like loving a woman with a broken nose"
-Nelson Algren

City Statistics

City Population: 2.8 million

City Area:145, 408 acres

Density Level:19.3 people/ acre

Park Acreage: 7000acres

Park acreage per 1000 residents:

Governing bodies:Chicago Parks District & Mayor Richard M. Daley

Expenditure per person:$108

Source: Harnik , 1997

Context

Chicago has a rich history in terms of open space. In 1893 the Columbian Exposition was held in the city. Frederick Law Olsted and Daniel Burnham were the key players in the design of the "white city," which contributed greatly to the City Beautiful Movement. The first comprehensive open space plan was published in 1909 by Burnham. The first suggested greenbelt for the city was proposed by Jens Jensen during his tenure as chief landscape architect for the city in 1905. In the 1960s community groups within the city began reclaiming vacant lands for use as community gardens. In 1993 Mayor Richard M. Daley targeted the Chicago Parks District for a complete overhaul. Through initiatives and reforms of existing entities, the mayor strived to fully address the many different dimensions of greenspace that are needed to have a holistically green city.

Above Image Sources: http://www.chicagohs.org/AOTM/oct98/burnham.html, http://www.marymount.k12.ny.us/marynet/StudentResources/LSintranet/centralpark/htm/history.htm, http://www.nationaltrust.org/magazine/archives/arch_story/051603.htm, http://www.citymayors.com/usa/chicago.html

Park Map System, Chicago. Source:Harrnik, 1997

Diagram of Chicago Park System

552 Parks on 7000 acres

"The White City"
source http://www.roosevelt.edu/chicagohistory

Major Components

a. Anchors

- Grant Park, Gold Coast and Shoreline Parks
- Recreational areas (31 beaches, 5000 marina slips, trails within Washington Park, Lincoln Park Zoo (with bike path), Navy Pier.

b. Civic, downtown and social spaces

- Grant Park, Soildiers Field

c. Connective corridors-

-Lakefront Parks, Boulevard between Washington & Jackson Park, Chicago River trail.

d. Neighborhood Park

-West of Lakefront, smaller and much less connected

Park map system, Chicago.Modified from Harnik, 1997

Funding Mechanism for Chicago Park District

Chicago has the largest open space operating budget in the nation, in 1997 it was nearly $307 million.

The Chicago Park District is a fully freestanding entity, chartered by the state with authority to levy its own taxes.

While the mayor appoints the Park District's board, it out of all other government agencies is least subject to political variances and fiscal uncertainty than any other U.S. park agency.

70% of the Park District's operating budget came from business and residential property tax, the remaining 30% comes from fees and contributions.

*Above image source:*http://www.louisville.com/loumag/apr98/bet.shtml
Bottom Image source: http://www.chicagoparkdistrict.com/index.cfm/fuseaction/root.home/intHomeLink/1/home.cfm

Issues and/or Initiatives

The mayor is striving towards "nature in the city" as a policy for the future. This agenda has many different initiatives working towards this goal.

Zoning changes include the modification of exisiting zoning designations and the creation of new zoning types including: parks and open space districts, pedestrian streets, mixed use and a new category that will encourage residential density near mass transit stops.

The Chicago Standard is a new set of green design, construction and renovation standards for all public buildings. The goal of this initiative is to provide healthier indoor environments, reduce operating costs and conserve resources for all municipal buildings. One of the major green building techniques being utilized is green roofs.

The city established the Brownfields Initiative to purchase, remediate and redevelop under-utilized industrial sites .

The Campus Park Program addresses the shortage of parkland in Chicago neighborhoods by targeting public school grounds for parkland improvement.

The Chicago River Agenda has revitalized the city's "Second Shoreline."

Source: http://www.cityofchicago.org/Environment/

Navy Pier, Chicago.
Source: http://www.navypier.com/

Lessons Learned

Currently, the city is in a restorative phase in terms of parks and open space. But in the past it has had cycles of deterioration and restoration.

There is a strong commitment now to sound environmental design and stewardship of public space. This seems to have proven the mayor's theory that civic pride is helped by stewardship.

Improving the quality of life of people in the city has attracted new residents and employers (like Boeing).

Many other cities have published green space plans, Chicago's success stems from its action in implementing the plans.

For the open space system's longevity, proper budgeting and implementation of maintenance is an essential step.

"As schools lost their effectiveness as community anchors, the same thing happened to parks, libraries and other public spaces. People stopped using them, and the City stopped taking care of them. Or maybe people stopped using them because the City stopped taking care of them."

- Mayor Daley

Neighbor*Space*

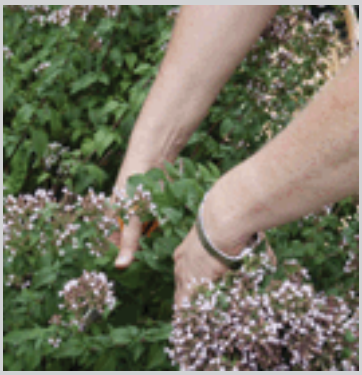
Since the 1960s, community groups across Chicago have used vacant or untended lots as opportunities to create green open spaces in their neighborhoods. These sites become important community assets that provide residents with opportunities to socialize with each other, plant and grow food, or simply be outside.

"In the mid-1990's studies showed that Chicago ranked 18th out of 20 cities of comparable size in the ration of open space acres to population." In 1996 Neignborspace was created as a non-profit organisation, to help preserve small community developed gardens. Neighborspace is a community based non profit that was part of the comprehensive response by city leadership, to the need to support valuable commnity gardens sites in the city and help protect them form development. Its mission is also to help to expand green space in the city.

Source: http://neighbor-space.org/about.htm

NeighborSpace logo
source:http://neighbor-space.org

"It helps to have a crisis" – Forrest Claypool

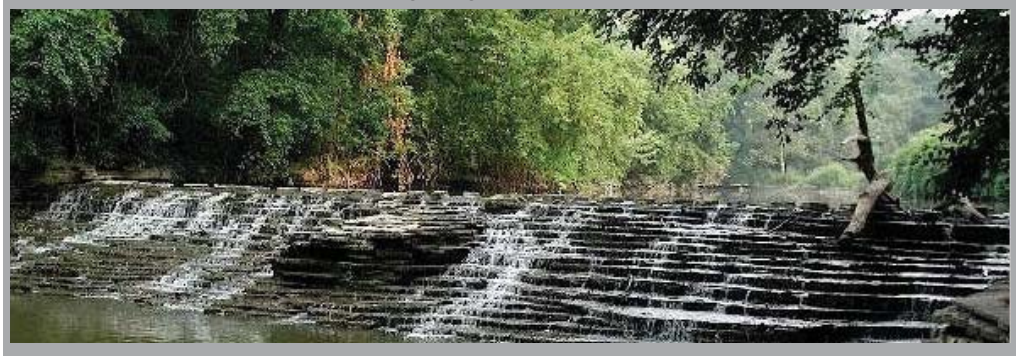


source: http://neighbor-space.org/history.htm

Stewardship in Chicago -Jens Jenson(1860- 1951)

In 1903, Jensen created a map entitled "Proposed System of Forest Parks and Country Pleasure Roads." He incorporated this concept into the Special Park Commission's report, published the following year. The report identified significant natural areas. It also recommended the creation of a belt of natural lands at the perimeter of Chicago. They suggested a new system of boulevards that would link the nature reserves with the city's existing park and boulevard system.

Henry Ford Estate designed byJenson
source:http://www.henryfordestate.org/trailgardens.htm



Resources

Harnik, Peter, Inside City Parks, Urban Land Institute, 1997, Washington,
City of Chicago, Brownfields Forum: Final Report and Action Plan, November 1995
http://www.americanplaces.org/CAPgallery/chiparks/ogden.html
http://egov.cityofchicago.org/city/webportal/jsp/content/
http://www.pbase.com/image/32400027
http://www.intheloop-chicago.com/why_chicago.html
http://neighbor-space.org/history.htm
http://www.chicagoparkdistrict.com/index.cfm/fuseaction/custom.natureOasis07#content
http://www.chicagoparkdistrict.com/index.cfm/fuseaction/parks.detail/object_id/BC7A8166-64DC-4363-AC26-0A2375E14669.cfm
http://www.choosechicago.com/meeting/conventions.html
http://www.jensjensen.org/
http://www.aabga.org/public_html/ac2005/toursGreen.php
http://www.louisville.com/loumag/apr98/bet.shtml
http://www.choosechicago.com/meeting/conventions.html
http://neighbor-space.org/pg_frankie_machine.htm
http://www.chicagoparkdistrict.com/index.cfm/fuseaction/root.home/intHomeLink/1/home.cfm
http://www.tpl.org/tier3_cdl.cfm?content_item_id=1123&folder_id=826
http://www.roosevelt.edu/chicagohistory/mod2-chap2.htm

Copenhagen, Denmark

Paul Cahasan & Arielle Farina Clark

5 Fingers Plan

Source: www.arrakeen.ch/europe/europe1.html

Aerial view of Copenhagen
source: *www.arrakeen.ch/europe/europe1.html*

The goals of Copenhagen's Green Structure Plan are to control urban development to ensure that people are always able to access to open space, parks and undeveloped, natural areas on a regional scale. The plan strives to weave new "green elements" into the existing mosaic of neighborhoods in the city by means of the following key principals.

- **Urbanization will develop in slender fingers**
- **Green wedges of undeveloped land will remain between fingers**
- **Finger development will follow public transport (esp. railways)**
- **Suburbs will develop like pearls on a string**
- **Inhabitants will live in close proximity to green spaces**

The guiding principles of the Green Structure apply both to recreational possibilities as well as the greater environmental context of the city. In developing their strategy, planners took into account cultural-historical and ecological concerns.

"The main principle of the Fingerplan implying that the layer-upon-layer growth should stop and that most of the future city should develop in narrow town fingers along exiting and future railways".

-John Jørgensen
COPENHAGEN: Evolution of the Finger Structure

"Despite the condensed city centre, Copenhagen is not short on green lungs: parks…like the ever-popular Tivoli Gardens, abound in this city, which prides itself on its strict anti-pollution laws." -Travel Guide

Copenhagen Statistics

City Population: 502,362 (2004)

City Area: 221,712 acres

Density Level: 23 people / acre

Park Acreage: 6,143

Park acreage per 1000 residents: 1.2 Acres

Governing bodies:
+ City of Copenhagen
+ Greater Copenhagen Authority

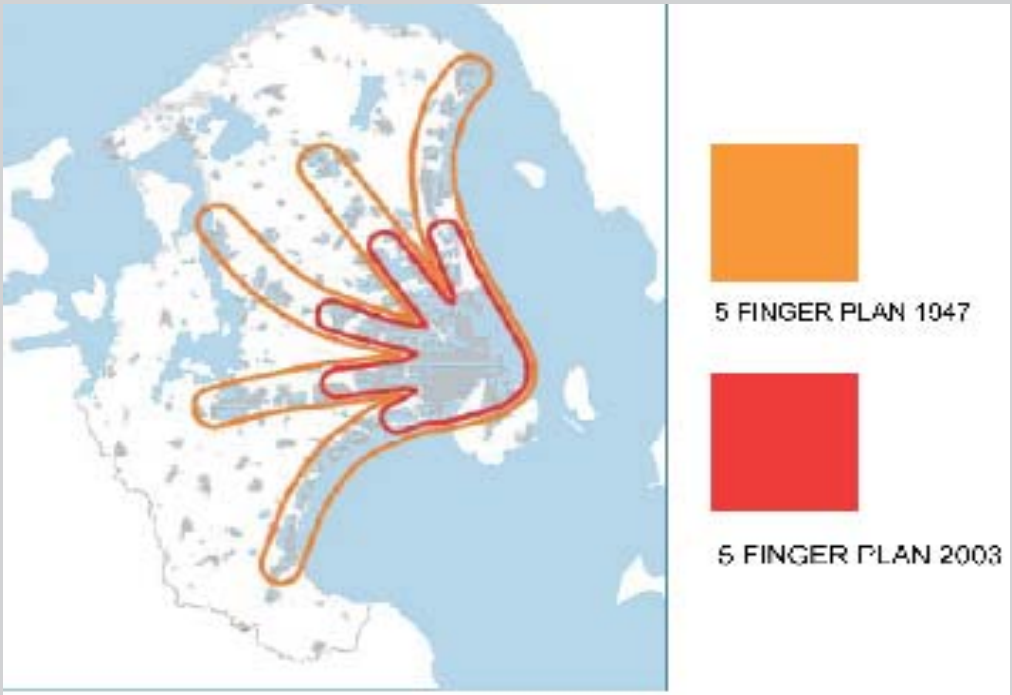
Expenditure per person: $72.27? (USD)

Context

Copenhagen is a true metropolis. The City of Copenhagen is inhabited by half a million people or one tenth of Denmark's total population. 1.8 milion people inhabit the peripheral ring of greater Copenhagen metropolitain area which is a third of Denmark's population. Copenhagen is also houses the Scandinavian headquarters of international businesses, governmental offices, and other offices of national organizations. As the city matured and developed the 5 Finger Plan regional development plan and the Green Structure to guide green space planning, it underwent a number of evolutions.

1: The medieval city
Until mid 19th century the city was surrounded by ramparts and 130,000 inhabitants were living on just 3 Km2 in the fortified city.
2: The Tram City
In the beginning of the 20th century Copenhagen incorporated some of its neighbouring towns and the working and middle class areas that was developing there was subsequently served by an extended network of trams.
3: The pre-WW2 city served by S-trains
In the 1930s the population of the capital passed one million making further layer-by-layer growths impossible.
4: The post-WW2 radial, suburban development
The Fingerplan-city.

-source *Copenhagen: Evolution of the Finger Structure*



source: Greater Copenhagen Authority Transport Plan 2003

Copenhagen's regional framework–the 5 Fingers concept –was originally concieved in the 1940s. The 5 Finger concept continues to shape regional form as this image from the recent regional plan demonstrates. Under the guidance of a regional planning body, urban areas are confined to linear corridors that are linked by transit and extend like fingers from the central core. Green wedges protected from urban developemnt fills in the space between the urban corridors.

5 Fingers Plan

URBAN	GREEN
city center	green wedges
connective radial transit system	bicycle paths, harbor side promenades
reclaiming parking for plazas and open space	well distributed network of urban parks
dense mixed development with transit nodes	undeveloped areas / nature reserves

Planning Timeline

1939 – *First Danish planning act was passed by the national government*

1947 – *The Finger Plan was developed and passed.*

1948-56 – *Was a period characterized by weak planning efforts, municipal infighting, and antagonistic relationships between Copenhagen, the central city and its suburbs.*

1960's – *This is considered the apex of an 'urban crisis' that led to support for increased government experimentation in the field of Planning.*

1961 – *The Thumb & Forefinger–the first of the planned fingers–were planned and developed. The end result was criticized due to its inequitable separation of social classes. Public frustration with the segregation of rich and poor led to the forming of a regional planning authority*

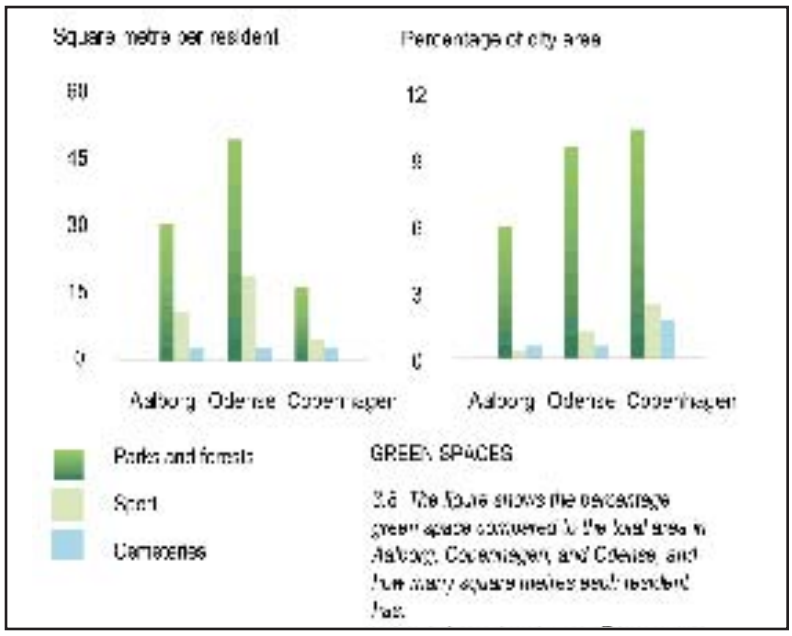
1966 – *Regional Planning Authority Formed*

Early 1970s – *Parliamentary planning law was passed specifying how regions should plan. The law was weak in the Copenhagen region due to a fear on the part of national policy of ceding power to the region which houses 1/3 of Denmark's population.*

1974-1989 – *Greater Copenhagen Council was formed. This was a regional authority, it was criticized for having no teeth and was disbanded in 1988*

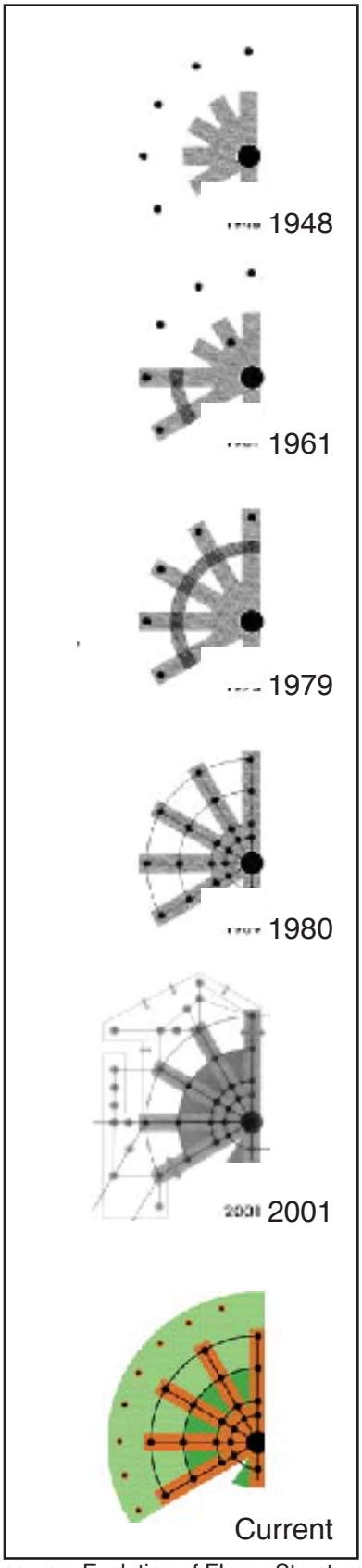
1988-1991 – *During this period, the Ministry of the environment—an entity that operated at the national level—oversaw regional planning functions. Ironically, despite the lack of a regional planning arm the Policy Decisions made at the national level such as a new transportation link to Malmo, Sweden helped secure the city's current high international status as a place of cultural economic bounty.*

Present – The Greater Copenhagen Authority was established. This is a regional planning authority that oversees transportation planning, regional planning, transit operations, economic development, tourism and culture.



source: Ministry fo the Environment

"The public should have easy access to infrastructural facilities such as commuter train lines and motorways, as well as they should be able to enjoy and live close to nature." -Copenhagen Capacity



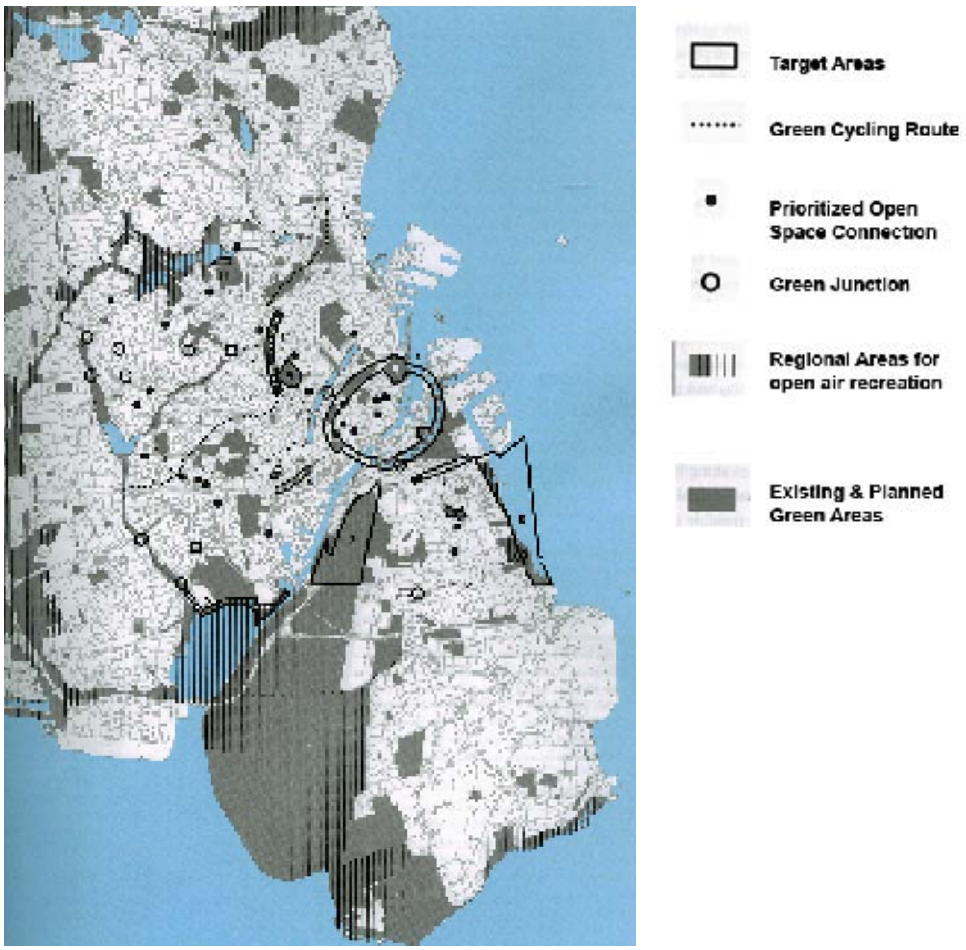
source: Evolution of FInger Structure and Greater Copenhagen Authority

Initiatives

One project that has been extremely successful in Copenhagen and could feasibly be implemented in Seattle is that the city traffic department has undertaken pedestrian and bicycle counts since the 1960's. The actual counts are done by graduate students in the local planning and design school. This has provided the city with reliable time-series data on non-motorized transportation patterns which have proven an invaluable tool for the legendary pedestrian and bicycle infrastructure the city has built since the 1970s. The program was conceived by Dr. Jan Gehl who was recently invited to advise the city of Seattle on its current planning initiatives.

Issues

One issue that should resonate with Seattle is how the greater Copenhagen area has struggled with the role that regional government should play in the planning process. The region has experimented with various forms of regional government since 1966. Since 1/3 of the country's population is centered around Copenhagen, the federal government has been reluctant to cede power to a strong regional body. For example, in 1989 the Greater Copenhagen Council was abolished only to be reinstated in the mid-90s as the Greater Copenhagen Authority. The newer body is responsible for transportation planning, regional planning, transit operations, economic development, tourism and culture, but does not do environmental planning. Critics complain that not unlike our local Puget Sound Regional Council, the organization lacks the 'teeth' it needs to effectively carry out its mandate.



source: City of Copenhagen Municipal Plan

Lessons Learned

Creative Urban Planning Fosters City Pride and Boosts the Economy
An important lesson the Copenhagen experience can teach Seattle is that innovative and bold planning initiatives can have lasting impacts on civic pride. Also, innovative planning in the 1970s has had a snowball effect that positively influenced public and political willingness to experiment and fostered a culture of creativity that has ensured Copenhagen international status as a world class city. The city's positive reputation continues to act as an engine for economic growth and prosperity.

Incremental Removal of Cars from the City Center
Copenhagen's policy of incrementally replacing spaces for cars with spaces for people to walk, bike and recreate has been instrumental in fostering an inviting and vibrant pedestrian landscape in the center city while effectively moving people and goods throughout the region

Political Support For Planning Across Political Scales
The greater Copenhagen area has seen general support at various political scales for its regional planning framework for over half a century. Such support spans the national and regional level as well as across the numerous municipalities that constitute the fingers themselves. It has enabled residents to enjoy a high quality of life characterized by access to the natural environment, a balanced transportation system and a healthy economy.

source: http://primates.ximian.com/~federico/news-2002-10.html

Principles of the 5 Finger Plan

The public should have easy access to infrastructural facilities such as green spaces, bike paths, commuter trains and motorways.

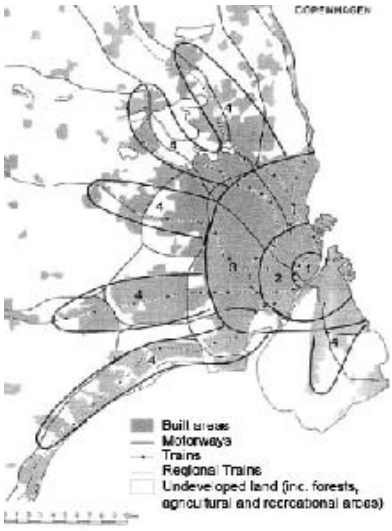
People should have the possibility to enjoy forests and lakes, agricultural landscapes, rivers, streams and fjords and still benefit from the close proximity to the city centre.

The form of the Five Finger Plan makes traffic and transportation of people and goods a much easier task.

The Five Finger Plan has steered growth for almost 60 years

+ The Plan is still the basis of all regional planning - almost 60 years old. expecting
+ growth of inhabitants >10.000 people/year in next 20 years.
+ add 75,000 homes
+ extend or thicken "fingers" – w/ same degree of infrastructural facilities

source: Greater Copenhagen Authority



source: Evolution of the Finger Structure

Resources

Case Study on Copenhages 5 Finger Plan.
http://www.inro.tno.nl/transland/Copenhagen.html

COPENHAGEN
Jørgensen, John. Evolution of the Finger Structure. From the publication EUROPEAN CITIES: From Helsinki to Nicosia Insights on Outskirts. Edited by Geneviève Dubois-Taine. Eleven Case Studies & Synthesis.
http://www.qub.ac.uk/ep/research/costc10/findoc/cs08-cope.pdf

Copenhagen Capacity. Website 2005.
http://www.locations.copcap.com/composite-8109.htm

City of Copenhagen Municiple Plan 2001: Primary Structure and Framework. *Published by the City of Copenhagen Finance and Administration*
http://www3.kk.dk/Service%20til%20dig/By%20og%20Trafik/By/Kommuneplan%20og%20Lokalplaner/Kommuneplan/Engelsk%20version/Municipal%20Plan%202001.aspx

HUR Greater Copenhagen Authority. Transport Plan 2003
http://www.hur.dk/117AFA2E-D434-4ED6-AEA8-31CB803849DB

Ministry of the Environment. Nature and Environment 2001-Selected Indicators.
http://www2.sns.dk/publikat/netpub/indikator2001eng/index.html
http://www2.sns.dk/publikat/netpub/indikator2001eng/pdf/natur_miljoe2001.pdf

Amsterdam, NL

Savannah Hines-Elzinga

'Venice of the North'

"**A**msterdam, the greatest planned city of northern Europe, has always been a well-known name in world history. In the 17th century Amsterdam was the centre of world economy, and nowadays the city is known for its tolerant character. (http://www.amsterdam.info/basics/history/)" What is most remarkable about Amsterdam is that the city is almost entirely man made and yet is still seems to be sensitive to basic human and environmental needs. Unlike American cities, the car and train were not an important factor in the city's original layout and of course did not even exist. Today, cars are present but seem a less favorable form of transportation. Bicyclists and trams have taken over the city and can be seen everywhere.

Amsterdam was originally designed for defense. It is composed of semi-circles that create tiny islands linked by bridges. Amsterdam's city center is very compact. This, coupled with the fact that the city is made of a gently curving and very narrow street system, creates a highly walkable and interesting environment. The bends in the road create a sense of mystery and intrigue and can prove a little confusing until you figure out the names of all the canals. The concept for open space within the region was the idea of the five green fingers. Each finger leads to the heart of the city and allows people to use them as connectors. The finger that leads from Amsterdam is Bos Park.

"In the official list there are about 30 parks in Amsterdam, ranging from Wertheim Park which covers one hectare, to the fabulous Vondel Park which covers 48 hectares. In the number of parks makes Amsterdam a peaceful oasis even on a busiest day…" (http://www.amsterdam.info/parks/). Within Amsterdam the largest of parks act as green anchors scattered around the city. The anchors are linked by the street systems and are really what make this city feel like a network of open spaces rather than random spots for recreation. The streets around the canals are practical for human needs, creating linkages, as well as ecologically functional in creating habitat corridors.

City Statistics

City Population: 736,045

City Area: 219 (km2)

Density Level: 3,361 (p/km2)

Population Urbanized: 66%

Park space per person: 42 sqare feet

Context

"The Netherlands is the most densely populated country in Europe and one of the most densely populated countries in the world. Planning strategies in the late Nineteenth Century sought to address the issue of how to accommodate a growing population with rising aspirations on a limited land area, much of which is below sea level"(Nancy's book). The planner's priority was to maintain the center of the country as the green heart of the Netherlands. In other words, the idea of urban sprawl was already a concern for the planners and densification was the only option. Luckily, quality of life was also a concern for planners and a city park system was in the works.

Top Left: Amsterdam after 1663

Above: Amsterdam end of the 19th century

Left: Current map showing Amsterdam's parks

‘Venice of the North’

Major Components

Connective corridors:

Transportation systems in Amsterdam were very well thought out in their conception. Trains connect Amsterdam to the Dutch countryside and to all of Europe. Trams within the city provide a cheap and fast intercity transportation. But the main form of everyday movement through the compact city is the bicycle. The bike is a quiet and environmentally good solution to the tiny street systems and a perfect way to enjoy the urban landscape. As mentioned above, it is the streets in conjunction with the parks of Amsterdam that act as the connective corridors within the city.

Anchors: large parks, patches, & preserves:

“Amsterdam has a wide variety of parks within the city limits. The parks offer respite from the hustle and bustle of the city and range from small green areas planted with trees and flowers, to large parks with amusements, picnic areas, sports facilities, water features, hiking trails and paths for cyclists”(http://images.google.com/imgres?imgurl=http://www.world-guides.com).

‘In 1866 the city engineer designed a plan that called for parks at either end of the town, formally laid out suburbs to the south, and two other parks projected to the southwest (one became Vondel Park). A later plan in 1875 had two smaller parks within concentric rings of dense development (Ooster Park came from these plans)’ (Nancy’s book).

Vondel Park is “the largest city park in Amsterdam, and the most famous park in the Netherlands. Vondel Park welcomes about 8 million visitors every year, and is a very popular destination for locals for jogging, dog-walking, or just enjoying the view. Free concerts are given at the open-air theatre or in the summer at the park’s bandstand. In 1864 a group of prominent Amsterdammers formed a committee to found a public park. They raised money to buy 8 hectares of land and the architect L.D. Zocher was commissioned to design the park as an English landscape. They used vistas, ponds and pathways to create an illusion of a natural area. The park was open to public in 1865 as a horseback riding and strolling park named Nieuwe Park. The name Vondelpark was adopted in 1867 when a statue of Dutch poet Joost van den Vondel was situated into the park. The committee soon raised money to enlarge the park and by 1877 it reached its current space of 45 hectares. At that time its location was on the edge of Amsterdam, since then it has become central in the city, close to Leidseplein and Museumplein. (http://www.amsterdam.info/parks/)”

Top: Summer day in Vondel Park
Below: Fall in Vondel Park

Above: Map of Amsterdamse Bos

Amsterdamse Bos is a 2310 acre park and "the largest urban park created during the twentieth century anywhere in the world….It was conceived as a 'green wedge' of recreational open space for the people of Amsterdam, directly linked to the 'green heart' of Randstad" (Nancy's book). Like most great urban parks it is not located in the city center. Instead its entrance is about 6 kilometers from Amsterdam Central Station. The park was designed by a team of people that functioned much like a current day firm that included such professionals as professors, botanists, biologist, engineers, architects, sociologists and town planners. "This woodland park is the largest recreational area in Amsterdam. Lying about 4 meters below sea level and laid out in 1930s in a project to reduce unemployment. Today, the marshy areas around Nieuwe Meer are nature reserves. A stretch of water called the Bosbaan flows through the park, and is the venue for rowing competitions in the season. At the west end of water is the Bos Museum which exhibits on natural and social history of the park, there are also temporary exhibitions. The Amsterdamse Bos is a home to about 150 variants of foreign and native trees and colorful collection of birds. Entertainment includes shallow swimming pools, a pancake house and a goat farm. (http://www.amsterdam.info/parks/)" Amsterdam has four beaches which provide joy to both residents and tourists. The beaches are great for lounging, enjoying the sunshine and culinary delights. Many other parks dot the city with green providing a variety of different functions and appeal to different kinds of people. This diversity creates a rich and complex park system.

Civic, downtown and social spaces:

The Leidseplein is an area of town that is made up of various cafes and restaurants all with large amounts of outdoor seating. This is a perfect place to watch live street entertainers such as jugglers and acrobats but even more entertaining is the people watching. Although it may seem an attraction that is possible on only warm days it is often crowded with local on the coldest of winter days. Dam Square is also an important social space. It provides a large area of space for various functions in the heart of the city. In the same week you can observe a political rally, and a live music concert.

Neighborhood parks:

Just as important as large parks are neighborhood parks. After World War II an amazing number of neighborhood playgrounds (around 860 by Aldo Van Eyck) were designed and built in the city of Amsterdam. Parks were fit in wherever space was available. This created small areas perfect for local residences. Although the spaces individually were small the effect they had on the city as a whole was enormous.


Above: Typical cafe seatting

Above: Neighborhood parks in 1954

Above: Neighborhood parks in 1961

‘Venice of the North’

Other open spaces:

The Museumplein is an important open space within Amsterdam that consists of a concentration of museums in a park-like setting. Similar to the Mall in Washington D.C., monumental buildings are all situated around a symmetrical central lawn. This space is great because it combines the worlds of art and nature; two subjects that go hand in hand.

“The Hortus Botanicus (Botanical Gardens) was established in Amsterdam originally as an herb garden for doctors and pharmacists over three hundred years ago. The East India Company’s ships brought back exotic seeds and plants from other countries that they traded with. The gardens nowadays boast plants from almost every country, climate and environment, with climate-controlled glasshouses. There is also a medicinal herb garden that attracts students from all over the world and visitors can view one of the world’s oldest potted plants” (http://images.google.com/imgres?imgurl=http://www.world-guides.com).

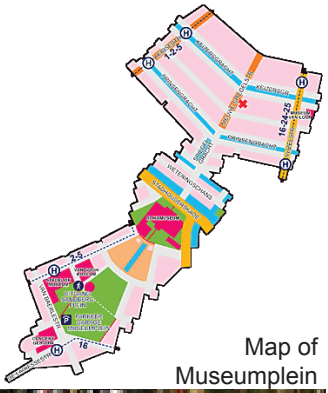
The Amsterdam Zoo: Park Artis -The lush greenery is complemented by ponds, statues and winding pathways and the park is also home to the Artis Zoo which dates from 1838 and is one of the city’s top attractions, housing over 6,000 animals. (http://images.google.com/imgres?imgurl=http://www.world-guides.com)

Lessons Learned

Amsterdam is a very old city that has realized the importance of preservation of its culture and rich history. At the same time they have embraced the new and exciting innovations in technology, such as implantation of rapid transit. The major lesson to take away from Amsterdam is to remember as density increases here in America we still need to leave room for vital open spaces in places that make sense and are accessible in order to continue being a pleasant place to live.

Above: Photograph of Dam Square

Above: People at the Museumplein



Map of Museumplein

Resources

http://www.amsterdam.info/basics/history/

http://www.amsterdam.info/parks/

http://images.google.com/imgres?imgurl=http://www.world-guides.com

Koekebakker, Olof. *Westergasfabriek Culture Park*. NAi Publishers, Rotterdam, NL. 2003

Read, Stephen. *Future City*. Spoon Press, London. 2005

Van Eyck, Aldo. *The Playgrounds and the City*. NAi Publishers, Rotterdam, NL. 2002

Van Den Berg, Leo. *Growth Clusters in European Metropolitan Cities*. Ashgate, Burlington, USA. 2001

Stockholm,Sweden

Alyse Nelson

City of Water

Along Norr Malarstrand
Source: Landscape Australia

Stockholm is crafting policies and using planning to create a more sustainable society. The planning system in Sweden is termed “community planning”, which is a system that focuses on enhancing or altering the production and consumption of society that is normally left up to the market to determine. Planning is about formulating strategies to improve the quality of life for Swedes and the quality of the natural environment. Planning and environmental policies focus on this “dual” purpose of urban development patterns and green space preservation—crafting guidelines and policies to ensure that humans are close to nature and that natural areas maintain their ecological functions.

Some overall concepts that guide greater Stockholm planning include:

- Nature conservation is an important piece of sustainability, and should benefit both humans and the environment,
- Adapt the urban structure to the geographical constraints—urban development occurred in natural depressions of the land, with a radial metro system running through each neighborhood and suburban town,
- This radial development pattern leaves green “wedges” in between the urban areas—which form a system of parks and open spaces that make a region-wide system linked by paths and green arterials
- The nodes of urban development along the public transportation system need to be dense, mixed-use, and walkable,
- Planning for nature requires knowledge of the availability of green areas, and their recreational, natural, and cultural value,
- Open space planning requires cooperation between involved municipalities, regional entities, and the national government.

“The parks in Stockholm are not merely a collection of extraordinary green fingers tying the outlying country-side to the very centre of town; they are part of the Swedish concept of life—a concept that demands contact with the freedom of nature in order to offset the indoor restrictions of man. The Stockholm parks...have no peers either in Europe or in the United States.”

G. E. Kidder Smith

Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf

"One of the greatest threats against nature and parks in our cities today is that all too often, planning is shortsighted. . . The green structure of cities is being fragmented. We risk building into nonexistence the important links in a green structure which are needed to build a city based upon ecological principles."
- Sweden's National Board of Housing, Building, and Planning

City Statistics

City Population:
762,882 (2004)

City Area:
73 square miles (187 km^2)

Density Level:
16.3 people / acre

Park Acreage: 21,000 acres (40% total land area)

Park acreage per 1000 residents: 27 acres

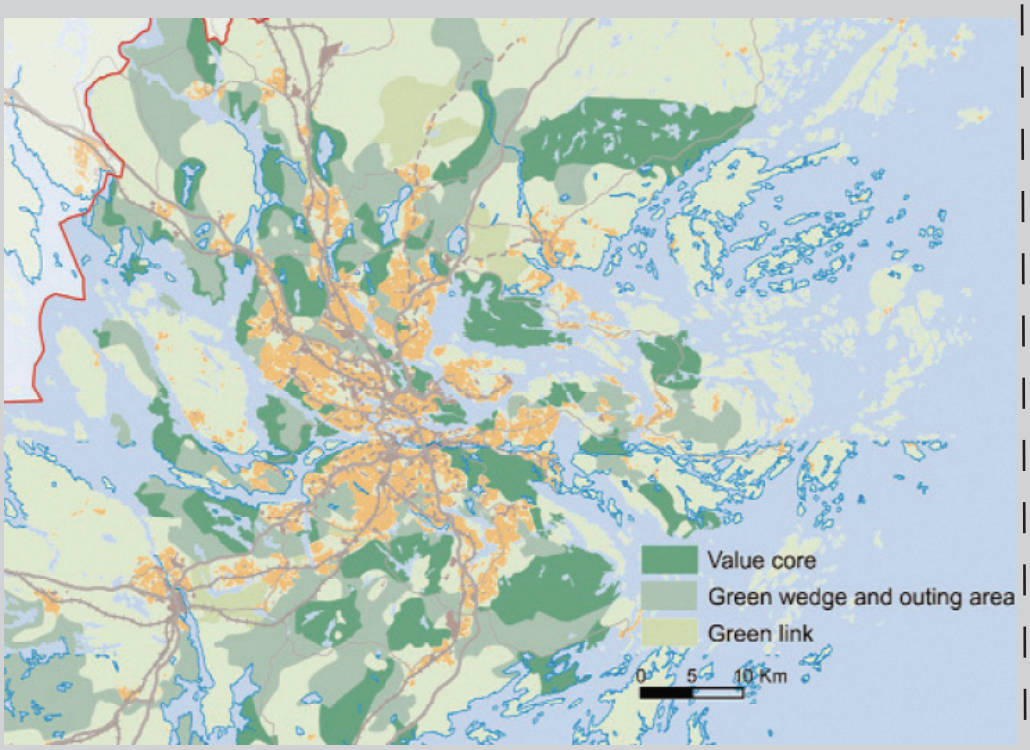
Governing bodies:
- **City of Stockholm**
- **Stockholm County Council**

Context

Planning has a long history in the Swedish society; the first planning laws were drawn up in the 19th century. In Sweden, planning is largely done by local governments, although the county and state can also be involved. Sweden's planning system has three main elements:

- Democratic and decentralized decision-making,
- Competing interests are balanced,
- Ecological and social needs and values are taken into account.

Timeline of Planning History:
1930s - Stockholm begins planning for a radial development pattern with green "wedges" in between
1945 - 20 year master plan for Stockholm crafted
1947 - Initial planning Act passed, concept of detailed development plans for key areas created
1952 - Metro network begins to be developed, new neighborhoods follow this network
1960s - Social Democrats in power, their planning model in full effect (a focus on the right to decent housing for all)
1987 - Urban Planning and Building Act revised, now cities are required to create a comprehensive plan (non-binding)
1995 - Sweden joins the European Union
1998 - Detailed development plans for dense areas are given legal force
1999 - CityPlan 99 sets forth the "Build the City Inwards" plan for infill development
2001 - Stockholm County Council approves its first spatial regional development plan for the greater Stockholm region.



Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf

In the 1930s, The City of Stockholm began to develop a plan for their urban growth. They determined that growth should follow a public transportation system, forming long "fingers" of built areas with undeveloped "green wedges" left in between. This radial development pattern was continued throughout the region, providing easily accessible and ecologically-beneficial open spaces. This green network includes 10 long corridors, none less than 500 square feet in width.

Major Components

Stockholm's land area is nearly 1/3 urban, 1/3 water, and 1/3 green space. Stockholm spreads over 14 islands, with 57 bridges connecting the city. There is a sound that runs through central Stockholm, which holds the largest number of fish species in the region.

a. Connective corridors

Stockholm features regional green wedges that connect from central city parks to the suburbs of Stockholm County wherever possible. These create both human enjoyment, and aid in maintaining the natural bio-diversity of the area.

b. Anchors

There are 12 large parks in Stockholm, each over 200 acres. These account for 1/3 of Stockholm's total open space.

Ekoparken—This Park is the World's first urban national park, established in 1995. The park's total acreage is 6,670. Ekoparken is a typical Swedish park, in that it has both ecological value, as a home for rare insects and birds, and cultural value for Stockholmers.

c. Neighborhood parks

Neighborhood parks and community gardens account for nearly another third of Stockholm's park system.

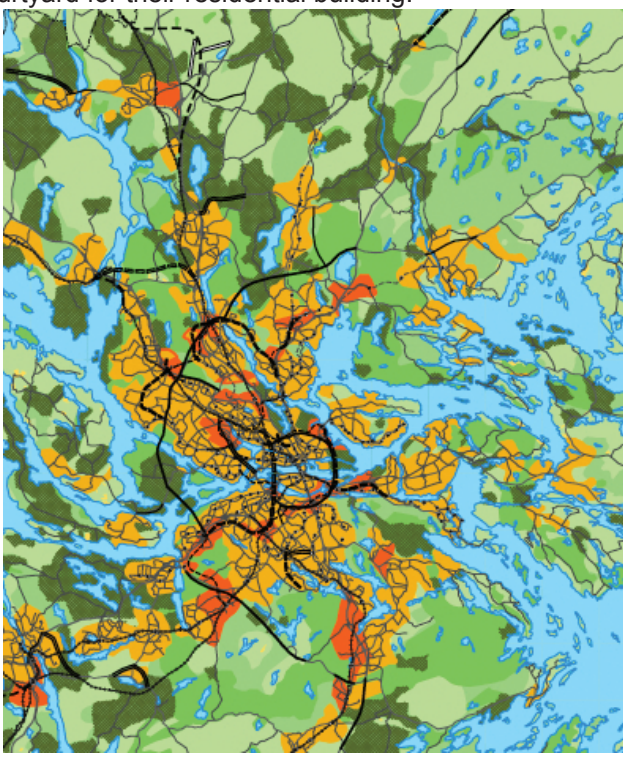
d. Natural areas and Shoreline

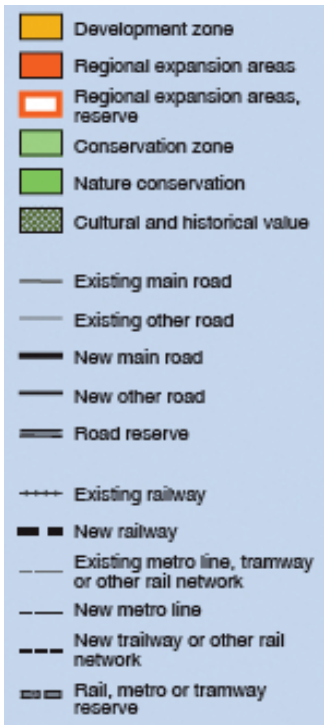
Wooded areas, and former farms that are publicly owned account for 1/5 of Stockholm's open space. Eighty-percent of Stockholm's shoreline is publicly accessible, often featuring walking and bike trails.

e. Residential courtyards

Green and Living courtyards program—The City of Stockholm will provide assistance for residents or property owners who wish to create a greener, sustainable courtyard for their residential building.

Sources: http://www.miljobarometern.stockholm.se/Key.asp?mp=EP&mo=4&dm=3&nt=5&uo=24 (above); Claes Grundsten/Bildhuset Swedish EPA (below)

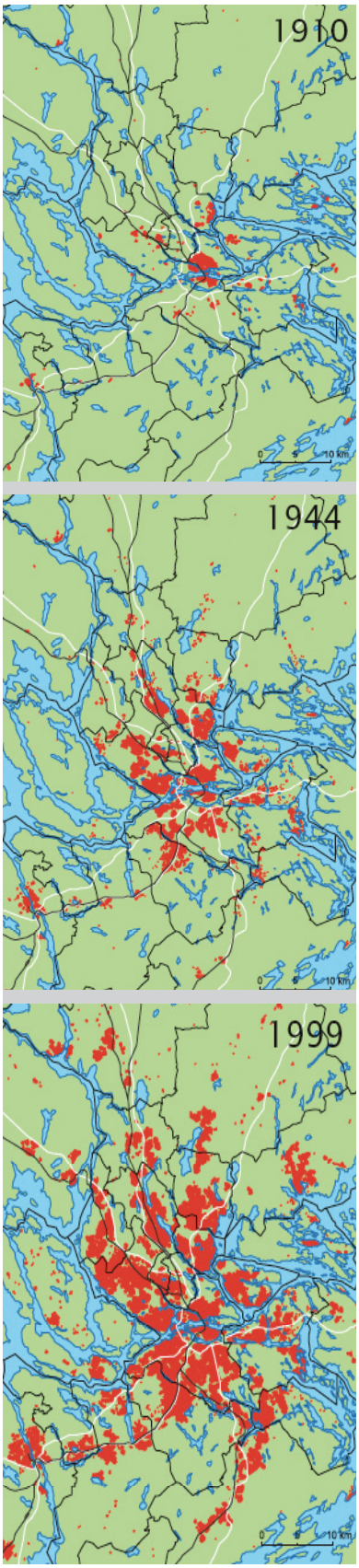




This map shows existing and future growth areas, as well as conservation sites. It also shows the existing and future transportation network. Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf

"No matter where you live in Stockholm, you're no more than a half-mile from a park of at least 12 acres, designed with safe and convenient access."

- Cheryl Kollin



Planning

In Sweden, planning begins from a framework that respects the need to preserve the natural environment, both for ecological and human health. There are several documents that are significant to parks planning, including Stockholm's City Plan and the Stockholm Regional Plan. While every city in Sweden is required to submit a comprehensive city plan, Stockholm is the only county with an official regional planning agency. The goals of these documents are to preserve the most valuable green areas within and outside of the city. One key priority in Stockholm is to focus on connecting these green spaces, both for human recreation and to promote biodiversity. Also, water is protected, and special attention is given to the entire watershed when planning for urban development. The green structure is to be supplemented by parks and open spaces within urban environments. In order to ensure that green areas are not destroyed in the name of urban growth, the City of Stockholm supports infill development in both their inner city and outer suburban communities.

The Regional Plan has two key goals, 1) to develop regional nodes, and 2) to preserve the regional green structure. A Park Programme is being developed so that as infill increases urban and suburban densities, the amount of open space is maintained within and outside of the built areas. A sociotope map, which maps the socio-cultural valued open spaces provides a qualitative understanding of park users' needs. There are also more definite prescriptions for the open space needs of the city:

- Within 200 m: green oasis, play, peacefulness, sit in the sun, walking
- Within 500 m: flowers, lively place, picnic, soccer
- Within 1 km: nature reserve > 50 ha
- Within 500 m: city district park 5-50 ha
- Within 200 m: park block 1-5 ha
- Provide open spaces < 1 ha wherever possible

The Regional Plan recognizes that parks should be large enough to fulfill the needs of urban and suburban residents and be well connected in order to meet the dual purpose of environmental protection and human enjoyment.

Initiatives

The Green Map is another project that Stockholm is pursuing, in parallel with the City Plan 99. The Green Map's purpose is to better define the green structure element of the City Plan. This map will make it easier to coordinate and plan for green space preservation and urban development. By better understanding the ecological and socio-cultural values of open spaces within the city, the Green Map will aid planners in guiding development away from important green spaces.

This map will have both a ecological (biotope) component and a socio-cultural (sociotope) element. While the biotope mapping will show biodiversity and important ecological spaces, the sociotope mapping shows areas that are important places for human activity. The sociotope mapping experience has led the municipality to consider the location, purpose, and users of its open spaces and recreation areas. Citizens have been interviewed in order to better understand which places are important to show on this map. This Green Map project goes back to the dual purpose that Stockholm and Sweden expects from its open spaces: the biological function and the recreation component.

Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf

Lessons Learned

Planning is a Cooperative Process

Even during Stockholm's most rapid period of growth, the City managed urban development according to their comprehensive plan. This plan was not legally binding, but was followed both within the City of Stockholm and its adjacent suburban towns. The reason that municipalities in the greater Stockholm region follow these non-binding plans is because they are created during a consensus-based process where private organizations, public agencies, and citizens are involved. This approach results in a plan that reflects an integration of these various perspectives.

Plan for Density

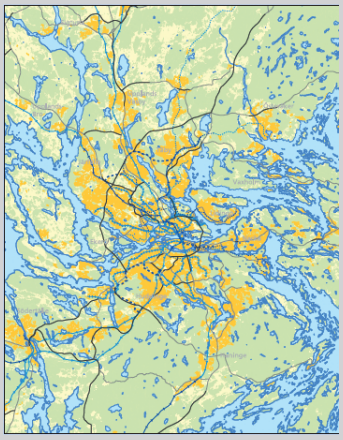
In Stockholm, dense areas that are established as targets for growth in the City Plan are given extra attention, as planners craft detailed development plans that mandate the type, form, and timing of development in that area. Then, as long as a development proposal meets the established plan's criteria, it is automatically approved.

Make Long-Term Investments

Stockholm has not been afraid of making long-term investments within their city and region. They have laid an extensive metro subway system that has allowed the city to develop in nodes around the rail stations. New investments are being made, such as a light rail system to better connect the inner city with the metro system's hub. These investments mean that only 22% of Stockholmers and 40% of residents in Stockholm County own a car.

Don't be Afraid to Preserve Nature

Planning in the Stockholm region understands the necessity of preserving open spaces both for recreation and for human enjoyment within and outside of their city. By increasing density within urban and suburban nodes, natural areas can be saved. However, these open spaces are accessible and urban parks are provided in addition to these larger reserves.



Sources: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf (above); Victoria Henriksson (below)

Story in a Box: Build The City Inwards

In the greater Stockholm region, the desire to preserve natural green areas and the need to expand as growth occurred were at odds with one another, and creating urban sprawl. Stockholm's CityPlan 99 sets forth strategies for infill development and revitalization in order to better utilize the existing urban landscape and preserve the natural elements of the city and region. The plan names twelve specific areas within the central city that are prime for redevelopment, with strategies to create mixed-use communities in former industrial areas. This densification strategy also recognizes the importance of green spaces within the city, and no Stockholmer lives farther than a 5-10 minute walk from a 12 acre park.

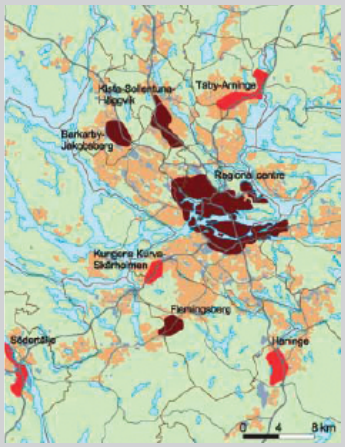
An example of this new infill strategy can be seen in the redevelopment of Hammarby Sjostad (Sea City). This is the first redevelopment area in inner Stockholm. The site was originally industrial, but had become vacant and run down. By 2010, 30,000 workers and residents will utilize the area, which is planned to be a dense, mixed-use urban node. Public transportation connections, in the form of a light rail and ferry system, will link Hammarby Sjostad with the center city and the regional metro network. This project is recognized world-wide as a sustainable development. Hammarby Sjostad will incorporate a new neighborhood park, in addition to being connected to the regional park system.

While the City of Stockholm has in the past been a large landowner throughout the city and region, they are now running out of land to develop. While the City acquired a vast amount of land during the 20th century, it is now too expensive to buy more land. This is altering the role of the City in the redevelopment process, from the role of developer to that of a "go-between" as private developers invest in infill projects. The City ensures that redevelopment protects the public interest.

Plan and perspective of Hammarby Sjostad
Sources: In Lindberg, Goran's article (above); http://www.stockholm.se/files/68600-68699/file_68604.pdf (below)

"Five 'wedges' of woods and greenery extend from the outskirts of the landscape in towards the city nucleus. They constitute unbroken greenway stretches that pass between the radii of the city's residential areas." - Kjell Forshed

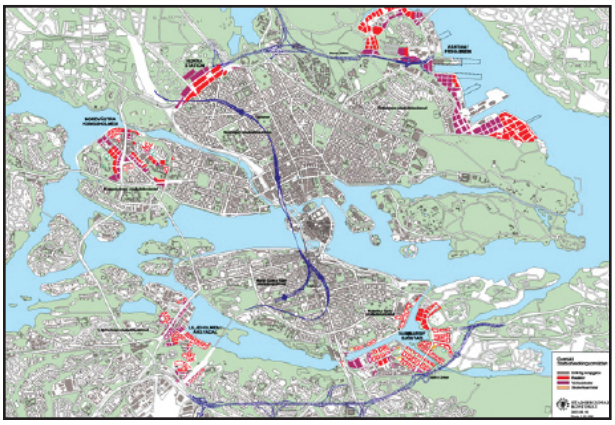
The Polycentric Region: Seven Core Areas



Source: Munich-Stockholm comparison, www.rtk.sll.se

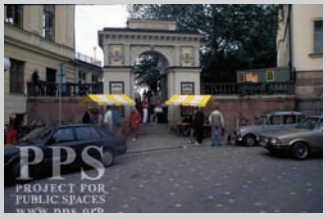
Greater Stockholm: Becoming a Polycentric Region

Stockholm has developed based on a radial urban pattern, following public transportation routes out of the city. New towns have followed the same model, developing in dense nodes around rail stations. However, the Stockholm region has seen urban sprawl in spite of its impressive planning system. Urban sprawl has increased congestion and swallowed up some of the area's green space. Now, the regional and municipal governments have created plans to alter this trend. The Regional Plan and Stockholm's CityPlan both call for infill development within the urban core, especially on land that was once industrial and is now underutilized or vacant. In addition, the Regional Plan calls for a new spatial pattern--a polycentric model. This polycentric model would focus new growth in seven cores connected to the public transportation system at the periphery of Stockholm. These seven centers will eventually function as independent urban hubs, which will increase transportation and land use efficiency.



Infill development locations within the City of Stockholm.

Source: http://www.eurometrex.org/Docs/eAtlas/STOCKHOLM_eAtlas.pdf



Source: Project for Public Spaces

Resources

Ducas, Sylvain. *Case Study of the City of Stockholm and the Greater Stockholm Area*. Research Report to the Ville de Montreal, 2000. www.habitation.gouv.qc.ca/publications/M06301.pdf

Friberg, Per. *The parklands of Scandinavian cities.* Nature in Cities. Ed. Ian C. Laurie. Chichester: John Wiley & Sons, 1979.

Guinchard, Claes ed. *Swedish planning: towards sustainable development.* Gavle, Sweden: Swedish Society for Town and Country Planning (PLAN), 1997.

James, Sarah and Torbjorn Lahti. *The Natural Step for Communities.* Gabriola Island, BC: New Society Publishers, 2004.

Lindberg, Goran. *Sjostadsparterren Hammarby Sjostad Stockholm.* Arkitektur, 105(3): 55-59.

Newman, Peter and Andy Thornley. *Urban Planning in Europe.* New York: Routledge, 1996.

Office of Regional Planning and Urban Transportation. *Munich-Stockholm: Comparison of the two regions' planning systems and contents.* Stockholm: Stockholm County Council, 2003. www.rtk.sll.se

Office of Regional Planning and Urban Transportation. *Regional Development Plan 2001 for the Stockholm Region: Short Summary.* Stockholm: Stockholm County Council, 2002. www.rtk.sll.se

Office of Regional Planning and Urban Transportation. *Social Values in Urban Green Areas- The Green Wedges of the Stockholm Region.* Stockholm: Stockholm County Council, 2005.

Pemer, Mats. *Developing a Sustainable Compact City in Stockholm, Sweden.* New York, UN-Habitat Istanbul+5 Thematic Committee, 2001. http://www.unhabitat.org/istanbul+5/7-Sweden.PDF

Sandberg, Eva and Bjorn Carlberg. *Outings Guide to 10 Protected Natural Areas in Stockholm County.* Stockholm: County Administrative Board of Stockholm, 2005.

Stahle, Alexander and Anders Sandberg. *The Sociotop Map of Parks and Other Open Spaces in the Inner City of Stockholm (part of Stockholm's Green Map) - Methods and Results.* Helsinki: GREENSCOM conference, 2000.

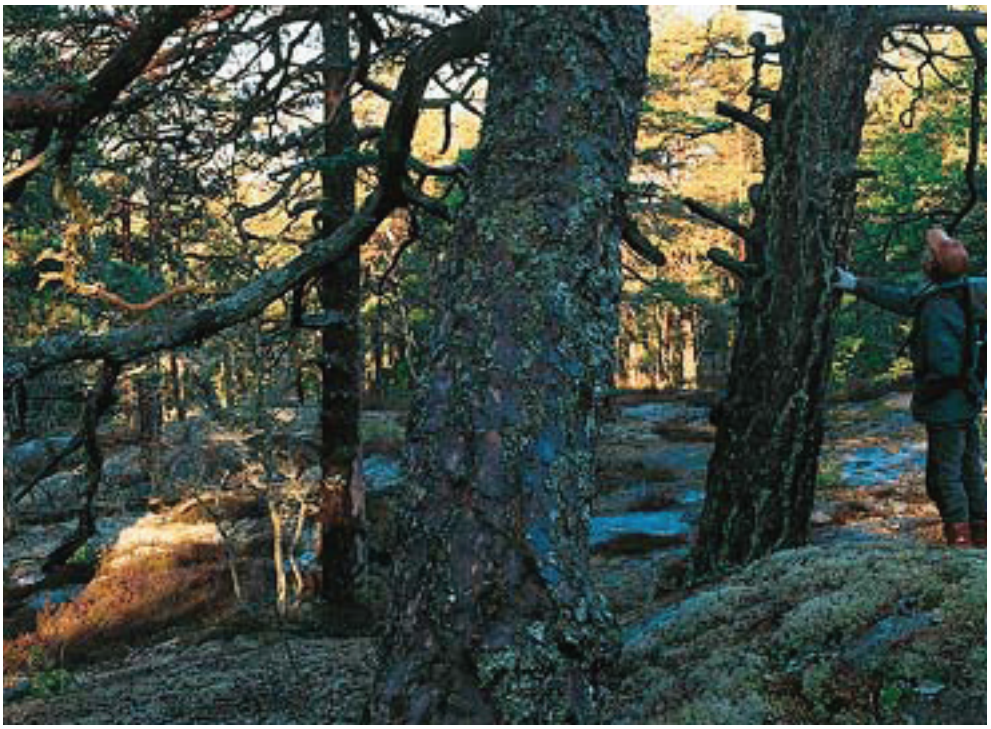
Stockholm – Sweden: The Landscape of the City of Stockholm and The Continuous Park. Landscape Australia, 12 (1990): 9-13.

Wood, Evan. *Regional Planning in the Stockholm Area: An Evolutionary Process with National Implications.* Plan Canada, 11 (1972): 228-243.

Websites:

- Kollin, Cheryl. (2003). The face of the future: the United States and Sweden share the same goals for the environment. We can learn from each other's means of getting there – Perspectives. American Forests. http://www.findarticles.com/p/articles/mi_m1016/is_4_108/ai_97758009
- Stockholm City Plan information http://www.sbk.stockholm.se/op/future.htm
- Stahle, Alexander. (2002). Urban Planning for a Quality Dense Green Structure; Stockholm Sociotop Map and Park Programme. http://www.map21ltd.com/COSTC11/sociotop.htm
- Parks and Gardens Information: http://www.stockholmtown.com/templates/SubPageListing___2921__EN.aspx
- Stockholm's Environmental Programme: http://www.miljo.stockholm.se/bilder/pdf/mp_eng.pdf
- City of Stockholm: http://www2.stockholm.se/english
- Stockholm's Ecopark (Djurgarden): http://www2.stockholm.se/english/cityofsthlm/cleanandgreen/ecopark.htm
- Swedish EPA: http://www.internat.naturvardsverket.se/
- Hammarby Sjostaad: http://www.hammarbysjostad.se/glashusett/
- Nature Conservation and Biological Diversity: http://www.sweden.gov.se/sb/d/3879/a/23193
- Stockholm Park System History: http://www.gardenvisit.com/ge/stock.htm
- Stockholm E-Atlas: www.habitation.gouv.qc.ca/publications/M06301.pdf
- City of Stockholm. *Green and Living Courtyards.* www.boverket.se/in_english/swedishmunicipalities/environmetn-orientedwork/CityofStockholm11.htm

Source: http://www.stockholm.se/files/68600-68699/file_68602.pdf



Tyresta National Park is made up of nearly 5,000 acres of virgin forest, only 12 miles southeast of central Stockholm.

Source: Claes Grundsten/Bildhuset Swedish EPA

Stoke-on-Trent, UK

Kent Straub-Jones

Leftover Coal and Clay Pits
www.thepotteries.org

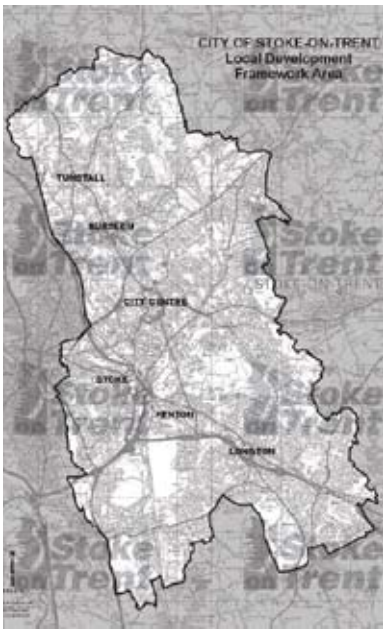
Regeneration is more then a catch phrase, it is the mantra of Stoke-onTrent. Stoke-on-Trent is not just one city but the amalgamation of six smaller villages. Once considered the most 'Blue-Collar' city in England it is drastically trying to change its appereance and appeal to the peoples of the surrounding areas.

To date, the economic and cultural development strategies undertaken in Stoke-on-Trent have focused upon a plethora of out-of-town business, retail and entertainment parks, built on brown-field sites reclaimed from old industrial workings and as part of improvements to radial hubs and gateways. (Jayne, 2004)

The land was once filled with smoke, clouds that would blacken the sky. This has left brownfields, many of which have been seen for a long time as a scar or detrimental additive to the land. This is all going through an period of rethinking, with the Vision Lite conceptual model the region is looking to future. Applying for, and recieving large government endowments the city is building to its heart's content.

There is somewhat of paradoxical system in this area, that while Investment is going in people are moving out. The population of Stoke-on-Trent is currently decreasing at the rate of 3.5% between each census eventhough the government is increasing spending in these areas almost exponentially. Since 1992 more then 600 million pounds has been pumped into the region in the hopes of regenerating the area.

Nevertheless, the funding aside, some very interesting projects and conceptual models have been discussed.



Vision Lite
A SPATIAL VISION

City Statistics

City Population: 240,636

City Area: 10,205 acres

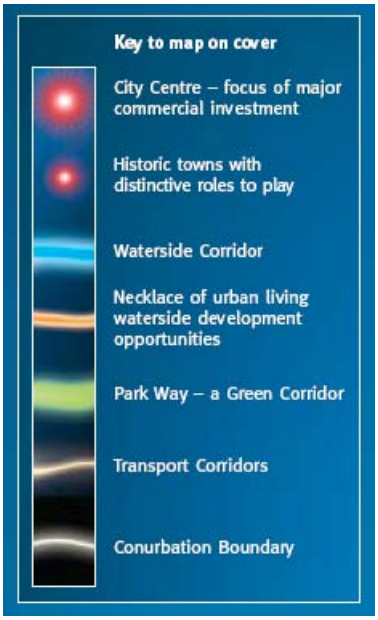
Density Level: .04 ppa

Park Acreage: 3401 acres

Park acreage per 1000 residents: 14.1 Acres

Governing bodies: Stoke-on-Trent City Council, North Staffordshire

Expenditure per person: since 1992 $270~600 mil pounds in grants, Lottery Fund: 341.65 pounds ~ $541.00 per person



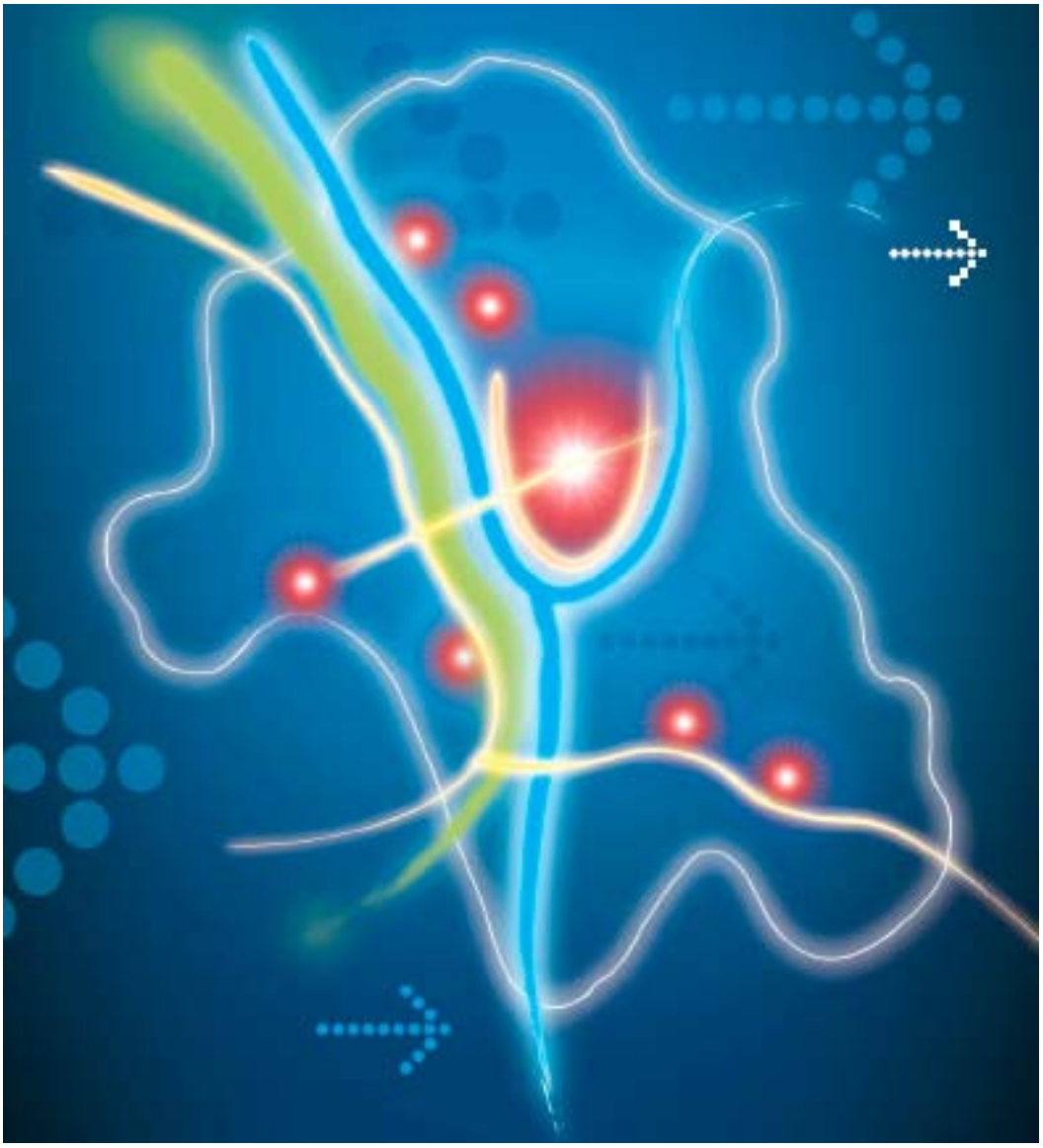
Conceptual Model for Connections Between Areas of North Staffordshire Stoke-on-Trent in the Middle

Concept:

The Vision Lite system is a strong regional concept for how the area is to develop.

The red circles are the towns of the area, with the largest being the City Center of the region. The waterside corriodor is navigatable through locks and connects to the larger system of canals.

The orange horeshoe in the middle is the band of waterside esidential and comercial development. The city recognizes the importance of the Trent & Mersey canals to the west, and the Caldon Canal to the east to the historical significance and current economic asset that they are. They are drawing attention to this area, this linear open space will help to serve as further fuel to the regeneration furnace.



Major Components

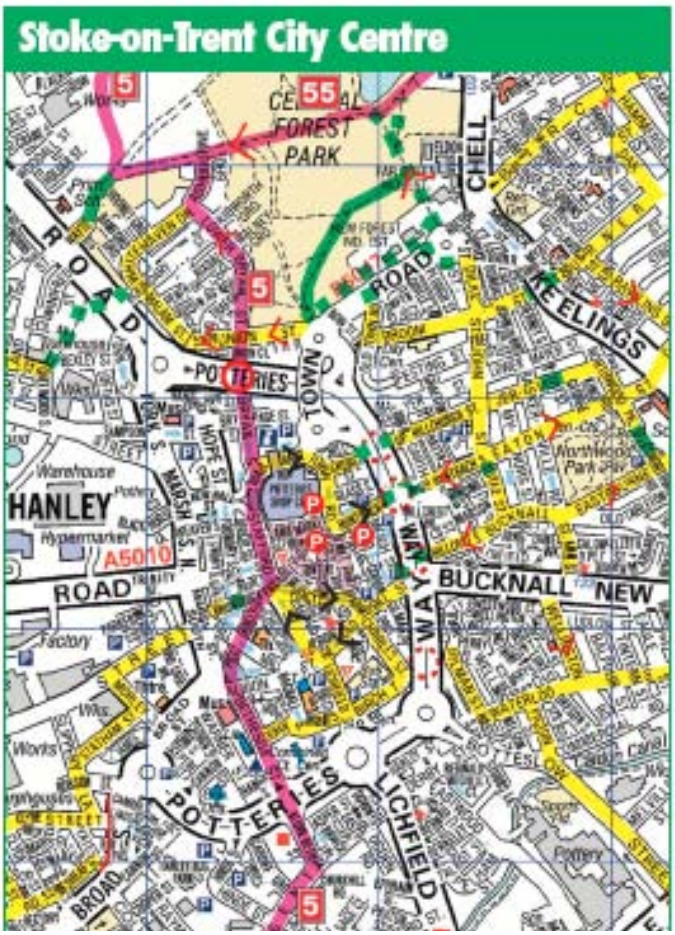
a. Connective corridors
Bike trails on the shores of the Trent & Mersey Canal to the west of the city, Caldon Canal to the East. Bike trails on old disused railroads. Public rights of way through Fields. Bicycle trails connect to National Cycling Network. The center line in the map below.

b. Anchors
Trentham Gardens to the south, Hemstead Heath Wood Nature Preserve, Central Forest Park-Directly to the north of the Civic Center reclaimed Hanley Pit, includes a new skate park designed with the contribution of the Stoke Skate Association.

c. Civic
City Center: Cultural and Economic Hub, contains Public Art and gathering spaces. As well as Theatres, and proposed waterside developments.

d. Neighborhood Parks
Scattered around, consist of Soccer Fields (football Pitches), small wooded areas with patches of water-typically reclaimed pits.

e. Other
Many unique open spaces, Capability Brown Designed Parks, English Gardens, as well as a newly designed Skate Park. Numerous Golf Courses both public and private.




Waterfront development


Proposed Civic Center developments. ‘A Spatial Vision’ Evans Vettori Architects


Parkland, www.thepotteries.org


Tretham Gardes c. 1957
Highly Ornate Italian Garden
www.thepotteries.org

'A Green City that provides well maintained open spaces, good quality play facilities for our children and a quality environment for future generations'-Stoke-on-Trent, Community Strategy 2004-2014

Local Organizations

English Partnerships
The National Regeneration Agency

Advantage West Midlands

inStaffs North Staffordshire

renew North Staffordshire
changing places: transforming lives

Stoke-on-Trent Local Strategic Partnership

north staffordshire regeneration zone
everyday change

urbanvision NORTH STAFFORDSHIRE
The Architecture and Urban Design Centre

Funding Mechanism and/or Planning

Funding Mechanism:
Major funding for the Open Space system in Stoke-on-Trent comes from Lottery Funds. In England the system works out that surplus monies from the various National Lotteries turn into a Grant style program, with Stoke-on-Trent residents recieving roughly 318.65 pounds ~ 541.00 dollars per person.

This system is broken up into various different categories of which many different topics are applicable. Three thousand to refurbish a local Scout Unit's kitchen HQ to fifty thousand for a new Skate Park. Three is also an initiative to have youth themselves get involved with the bid process. The Young Peoples Fund has so far given four such awards have been granted with around $700 mil worth of monies being added to the coffers of small scale local projects.

The National Lottery has also instituted the Big Lottery People's Millions awarding upwards to 50,000 pounds in one year grants for environmental projects that get people involved with their community. It is impressive to see national funding for the environment being given to those on the community scale.

Regional Spatial Strategy:
Develops plans for regionial scale including, large scale transportation issues, and numbers for home development.

Local Development Framework: Community Strategy:
Each City in England is required to develop a Community Strategy which will allow for further development. Central to Stoke-on-Trent's plan is to create a future city that is vibrant and active city. This is broken into five parts.

1. A Healthier City
2. A Safer City
3. A Learning City
4. A Wealthier City
5. A Green City
6. A City with a Strong Sense of Community

Greening for Growth Programme:

The Initiative puts forth that the green landscapes and vegetation can be seen not only as an environmental benefit, but as an economic asset. In order to attract business and investments.

In February 2003 9.4 percent of Stoke-on-Trent was covered by trees. Since then 60,000 new trees have been planted by the New Leaf Woodland Initiative. The initiative was established under the REACT (Regeneration through Environmental ACTion.)

This initiative had at its roots somewhat of a social engineering technique. The people of North Staffordshire would be shown how to care for their trees and hopefully gain further appreciation for the surrounding landscape. This is a regional plan that goes outside of Stoke-on-Trent and operates on a somewhat larger scale.

Lessons Learned

High monetary Investment does not neccesarily reap quick returns

Brownfields are very useful and ripe for redevelopment into parks

Partnership with regional neighbors helps to solidify and strengthen core structure and linkages or new proposals

Concentrated development on one core area can allow for different development in the periphery and is beneficial to surrounding cities

Connecting and providing linkages helps to integrate cities

Commodification of Sustainability as a selling point can be realized

Central Forest Park
Hanley Pit
www.thepotteries.org

Trent & Mersey Canals
www.picturesofengland.com

Resources

"External Funding Bulletin: Quarterly News." City Council Regional and European Strategy Unit. i4 Spring 2005.

Jayne, Mark. "Culture that works? Creative industries development in a working class city." Capital & Class. i84 (2004): 199-211.

Office of the Deputy Prime Minister, "Creating Better Place to Live: A guide to the Planning System in England." http://www.odpm.gov.uk/index.asp?id=1144503#

"Pictures of England: Stoke-on-Trent." http://www.picturesofengland.com

Stoke-on-line, Stoke-on-Trent City Council Website www.stoke.gov.uk/

Stoke-on-Trent, Newcastle-under-Lyme: Bike Trails and Greenways Map

"Stoke-on-Trent: our city, our future. A long term vision." Stoke-on-Trent, Community Strategy 2004-2014

City of Sydney, Australia

Mitchell Coleman
Winter 2006

‘City of Historic Parks’

The city of Sydney is a perfect blend of civilizations and nature which give Sydney its unique character. It’s a city where people pursue their careers and cultural interests, but routinely step back from it all to draw upon the environment as a source of relaxation, inspiration and adventure. The number of parks and open spaces within the city’s limits help with this interaction.

Sydney Statistics

City Population: 137,758

City Area: 10 square miles

Density Level: 21.072 people per acre

Park Acreage: 934

Park acreage per residents: 147 people to one park acre

Governing bodies: City of Sydney

Fact:
Sydney was originally developed to be a penal colony to house the convicts from England.

Landscape Context:

Situated along a deep harbor on the east coast of Australia. The summers are hot/humid and the winters are mild. Sydney has over 340 days of sunshine each year. This creates a perfect atmosphere for outdoor living.

Urban Context:

The city is served by several railway lines and many buses and ferries. Major features of the city include Sydney Harbour, Sydney Harbour Bridge, Sydney Opera House, shopping centers, sport facilities, hospitals and residential developments. All of these elements brings in a diverse population of people.

Sydney Opera House

Open Space History

Many parks in central downtown have strong ties with local residents.

Three of the biggest parks in this area were all used by the original settlers in the early 1800's

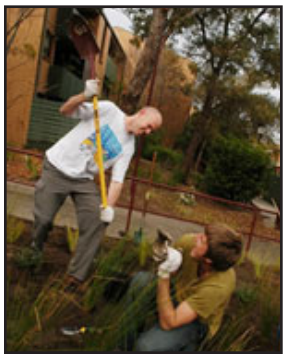
Most parks were originally private estates and had other purposes besides recreation.

Several parks in Sydney are known for their plant collections. The Royal Botanic Gardens in particular is a prime example.

Today there are 248 parks, reserves and open spaces located within the City of Sydney covering 934 acres, roughly 14 % of Sydney's land coverage.

Open Space Goals

Fact:
Between 2004-2005 an estimated 1,127 street trees were planted. Twenty five percent of those trees were native species.



To incorporate parkland settings into the context of a continually evolving city.

To include ecological processes and principles into the parks design and open spaces.

> For example with Sydney Olympic Park, city planners wanted to show the rest of the world how to handle a large sporting event with a sensitive ecological manner. This was achievable by constructing wetlands to handle the site runoff and "Green" buildings to house the athletes and officials.

As required by the Local Government Act of 1993, new park redevelopment plans are being made to restore and re-evaluate precious city open space.

Increase total tree canopy through tree plantings and management.

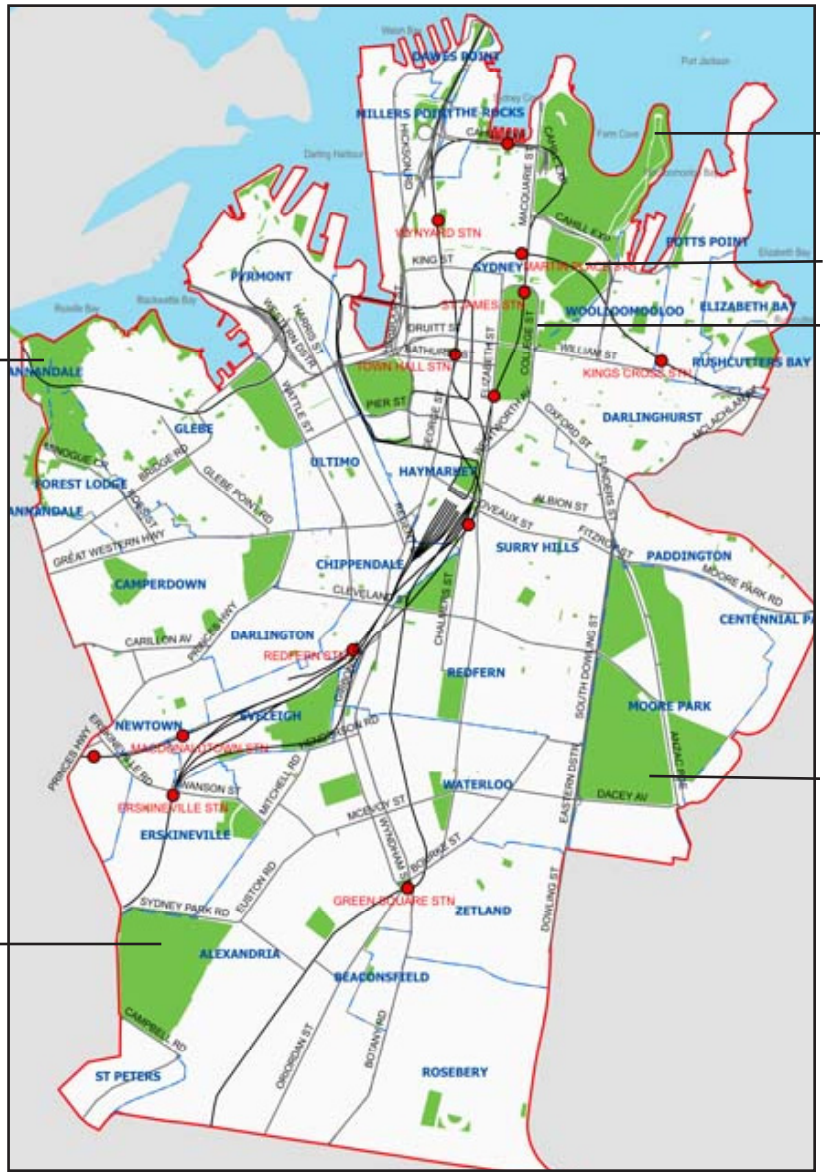
All of these goals are achievable through the neighborhood/city parks, recreation trails, wetland areas and reserves the city owns.

City of Sydney Open Space System: Major Components

‘City of Historic Parks’

Major Open Space Components

Fact:
In Sydney, 91 per cent of people live within a 5 to 10 minute walk of some kind of open space.



www.cityofsydney.nsw.gov.au

Neighborhood Parks:
There is an abundance of neighborhood parks throughout the city’s limits.

Corridor Parks: There are none currently, but several are now being planned in for the northwest downtown area.

Recent Development:
In 1996-2001 the city grew by 26% thanks in part to the Sydney Olympic Games. Because of this increase in population more parks are being developed.

Fact:
Funding by the numbers between 1995-2000:

$90 million spent on insuring more green space in and around Sydney

$6 million spent to help councils improve their park plans, through the Metropolitan Green Space Program

$12 million spent through government partnerships

Funding/ Planning Mechanism

All of the parks and open spaces planning/maintenance are over seen by an Environment & Heritage Committee.

Open space funding comes from grants, trusts, funding allocations and local governments.

Since 1990, over $13.5 million has been provided in grants to local government to increase access to and improve the quality of open space in Sydney

The spaces comprising of the Royal Botanic Gardens, The Domain and Centennial Parklands, are managed separately by Trusts established and administered by the NSW Government. All other spaces are maintained by the city of Sydney.

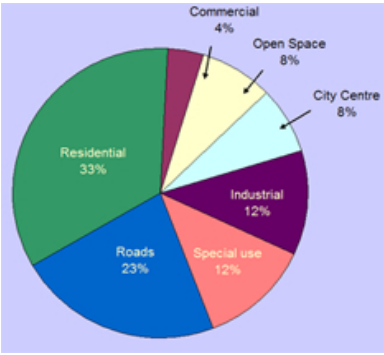
Community Groups: Within the city there are well over 20 advocacy groups that tackle a variety of issues ranging from urban ecology to open space planning. These groups are critical in helping with funding of open space projects.

Issues:

With such a large population boom in the past 10 years, city planners are working hard trying to accomadate more people moving in and because of this, the development of open spaces are being overlooked in some areas.

In early 2003 many community groups were not pleased with how the City of Sydney was developing it land. So a petition was started to fight the cities take on open space planning.

Just recently a new open space ruling was pasted. Council planners have a "generally accepted" ratio for open space of 300 square feet per person. Census data collected in August 2001 shows that the actual ratio at that time was only 150 square feet a person.



Landuse as of June 2004

Today in terms of park space the ratio is; city resident to park acre: 147 people to one park acre (296 square feet per person).

Having access to the harbor is another major issue facing the local community, as access to the harbor remains very limited, and the government is selling off the land to commerical developers.

Again through public outcry, the City of Sydney has recently bought a portion of land in the northwest part of downtown (Pyrmont District) to allow the construction of a waterfront park.

Photo of a successful promenade along Darling Harbor adjacent to downtown Sydney.

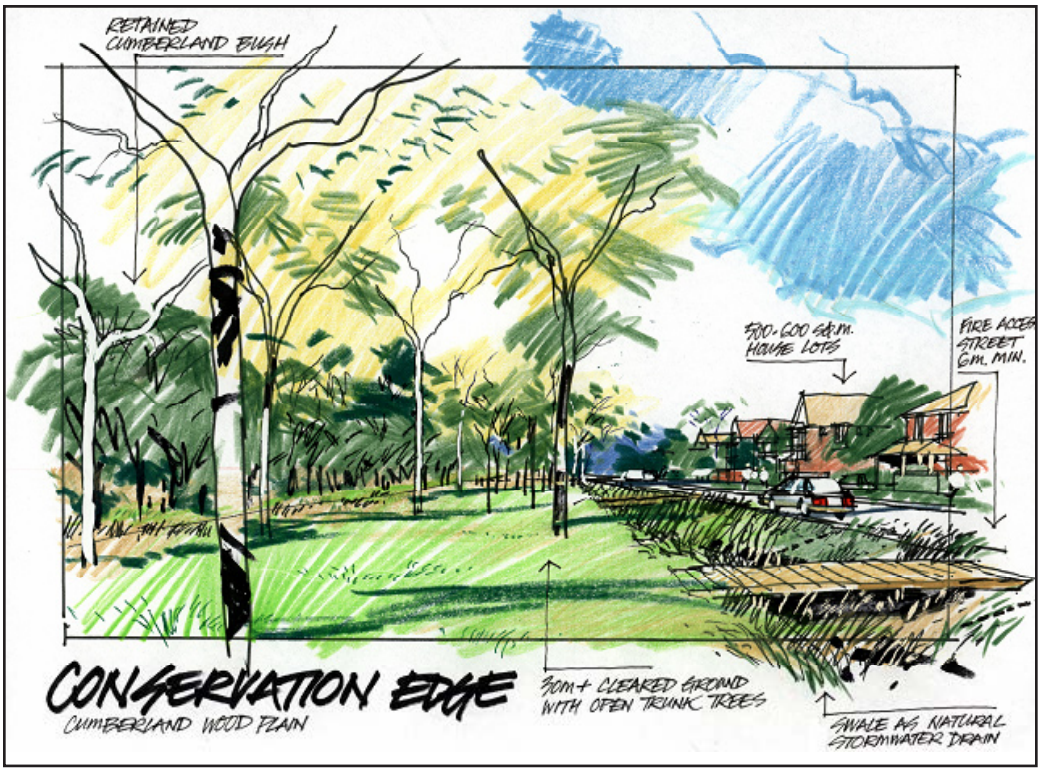
Fact:
For Sydney's official development plan, the city believes it is important to have consultations with the community in order to make the plan work effectively. This is achievable through public meetings, forums and presentations.

Major Open Space Programs

Sydney Spaces Program for the City of Sydney - Over the past decades downtown Sydney was quite of pedestrian traffic. A program was then developed in 1996 to tackle this issure. This plan focuses on enhancing the public domain and protecting the city's heritage.

Open Space Plan of Management - The City of Sydney recently began developing an open space plan for the expanded Local Government Area (LGA). The plan will provide consistent and practical guidelines for the effective short and long term management of Council's entire open space system, which includes more than 400 sites.

Sydney Metropolitan Stratagy - To guide growth and change in the Sydney Metropolitan area over the next 30 years. Addresses issues such as transportation, housing, and open space systems.



Sketch from the Sydney Metropolitan Strategy Plan

Lessons Learned

Through community advocacy it show how local residents can have a say in the development of their city and change how open areas are incorporated into an overall plan.

The city recognizes these groups, by setting up cultural grants and sponsorship programs to help with funding.

The city strongly believes that there needs to be diversity of spaces within the city to create an enjoyable living environment for both the local community and even visitors.

The City of Sydney shows that through careful planning and managment of parks that they can be successul for well over 200 years.

Resources:

General information on the City of Sydney
www.cityofsydney.nsw.gov.au
- -Environment
- -Parks and Open Space
- -Community Groups
- -Land Use/ City Improvements
- -Development
- -Community Profile

Advocacy Group
www.pyrmontpoint.net

Open space programs:
Sydney Metropolitan Stratagy
www.metrostrategy.nsw.gov.au

Government information
www.parliment.nsw.gov.au

Curitiba, Brazil

Nicole Mikesh

'People-centric planning on a budget'

It is possible to have a livable city without spending top dollar.

"The dream of a better city is always in the heads of its residents. Our city isn't a paradise. It has most of the problems of other cities. But when we provide good buses and schools and health clinics, everybody feels respected. The strategic vision ... leads us to put the first priorities on the child and the environment. For there is no deeper feeling of solidarity than that of dealing with the citizen of tomorrow, the child, and the environment in which that child is going to live."- Jamie Lerner, former mayor of Curitiba. (ICLEI-Canada)

"The result of the strategy--which put people at the center and emphasized integrated planning--is that the city has become a showcase of ecological and humane urbanism, with ongoing improvements over the past 38 years to social, economic and environmental conditions for its residents. Curitiba has become the most sustainable of cities, in the process proving that applying a city-strategy with strong values and a focus on integrated systems can harness the actions of planning departments to meet common strategic object" (ICLEI-Canada)

CONTEXT

Historical spatial and governance foundation

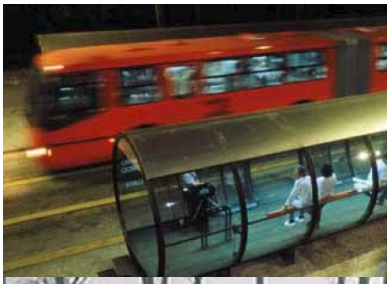
In the 1950s Curitiba was the modest 150,000 person capitol of the Brazilian military-state of Paraná.

Curitiba was the processing and distribution center for the surrounding agricultural industry. At its peak during the 1960s, the state of Paraná produced 1/3 of the world's coffee (Scwartz, Hugh). After a series of frosts between 1952 and 1975 sent the industry into a downward spiral, workers began turning to Curitiba in search of employment.

During this time Curitiba "was characterized by a shortage of electricity, telephones, and paved streets. Only a third of the families living in Curitiba had access to sewers. And traffic was beginning to become more of a problem in the downtown area."

In response to the influx of people, the mayor of Curitiba initiated a Master Plan design competition for the growing capital city. The winning team consisted of young idealistic planners and architects lead by Jaime Lerner.

Above Left: Curitiba Skyline
(members.aol.com/pochetti6/torre)
Above Right: Context Map
(brazil.sao.paulo.curitiba cnn.com)
Right: Rua Flores Pedestrian Street
(www.promobrazil.it)



MAJOR COMPONENTS

Connective corridors:

"Concentric circles of local bus lines connect to five radial lines that go outward from the center of the city. On the radial lines, triple-compartment buses in their own traffic lanes carry 300 passengers each. They go as fast as subway cars, but at one-eighti-eth the construction cost." (Donella Meadows)

2 mil passenger per day. Designed to encourage density along the corridors, the system expands according to the needs of its riders. (Daniel Wermus S-Dev Geneva-05)

Specially marked bike and pedestrian paths
200 km (90 miles?) of bike paths (Daniel Wermus S-Dev Geneva-05)

Anchors: large parks, patches, & preserves:

- Land reclamation and water recuperation are used to solve both environmental and social problems.
- Green zoning safeguards open spaces and stiff regulations protect every tree in the city." (Ozone- Washington University).

"Nearly one-fifth of the city is parkland, and volunteers have planted 1.5 million trees along the streets." (ICLEI)

"Parks have been created from abandoned dumps and quarries. The numerous "ethnic" groups were then charged with fitting these parks out according to their nostalgia for their past: a wooden Ukrainian church, a sombre Bavarian forest where a witch tells her tales, a Japanese haven of peace in the midst of skyscrapers, a path for strolling Italians…. The pretty artificial lakes are used to prevent flooding." (Daniel Wermus S-Dev Geneva-05)

Neighborhood parks:

"Planning a city means correcting your course all the time … by allowing people to correct you. We wanted to build parks within a maximum of 500 metres of everybody's home: the local people convinced us that we would do better to save the remaining forests … so we got our parks in one or two months instead of having to wait 20 or 30 years for the trees to grow!" (Jamie Lerner w/ Daniel Wermus)

They have 1000+ parks and 5+ Anchor parks.

City Statistics

City Population: 1.8 million

City Area: 106,750 acres

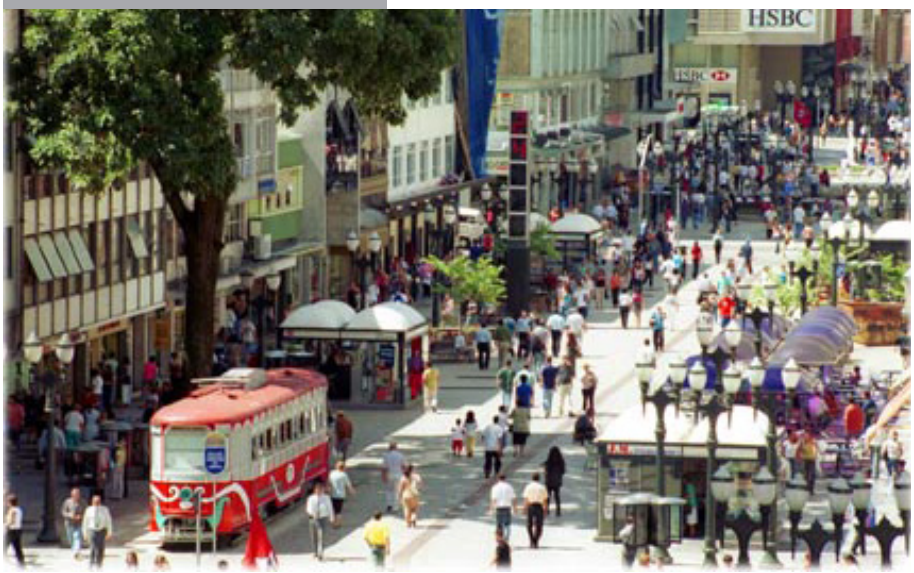
Density Level: 16.86 (people/acre)

Park acreage: 5190 acres

Park space per 100 people: 1.3 acers

Governing Bodies: City, IPPUC, Private-public collaboration

Expenditure per person (2002): US$375.00, 21% of total budget for education (rmi.org)



Top: Bus Entry Tube *(garba.org/aboutme/pictures/curitiba)*

Middle: Bariqui Park *(www.gobrazil.net)*

Bottom: Flowers Street where street children tend the flowers. Pedestrian Street. *(www.promobrazil.it)*

Civic, downtown and social spaces:

“He met resistance from shopkeepers when he proposed turning the downtown shopping district into a pedestrian zone, so he suggested a 30-day trial. (25th of November Street.) The zone was so popular that shopkeepers on other streets asked to be included. Now one pedestrian street, the Rua das Flores, is lined with gardens tended by street children.” (Donella Meadows).

“Unlike city dwellers in other leading Brazilian communities (and most major cities in the Western Hemisphere), many curitibanos make a habit of congregating downtown after normal office hours. It’s certainly not for the nightclubs, of which there are few, and it is not solely for theater and concerts, of which there are a growing number, including two in renovated buildings that had served much less artistic functions in the past. Special annual events include national music and theater festivals, a movie festival, the Christmas lighting display and pageants, and several seasonal fairs.

“Most significant, though, is the continuing activity along the now pedestrian thoroughfares, lined with coffee shops, restaurants and many other commercial establishments.

“Then, early most Friday evenings, many teenagers gather on the principal pedestrian mall. On Saturday morning their place is taken by pre-teenage painters, families out for a stroll, those who have come to listen to amateur musical groups near the park at one end of the mall, and others, on their way to the small food and flower fair in the Passeio Público, just past the other end of the mall.” (Donella Meadows)

Left: 24-hour Street, pedestrian street with activities 24 hours a day.
Middle: Opera house, built of recycled materials
Right: Bacachen Park
(All 3 images from http://www.curitiba24horas.com/Turismo)

“Curitiba is referred to as the ecological capital of Brazil, with a network of 28 parks and wooded areas. In 1970, there was less than 1 square meter of green space per person; now there are 52 square meters for each person. Residents planted 1.5 million trees along city streets. Builders get tax breaks if their projects include green space. Flood waters diverted into new lakes in parks solved the problem of dangerous flooding, while also protecting valley floors and riverbanks, acting as a barrier to illegal occupation, and providing aesthetic and recreational value to the thousands of people who use city parks” (ICLEI)

“In Curitiba industry is organised around the idea of ‘industrial ecology’ the planning of industries so that their activities complement each other, sharing heat or transport and forming a flow of materials, the waste of one industry being the raw material for another, is another key to the success of Solar-city.” (Brian O’Brien, Solar-Earth)

‘People-centric planning on a budget’

Top to Bottom:
Tangua Park *(http://www.curitiba24horas.com/Turismo/parquetangua.php)*
Curitiba’s Zoo *(http://www.curitiba24horas.com/Turismo/zoologico/curitiba-zoologico3.jpg)*
Pedestrian Street *(garba.org/aboutme/pictures/curitiba)*
25th of November Street, Pedestrian Street *(promobrazil.it)*

Unilivre Park *(http://www.curitiba24horas.com)*

Funding

Acquisition

"Given Brazil's economic situation, Lerner had to think small, cheap and participatory" (Donella Meadows).

Federal Grant used to address flooding- Acquired land around river to create three lakes that can overflow into park space, rather than fortify the river with concrete walls.

Public Private Collaboration- **"How do you include the private sector in your plans?**

- Sometimes we get a very good response: buses, recycling of waste, support for the children. Everything depends on how the equation of shared responsibility is proposed. But so long as business does not understand what the city wants, it works against the city. The responsibility of the authorities is to ensure that everyone participates in the sharing of responsibility. We need to make those who refuse feel ashamed. A business that manufactures a polluting product will not longer be able to sell it. Or we make it our business that it doesn't sell." –Jamie Lerner w/ Daniel Wermus

Development

Public Private Partnership for bus lines. Subways were being proposed--but with price tags of up to $90 million a kilometer. The substitute: a 'surface subway'--buses on exclusive transitways, radiating out from center city, at a dramatically less expensive $200,000 a kilometer.

Bus fare as lottery ticket- initial incentive to encourage patronage.

Money goes to private bus operators based on performance- paid by distance traveled- rest of money goes to maintaining and improving transportation systems.

Fare is a flat rate of .40-.60 with free transfers.

Built in ridership (Income) through rezoning to encourage higher density along bus lines.

Dedicated Transit Lanes *(garba.org/aboutme/pictures/curitiba)*

Inside Opera de arame *(viaje.curitiba.pr.gov.br/opera5.jpg)*

Recycled Materials were used to build the Opera House and old buses are turned into classrooms, daycare centers and clinics.
"The "green exchange" employment program focuses on social inclusion, benefiting both those in need and the environment. Low-income families living in shantytowns unreachable by truck bring their trash bags to neighborhood centers, where they exchange them for bus tickets and food. This means less city litter and less disease, less garbage dumped in sensitive areas such as rivers and a better life for the undernourished poor. There's also a program for children where they can exchange recyclable garbage for school supplies, chocolate, toys and tickets for shows.

Under the "garbage that's not garbage" program, 70% of the city's trash is recycled by its residents. Once a week, a truck collects paper, cardboard, metal, plastic and glass that has been sorted in the city's homes. The city's paper recycling alone saves the equivalent of 1,200 trees a day. As well as the environmental benefits, money raised from selling materials goes into social programs, and the city employs the homeless and recovering alcoholics in its garbage separation plant." (ICLEI-Canada)

Maintenance

Barter System Street Maintenance – "Orphaned or abandoned street children are a problem all over Brazil. Lerner got each industry, shop, and institution to "adopt" a few children, providing them with a meal a day and a small wage in exchange for doing simple maintenance, gardening, or office chores. Brazil forbids child labor, but Lerner says, "By law, a child mustn't work, but society looks the other way when he goes hungry or homeless or works for a drug trafficker." (Donella Meadows)

Lessons Learned

• Articulation of strong, local core values in a city plan.

• Creation of an independent municipal authority such as IPPUC to provide continuity and implement plans, as well as to monitor planning and research to improve future efforts.

• Integrated planning processes structured to assure that planners in all areas know the strategy and are working with a shared vision and developing their plans together. This way, many problems of unlinked development (e.g., not enough provision for green space) can be avoided.

• Establish a close relationship between public transportation and land-use legislation as a guidance and development tool. Cities' environmental quality and economic efficiency are highly dependent on transportation systems that are well-integrated with urban form because this lets them avoid weak transportation systems and unsustainable dependencies on private cars.

• Developing new models that provide inexpensive, creative urban solutions and reflect local values are an alternative to standard, often-higher-cost approaches.

-- ICLEI- Canada

'People-centric planning on a budget'

Resources

Gnatek, Tim. http://www.pbs.org/frontlineworld/fellows/brazil1203/

Hallett, Mark and Carmen Vidal-Hallett. "Sustainability in the Big City: What Chicago can learn from Curitiba."

Horizon Solutions: www.solutions-site.org "Efficient transportation for successful urban planning in Curitiba," Vidisha Parasram, 2000.

ICLEI-Canada. International Case Study Series. Case Study: 77. http://www.iclei.org/index.php?id=1139

Meadows, Donella. "Curitiba's visionary mayor." 1995. Global Ideas Bank: www.globalideasbank.org

Meadows, Donella. "The Best City In The World? Making a solid case for better urban planning." Good Medicine (IC#39) Fall 1994, Page 8. URL: http://www.context.org/ICLIB/IC39/Meadows.htm

Michael O. Patterson. 'Curitiba's civic virtues revisited."

Urban sustainability: Cities and the role of technology. Curitiba: Model city? © 2004, The Science Museum, all rights reserved. Making the Modern World is sponsored by the ISB fund of the Treasury and the Cabinet Office. Produced in partnership with mwr and Peter Symonds College, Winchester.

Schwartz, Hugh. " Curitiba, Brazil: Urban Renewal, Municipal Revitalization." MP Comunicação. November 05, 2005

Wermus, Daniel. http://www.s-dev.org/en/decouvrir/villes/villes.php?idIndex=0&idContent=128

Curitiba Fact Sheet. http://www.environicfoundation.org/successstories/curitiba.html 2005

Curitiba Visual Tour of Parks and AS. http://www.curitiba24horas.com/Turismo/pontos_turisticos.htm

Top: Tangua Park *(Martinarentoft.energylounge.com)*
Bottom: Night Skyline from Barigui Park *(http://www.curitiba24horas.com/Turismo/parquebarigui/curitiba-parque-barigui3.jpg)*

Malmö, Sweden

Dara O'Byrne

The City of Parks

Ribersborg Beach with views of the Turning Torso.
This 2km long beach is located within walking distance of downtown Malmö. The Turning Torso was designed by architecht Santiago Calatrava and is becoming the new symbol for the city.
Source: Frederik Tellerup © Malmö Turism

Malmö has historically been known as The City of Parks because of a number of key anchor parks that date back to the early 1900's. The city has also taken advantage of it's location on the sea with a number of public beaches in close proximity to the city center. The system of canals within the historic city provide additional recreational opportunities.

Despite the city's reputation for open space, Malmö has fallen behind other major Swedish cities in terms of green space within the city. The city currently has 33 m^2 per inhabitant of green space while Sweden's other large cities have an average of 100 m^2 per inhabitant. Few new open spaces were added during the industrial age of the city. The area surrounding the city has remained primarily privately owned agricultural land.

Entering the 21st Century, the city has begun the transition from an industrial city to a city of information and knowledge. Malmö is at the center of a densely populated region and is beginning to feel the pressure to expand and grow. This development pressure has put the city in a unique position to guide its growth in a sustainable direction.

With leadership from the Swedish government, Malmö has been working towards reinventing itself as an ecologically sustainable city. Through a number of key policies, including Malmö's Local Agenda 21, Malmö's Environmental Programme, and A Green Plan for Malmö, the City of Malmö has set the stage to not only improve the green space in the city, but the overall quality of life.

Map of Sweden
Source: http://www.cia.gov/cia/publications/factbook/geos/sw.html

The green and blue elements in Malmö must be given greater prominence. Elegant turn-of-the-century parks have given rise to the epithet of Malmö as "the city of parks", but today these no longer suffice for the inhabitants' needs for outdoor and recreational areas. (Malmö's Comprehensive Plan 2000)

City Statistics

City Population: 269,142

City Area: 38,548 acres

Density Level: 7.0 inhabitants/acre

Park Acreage: 4,626

Park acreage per 1000 residents: 17.1

Governing bodies: City Council, Streets and Parks Department, Leisure, Recreation, and Sport Department, the Environment Department, the City Planning Office

Context

Malmo is Sweden's third largest city and the commercial centre of southern Sweden. In the 1970's, a recession in shipbuilding caused economic decline in the city, leaving abandoned industrial and docklands along the coast to the north of the city. Now, however, there are signs of economic revival, and many of these sites are in the process of redevelopment.

Malmö receives guidance and financial support from the strong Swedish national government. Many policy objectives are started at the federal level and the city is expected to implement those policies through local policies, plans, and regulations.

The City of Malmö is governed by a 61 person City Council elected directly by the citizens of the city. The City Council then elects an executive committee consisting of a chairman, first vice-chairman, and second vice-chairman. The Council makes both practical and visionary decisions for the city and passes these directives down to the city government's committees and departments to implement the policies. The city departments that relate to green space include the Streets and Parks Department, the Leisure, Recreation, and Sport Department, the Environment Department, and the City Planning Office.

The city has diverse ecosystems varying from coastal areas, wetlands, woodlands and grasslands. Some distinct biotopes include: the alder swamp, the beech woodland, the oak woodland, and the marine zone.

The Øresund Bridge Source: Frederik Tellerup © Malmö Turism
Map of the Øresund Region Source: http://www.visitoresund.info/composite-399.htm

The Øresund Region

Malmö has become increasingly important in the Øresund Region. The Øresund Region refers to the land bordering the Øresund Sea on both the Swedish and Danish sides. The Øresund Bridge was built in 2000, connecting Copenhagen and Malmö. Malmö has become a gateway city and has attracted business because of this connection to Denmark.

Major Components

Anchors
Malmö has a number of parks that act as anchors for the larger open space system, including: Kungsparken, Slottsparken, Slottstradgarden, Pildammsparken, and Folkets Park. Water recreation and beaches are also an important part of the anchors, including Ribersborg Beach and Ribbans Kallbadhus.

Civic
Malmö, like many European cities, is known for its civic spaces, squares, and plazas. Some of the more famous plazas include: Stortorget, Lilla Torg, and Gustav Adolf's Torg.

Residential Courtyards
Many housing developments have courtyards that provide community open space for the residents. An increased effort to involve residents in the design and maintenance of these sites has created better used spaces that residents have ownership over. Depending on the needs of the residents, these courtyards may provide passive green space or space for active recreation such as playgrounds. In new residential developments, the Green Area Factor requirements, which will be discussed later in the report, create ecologically beneficial open space in courtyards.

New Parks
Three new parks were created associated with the new Western Harbor development. Each park was designed with a specific focus on ecological sustainability. Ankarparken, The Daniaparken, and Sundspromenaden each connect people to the water in this newly developed neighborhood. Sundspromenaden is a 220-meter-long esplanade along the seashore.

Connective corridors
Malmö has an extensive network of bike trails. The Green Plan for Malmö calls for improvements in the green network of the city. The proposal includes a total of 16 new green corridors. Many of the proposed corridors extend existing corridors into the countryside to develop connections to water courses, ponds, and other habitats. The proposed green network can be seen below.

A proposed green network from A Green Plan for Malmö 2003.

Folkets Park
Source: Malmö Turism

Slottstradgarden
Source: Frederik Tellerup © Malmö Turism

Ribersborg Beach
Source: Jan-Erik Andersson © Malmö Turism

Stortorget
Source: Frederik Tellerup © Malmö Turism

Sundspromenaden
Source: Frederik Tellerup © Malmö Turism

We must pass on to the next generation a Sweden where the major environmental problems have been solved. (Ministry of Sustainable Development. Swedish National Government)

The Swedish Parliament has adopted fifteen objectives relating to the quality of Swedens environment to be achieved by the year 2020. The fifteen national environmental objectives are:

1. Reduced Climate Impact
2. Clean Air
3. Natural Acidification Only
4. A Non-Toxic Environment
5. A Protective Ozone Layer
6. A Safe Radiation Environment
7. Zero Eutrophication
8. Flourishing Lakes and Streams
9. Good-Quality Groundwater
10. A Balanced Marine Environment
11. Thriving Wetlands
12. Sustainable Forests
13. A Varied Agricultural Landscape
14. A Magnificent Mountain Landscape
15. A Good Built Environment

A Sustainable Policy Agenda

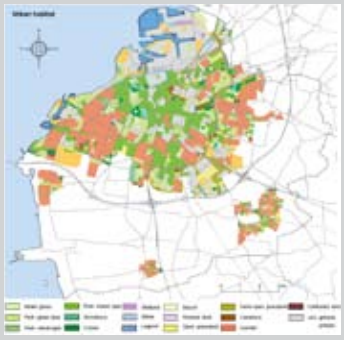
The strong leadership of the Swedish Government guides much of Malmö's policy related to open space and sustainability. In order to speed the transformation to a sustainable society, the Swedish Government allocated SEK 7.2 billion for the period of 1998-2003 for grants to local investment programs. Malmö has benefited from a number of these grants for specific projects.

Malmö's Local Agenda 21 states the long-term sustainable development objectives of the city. The policy is a response to the Global Agenda 21 adopted at the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro. LA 21 is based in the City Department of Environmental and Public Health Protection. Malmö's LA 21 efforts in the year 2000 enjoyed a financing of about 4 million Swedish Kr.

One of the ways the Local Agenda 21 is being implemented is through the Environmental Programme for the City of Malmö 2003-2008. This document is a platform for environmentally sustainable development and contains concrete environmental objectives for the city and an action programme. The plan has 58 environmental objectives categorized into fourteen general topics. These topics range from reduced climate impact to thriving wetlands and healthy forests. The fourteen topics were taken from the ojectives created by the Swedish Parliament and Government as part of a national environmental program. The objectives set forth in this program will be incorporated into all of Malmö's city departments. The planning process for this document involved experts from municipal departments, local urban district committees, citizen groups, and private companies.

Deficiency Analysis from Green Plan for Malmö

Urban Audit from Green Plan for Malmö



Local Agenda 21, the Environmental Programme, as well as the City of Malmo's Comprehensive Plan of 2000 helped to shape the Green Plan for Malmö 2003. Realizing the importance of green space for the future of Malmö, the City created this plan to ensure that it provided green space for future generations. This Plan is a long term strategy that focuses on formulating targets and guidelines for green space in the city from a recreational and biological perspective. It lays out an implementation plan that acts as technical support to the City's Comprehensive Plan 2000 regarding green spaces.

The Parks and Streets Department, the Planning Department, the Leisure Department and the Estates Department were all involved in creating the plan. The plan analyzes the range of recreational environments in the city and sets guidelines for access to parks, natural areas, and recreational areas of different sizes including greenery, neighborhood parks, district parks, city parks, and larger natural and recreation areas. Areas deficient in access to these categories were identified in the Deficiency Analysis on the left. An urban audit was completed which identifies green, permeable areas and nongreen areas within the city. This map can be seen on the bottom left.

The basic framework created by the Green Plan includes a green network, improved recreational opportunities, green corridors in the countryside, and a greener city. The goal of the plan is to have an increase of green space per inhabitant from 33m^2 to 48m^2 in the urban area and increase the area of accessible green space in the countryside from 2% to 33%.

Ekostaden - The Eco-City

The combination of Malmö's focus on sustainability with the pressure to develop has lead to two extremely innovative development projects. In 1998, the City of Malmö was allocated SEK 147 million in local investment program grants from the Swedish government for different projects. Augustenborg, the largest project, consisted of the redevelopment of an existing housing project. Western Harbor consisted of redevelopment of an industrial shipyard into a new housing project.

Augustenborg
Augustenborg was a social housing project built in the 1940's that experienced neglect and economic decline. The city has been working with residents, students, and workers in this area to create a truly sustainable neighborhood. There has been a focus on ecological, economic, and social sustainability. The project has used innovative stormwater techniques to manage the flooding that often occured in the area. This area is leading the way in green roof technology and is host to the Augustenborg Botanical Roof Garden.

Western Harbor
The development at Western Harbor began with the European Housing Exposition Bo01 - The City of Tomorrow. The focus of this development was on sustainability. The city provided renewable energy sources, waste recovery, IT, ecological features and green transport. This was funded through a local investment program grant. Biological diversity is a key component to all of the open spaces in the site. Innovative stormwater management techniques and green roofs are used in this development as well.

Green Area Factor

Perhaps one of the most innovative strategies used in new developments in Malmö, such as Augustenborg and Western Harbor, is the minimum standard requirement for green area factors. Green Area Factor, sometimes called Biotope Area Facor (BAF) is a tool that can be used to measure the ecologically effective land area of a development. The ecologically effective area is defined as the area of a development that is somehow contributing to ecosystem function through stormwater drainage or habitat. Surfaces such as grass, gravel, vegetation, and green roofs are given a score rating based on how much they contribute to ecosystem function. For example, a surface of concrete or asphalt would get a score of 0.0 while a green roof would get a score of 0.7 and a surface covered with vegetation would get the highest score of 1.0. This rating is then multiplied by the total area that feature covers of the development. Adding up all of these scores gives you the ecologically effective area. This ecologically effective area is then divided by the total area of the development to give you a final green area score. The City of Malmo sets minimum standards for what this score has to be. The developer then has the freedom to implement any number of green features to reach the score. Images to the right show courtyards with vegetation and gravel paving that contributed to the minimum green area score.

Example:

Surface Type and Area	Green Area Factor	Points
115 m^2 covered by vegetation	1.0	115
85 m^2 mosaic paving	0.3	25.5
Total		**140.5**

If the total area of the development was 479 m^2, then score would be calculated:
=140.5/479 = 0.3. The total Green Area Factor score is 0.3


Retention Pond -Augustenborg
Source:Steve McConnell, i-sustain.com


Playground - Augustenborg
Source: Don Carlson, i-sustain.com


Green Roofs - Augustenborg
Source: Jim Mueller, i-sustain.com


Residential Courtyards displaying use of Green Area Factor in Western Harbor
Source: Dara O'Byrne


Stormwater management in Western Harbor creates a water feature in a central courtyard.
Source: Dara O'Byrne


Stormwater management and green space in Western Harbor
Source: Dara O'Byrne

"A "green points" and "green space factor" inspired by the Berlin city codes requires developers to provide for onplot vegetation such as planted roofs and surface watercourses." Chris Hancock from *Toward a Sustainable City.*

Sunflower with Turning Torso in background
Source: Frederik Tellerup © Malmö Turism

Lessons Learned

Strong national and local environmental policies are shaping the future of Malmö. With a clear focus on sustainability, the city has been able to reinvent itself as an eco-city, or ekostaden. The city has been able to use the growth and development pressure it is experiencing to its advantage to create sustainable developments. These projects have become international leading examples of ecological adaptation of dense urban development. Requiring developers to provide specified ecologically effective areas in new developments has significantly increased the green space in these developments. The green area factor method gives developers flexibility in how to acheive the minimum requirements, thus providing opportunity for innovation.

Malmö has chosen to embrace new development as a way to display the city's environmental agenda, instead of viewing development as a threat to green space. Seattle can learn a great deal from this case study. Working with developers to improve the ecosystem functions of private development would be extremely beneficial for Seattle. This would allow the city to continue to densify while maintaining important green space. This, in coordination with a visionary green space plan such as The Green Plan for Malmö, could lead to a more green and sustainable Seattle.

Turning Torso
Source: Oskar Falck © Malmö Turism

Resources

A sustainable city – ecological transformation in Malmö. www.ekostaden.com

Bo01 – An ecological City of Tomorrow in the City in the Western Harbour, Malmö. www.ekostaden.com

Bo01 – The Green City of Tomorrow. www.ekostaden.com

City of Malmo website: www.malmo.se/

Environmental Programme for the City of Malmö 2003–2008. The Environment Department

Gormsen, Dagmar. Creating a livable city: The value of green space development From policy to action: Green space in new and existing housing in Malmö. June 2004.

Green Plan for Malmo 2003. City of Malmo, Sweden.

Hancock, Chris. Towards a Sustainable City. Urban Ecology – City of Tomorrow, Bo01-area in Malmo, Sweden.

Helphand, Kenneth. Housing the Future: A Swedish housing exposition aims to marry sustainability and urban form. http://www.asla.org/nonmembers/lam/lamarticles02/march02/malmo.html

Innovative solutions to the design, management and maintenance of urban greenspace. Bo01 - City of Tomorrow - Malmo, Sweden. www.map21ltd.com/scan-green/bo01.htm

Innovative solutions to the design, management and maintenance of urban greenspace. Holma, Malmo, Sweden. www.map21ltd.com/scan-green/holma.htm

The City of Parks

View of Øresund Bridge from Western Harbor Sundsprom-enaden.

Source: Frederik Tellerup © Malmö Turism

Ribersborg Beach
Source: Malmö Turism © Alexander Brandel

Malmö: Local Agenda 21 Environmental Program and Action Plan: www.eaue.de/winu-wd/192.htm

Solutions at a Glance: Green Space Factors Provide Options. International Sustain-able Solutions. www.i-sustain.com

Swedish Government Environmental Policy Objectives. http://www.sweden.gov.se/sb/d/5400/a/43485

Västra Hamnen The Bo01-area. A city for people and the environment. From industrial site to a new sustainable city district.

Visit Øresund website. http://www.visitoresund.info/composite-399.htm

One of Malmö's many canals
Source: Malmö Turism © Jan-Erik Andersson

San Diego, California

Tehia Kalebaugh

"America's Finest City"

Downtown San Diego viewed from across San Diego Bay from Coronado island.

source: www.sandiego.gov/

San Diego's distinctiveness is defined by its location and great climate. Millions flock to its beaches and bays, canyons and mountains, and unique neighborhoods for year round activities with only nine inches of rainfall a year. The development of the most recent city general plan, City of Villages, has revitalized many parks and open spaces associated with communities an a large scale.

Since the turn of the century, San Diego has had many great planners, architects, and landscape architects, but there is also a strong history of incomplete plans due to politics. The Panama-Pacific Exposition of 1915-16 in Balboa Park was very pivotal in how open space and landscape were perceived by people moving into the fast growing region. In 1909, John Charles Olmsted worked with local horticulturalist Kate Sessions on developing a plant palate of native and adapted plants for the Expo that would reflect the climate. The layout was to have the buildings to the edges of the park in true Olmsted style and put emphasis on the canyon landscape. But architect Bertram Goodhue, who designed the Spanish style buildings, politically had the buildings moved to the center of the park. Olmsted left the job stating he couldn't be part of the destruction of the park. Goodhue also used a plant palate opposite of Olmsted's and included many broad lawns. People saw the lush landscapes and realized that with enough water anything can grow. The impact of this exposition still resonates today in how landscapes are perceived in San Diego. Politics have continued to shape the growth of San Diego which has resulted in the unsustainable sprawl of the suburbs and the abuse of regional resources.

By the 1970's San Diego's image was becoming tarnished due to explosive growth. Kevin Lynch did an assessment of San Diego stating that they were on their way to becoming another Los Angeles and losing the very characteristics that makes San Diego unique if changes were not made. By the 1980's change began, starting with the Downtown core that had become run down with the outward sprawl to the suburbs. By the 1990's San Diego was running out of room to keep sprawling, traffic was reaching an all time high and people were tired of the condition of their communities. It has taken boldness to plan big, but San Diego has planned too often in increments with incomplete results, now with a strong general plan, City of Villages, many communities and open spaces have become vital spaces again.

Feeding a giraffe at the San Diego Zoo

source: www.sandieg.gov/park-and-recreation/

City Statistics:

City Population: 1,223,400

City Area: 218,000

Density Level: 5.6

Park Acreage: 62,310

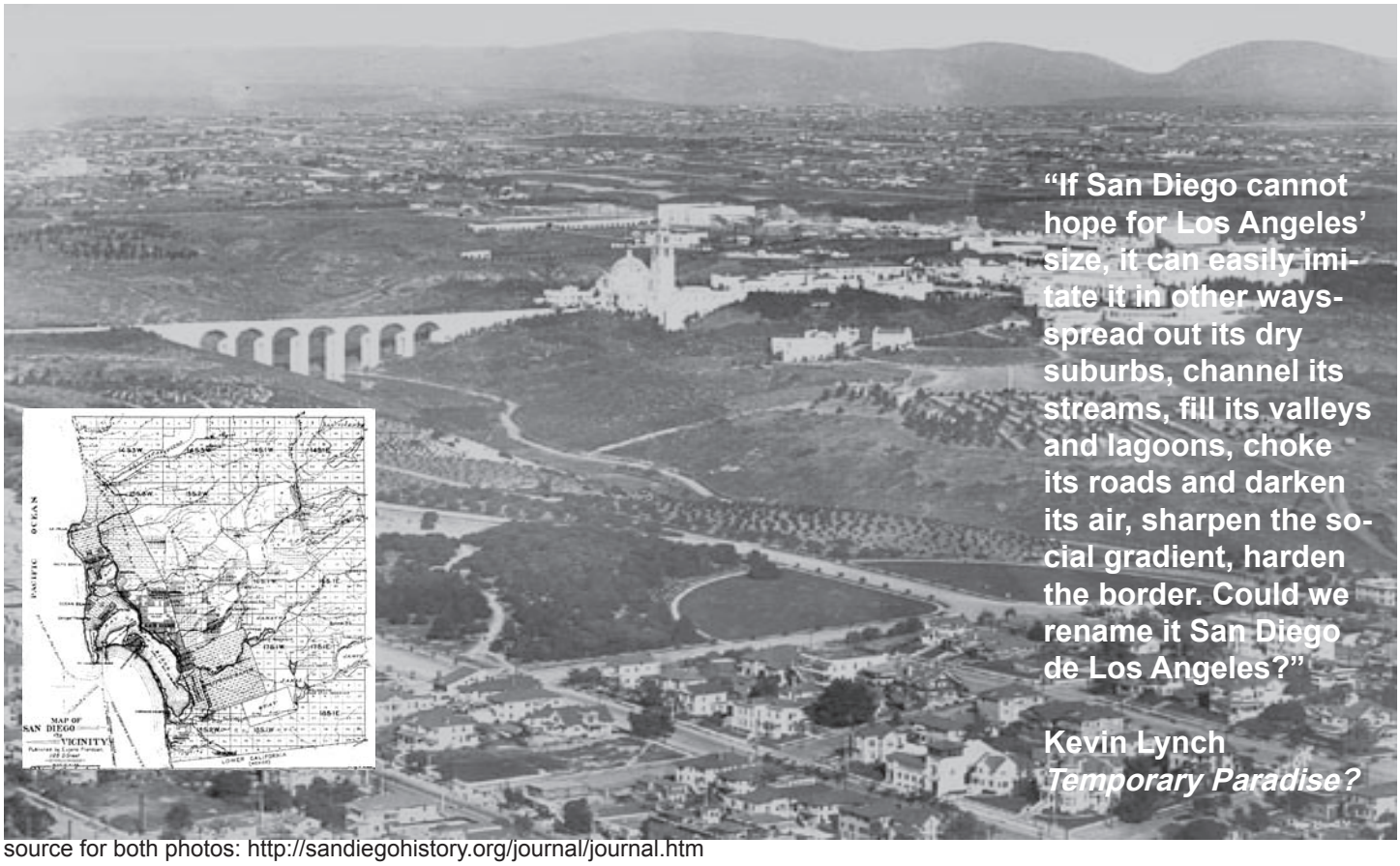
Park acreage per 1000 residents: 50.9

Governing bodies:
City of San Diego

source: Urban Land March 2000: 76-79

Historical Context: San Diego has had many great planners, architects, and landscape architects through the last 100 years, each with good intentions for the city, but through politics, war, or incredible growth, the city has endured unbelievable sprawl. By looking at the history, we can see where they have come from and what the solutions need to be if this city is going to survive another 100 years.

- 1893: Irving Gill arrives. This marked the beginning of the modern era of architecture for San Diego; he took cues from the region not distant sources.
- 1908: John Nolan's Plan for the Improvement of San Diego is a classic City Beautiful plan, but not much of the plan is implemented.
- 1909-1911: John Charles Olmsted creates a master plan for Balboa Park's upcoming Panama-Pacific Exposition. He works with Irving Gill and horticulturalist Kate Sessions to create landscapes which fit San Diego's climate. Bertram Goodhue is the lead architect and persuades planners to forgo Olmsted's designs. Olmsted leaves the project.
- 1915: the Panama-Pacific Exposition opens. Thousands see the lush landscapes and changes, for the worse, how future residents and planners treat these arid lands.
- 1926: Nolan is hired again to make a city, harbor and parks plan. His ideas become the cornerstone for all master planning for the next 42 years.
- 1946: Federally funded dredging of False Bay begins, now known as Mission Bay, and is completed in 1961.
- 1970's: Canyons are being bulldozed and filled for new development at an alarming rate.
- 1974: Kevin Lynch and Donald Appleyard's report *Temporary Paradise? A Look at the Special Landscape of the San Diego Region* draws attention to the urban sprawl problem.
- 2002: City of Villages Plan implemented.



source for both photos: http://sandiegohistory.org/journal/journal.htm

PAGE | CITY
(ARIAL, 10PT, BOLD, CAPS, LEFT

“America’s Finest City”

Major Components

a. Connective corridors:

The Strand~5 mile boardwalk fronting Pacific Beach to Mission Beach.
San Diego River Park~Trails for biking and walking starting from Ocean Beach to Mission Valley to Mission Trails Park and out to the mountains.
Martin Luther King Promenade~connecting the downtown waterfront.
La Jolla beaches~waterfront trails along the bluffs.

b. Anchors:

Balboa Park~1000 acres containing 15 museums, gardens, arts, and broad open space, thus making it a place that offers something historical, horticultural, educational, and recreational.
Mission Bay Park~the largest man-made aquatic park at 4,235 acres, 46% land and 54% water.
Old Town~230 acre Spanish/Mexican historical town with parks and open space.
Open Space Parks~offering natural settings with trails and scenic views.
Mission Trails Regional Park~5,984 acres
Los Penasquitos Regional Park~4,000 acres
Black Mountain Open Space Park~2,352 acres
Tecolote Canyon Natural Park~6.5 miles of trails

c. Entertainment Parks:

San Diego Zoo~it started out as a place for animals left over from the first exposition to become a world class zoo.
Sea World~an entertaining form of marine “zoo” that also works to protect our marine envirnment.
Lego Land~this a purely entertainment-type park
Wild Animal Park~located in San Diego’s north county, it is a place to see ani mals in the “wild”.

source: http://www.co.san-diego.ca.us/parks/index.html

Above:
top: Windansea Beach

source: www.sandieg.gov/park-and-recreation/

bottom: Balboa Park formal gardens

source: http://www.co.san-diego.ca.us/parks/index.html

San Diego needs audacity. Too few of us devote personal energy to our communities and make individual sacrifices for the good of the community. If we're going to stay, we must wake up and get serious."

Neil Morgan, San Diego Union-Tribune, senior editor.

"City of Villages" Strategy

In 2002 the City of Villages Strategy was formalized in order to increase residential and employment concentrations to support regional planning goals and an expanded transit vision for the next 20-50 years. A set of core values is applied to each unique neighborhood "village" .

Open Space – We value the City's extraordinary setting, defined by its open spaces, natural habitat and unique topography.

Diversity – We value the physical, social and cultural diversity of our City and its neighborhoods.

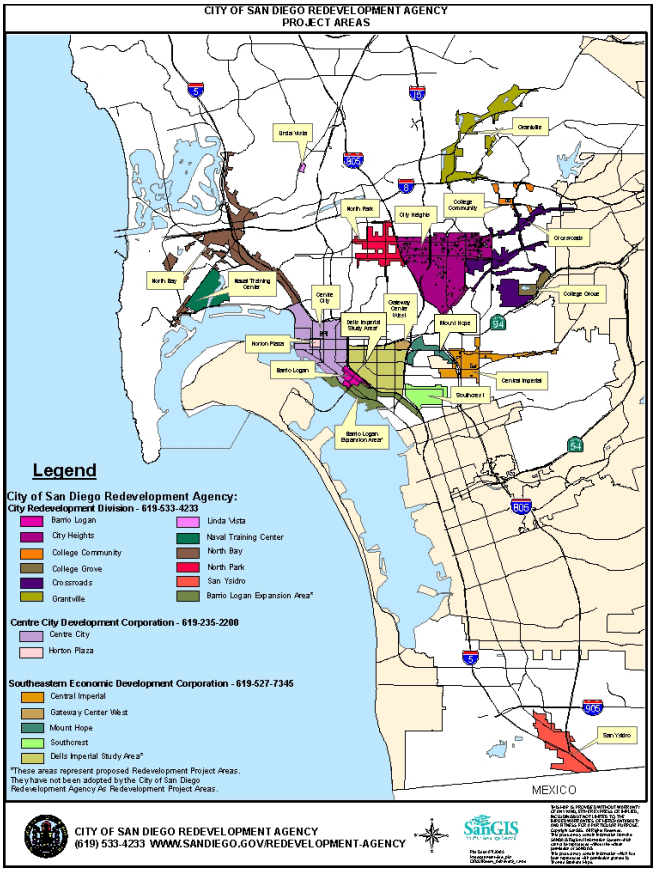
Public Facilities – We recognize that the availability of public facilities, infrastructure (including information infrastructure), and services are essential to neighborhood quality and necessary companions to density increases.

Housing – We value the promotion and encouragement of affordable housing and an overall diversity of housing types and costs.

Culture – We value the City's multiplicity of arts, cultural and historic assets.

Walkability – We value walkable, tree-lined communities.

Schools – We value schools as an integral part of our neighborhoods and encourage equitable access to quality schools and other educational institutions.



Recreation – We value parks, accessible by foot, transit, bicycle and car, as areas to support neighborhood, community and regional facilities and programs.

Economy – We value maintaining and encouraging a diverse economy to achieve a rising standard of living for all San Diegans.

Regionalism – We value regional cooperation and coordination to resolve regional growth issues and support regional collaboration with other organizations and agencies in order to meet economic prosperity.

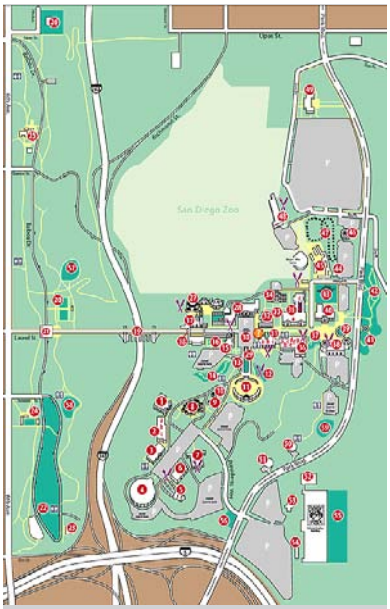
Mobility – We value a convenient, efficient, aesthetically-pleasing and multi-modal transportation system.

Multi Nationalism – As a prominent border city, we value our mutually-beneficial cultural and economic ties with our neighbors in Mexico.

Efficiency – We value a compact, efficient and environmentally-sensitive pattern of development.

source: http://www.sandiego.gov

PAGE | CITY
(ARIAL, 10PT, BOLD, CAPS, LEFT



Balboa Park Map
source: http://sandiego.gov/park-and-recreation/

Del Mar coast line

source: www.co.san-diego.ca.us/parks/index.html

Los Penasquitas Regional Park
source: http://co.san-diego.ca.us/parks/index.html

Resources

Grogan, Bradley C. “Betting on Change.” Urban Land March 2000: 76-79

Downtown San Diego Partnership: http://www.downtownsandiego.org/index.cfm/fuseaction/about.abt_pp

City of San Diego: http://www.sandiego.gov/

Community and Economic Development: http://www.sandiego.gov/ced/index.shtml

The Journal of San Diego History: http://sandiegohistory.org/journal/journal.htm

Downtown San Diego Partnership: http://www.dtsd.org/

The American Institute of Architects, *Opening Remarks:* http://www.aia.org/cod_lajolla_042404_sandiego_opening.

City of San Diego--Parks and Recreation: http://www.sandiego.gov/park-and-recreation/

County of San Diego: http://www. co.san-diego.ca.us/parks/index.html

PAGE | CITY
(ARIAL, 10PT, BOLD, CAPS, LEFT

Boulder, Colorado

Melissa Martin and Garrett Devier

View of the city of Boulder, nestled between the mountains of the Colorado Front Range

(http://www.ci.boulder.co.us)

Boulder Open Space and Mountain Parks is a program started by a community concerned with preserving and protecting its open space and natural environments. From the first purchase of an apple orchard, to becoming the first city to impose a sales tax for the purpose of funding and maintaining open space acquisitions, Boulder Open Space and Mountain Parks has been a community driven and supported program.

Open Space and Mountain Parks Provisions in the City of Boulder Charter:

1. Preservation or restoration of natural areas characterized by or including terrain, geological formations, flora, or fauna that is unusual, spectacular, historically important, scientifically valuable, or unique, or that represent outstanding or rare examples of native species;
2. Preservation of water resources in their natural or traditional state, scenic areas or vistas, wildlife habitats, or fragile ecosystems;
3. Preservation of land for passive recreation use, such as hiking, photography or nature study, and if specifically designated, bicycling, horseback riding, or fishing;
4. Preservation of agricultural uses and land suitable for agricultural production;
5. Utilization of land for shaping the development of the city, limiting urban sprawl and disciplining growth;
6. Utilization of land to prevent encroachment on floodplains; and
7. Preservation of land for its aesthetic or passive recreational value and its contribution to the quality of life of the community.

Boulder Parks and Recreation Master Plan mission statement:

“To provide a broad spectrum of opportunities to renew, restore, refresh, and recreate, balancing often stressful lifestyles.”





City Statistics

City Population: 94,673

City Area: 17,792 acres

Density Level: 3 - 4.5 people per acre

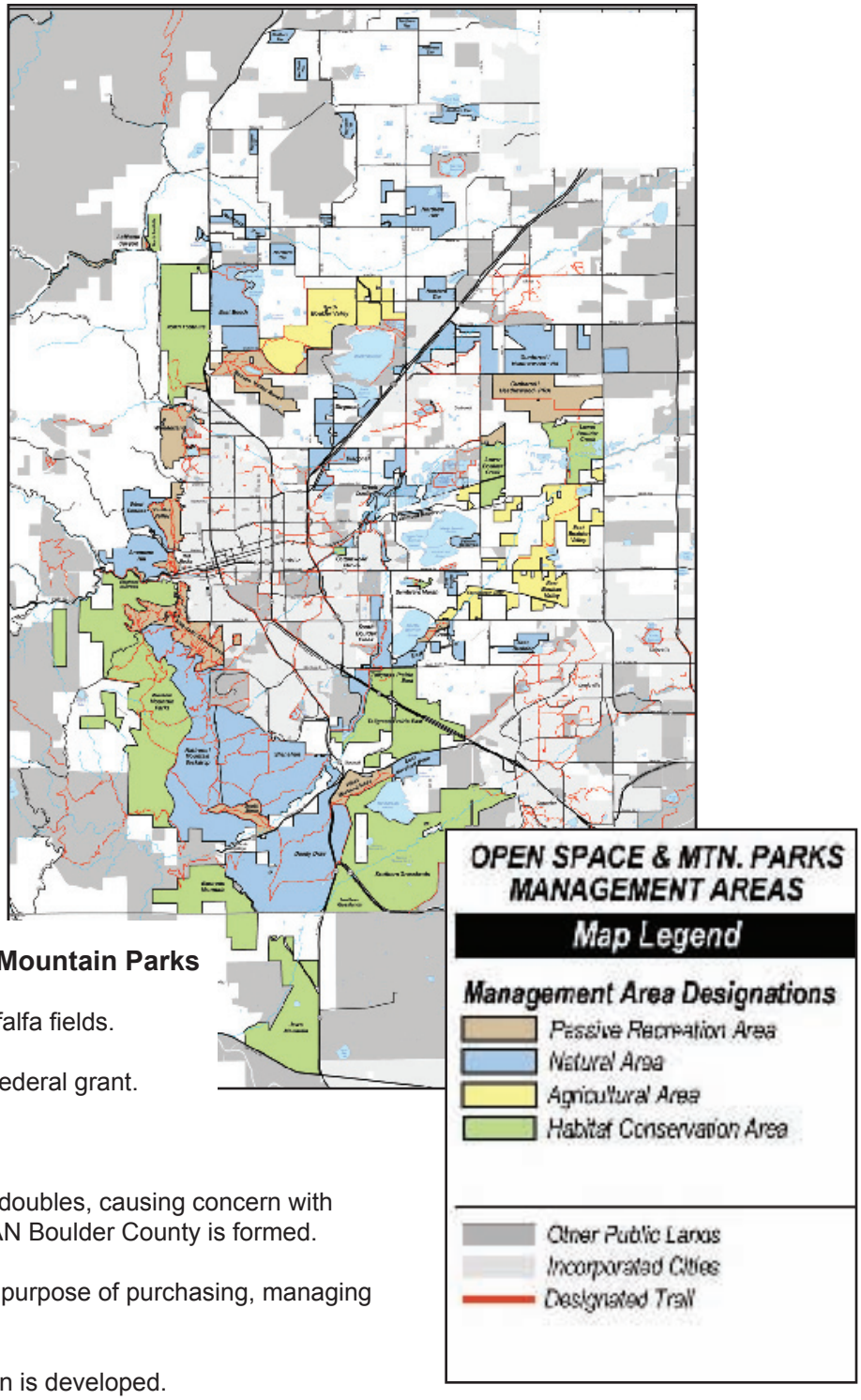
Park Acreage: 43,083

Park acreage per 1000 residents: 455

Governing bodies: City of Boulder, Open Space and Mounatain Parks

Boulder County

Expenditure per person: $231.82



History of Boulder Open Space and Mountain Parks

1898: Purchase of apple orchards and alfalfa fields.

1907: 1,600 acres are purchased with a federal grant.

1912: Citizens purchase 1,200 acres.

1950 – 1960: The population of Boulder doubles, causing concern with citizens and the group PLAN Boulder County is formed.

1967: First city to vote a sales tax for the purpose of purchasing, managing and maintaining open space.

1978: Boulder Valley Comprehensive Plan is developed.

2001: Merger of the Mountain Parks Division and the Open Space / Real Estate Department, to form the Open Space and Mountain Parks.

Major Components

a. Connective corridors

The Boulder Greenways System is a network of green corridors throughout the city that provides alternate transportation routes for pedestrians and bicyclists, while also facilitating opportunities for recreation and cultural experiences. The greenways work to protect riparian, floodplain, and wetland areas, improve stream water quality through buffer zones, and provide appropriate storm drainage. The Greenways program started as the Boulder Creek Project in 1984 and has extended to included corridors along several of the Boulder Creek tributaries, including Four mile Canyon Creek, Bear Canyon Creek, Skunk Creek, Goose Creek, Wonderland Creek, and South Boulder Creek. Currently, this riparian-based corridor system anchors 200 miles of pedestrian and bike trails.

In addition to the riparian greenways, the city of Boulder boasts an extensive urban forestry program, a department of Parks and Recreation, which maintains over 40,000 trees along streets and on city owned land. More than 330,000 trees have been planted here over the last century and a half and now cover 23% of urban areas (Boulder Area Sustainability Information Network 2004).

Boulder Reservoir
(http://totalboulder.com/resources/53.html)

Valmont CIty Park
(http://www.osmp.org.)

b. Anchors

A greenbelt formed by mountains surrounds the city of Boulder. The boundary formed by the greenbelt, known as Mountain Parks, puts a physical limit on urban sprawl and provides easy city access to undeveloped natural areas. The greenbelt contains over 130 miles of maintained trails and spans 6,500 acres. Rock climbing areas, mountain bike trails, and education programs at Flagstaff Mountain's Summit Nature Center provide additional opportunities for open space use.

The 540 acre Boulder reservoir, located in Northeast Boulder, functions as a second open space anchor by providing wildlife habitat and human recreation opportunities. The reservoir is almost entirely surrounded in undeveloped, natural area, with a small portion of the perimeter developed for human recreation. The reservoir includes a roosting osprey area, which Parks and Recreation seasonally closes to human use in order to preserve habitat integrity.

Valmont City Park and Central Park also serve as open space anchors. At 132 acres, Valmont is the largest park in the Boulder city park system. It contains a large open areas, playgrounds, and recreation facilities. Boulder Central Park is notable for its central location in the city. It is adjacent to the city farmers market and is the site of the Bandshell, a event venue, making it a popular and important green space for Boulder residents (OSMP Visitor Master Plan).

Pearl Street Mall
(http://www.ci.boulder.co.us/comm/Gallery)

c. Civic, Downtown, and Social Spaces

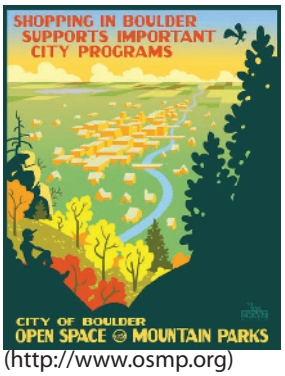
Despite its relatively small size, the city of Boulder has a vibrant downtown with many civic and cultural opportunities. The Pearl Street Mall, located in downtown Boulder, is an outdoor mall of retail shops and cafes. It is also the site of art festivals and street entertainment. A pop-jet fountain and children's rock garden accentuate the mall's outdoor focus. Other valued civic elements include the Boulder Public Library, the Boulder Museum for Contemporary Art, and the University of Colorado.

Boulder Public Library
(http://www.ci.boulder.co.us/comm/Gallery)

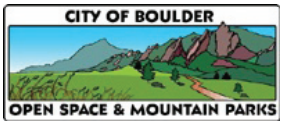
d. Neighborhood Parks

As of 1996, Boulder had over 434 acres at 50 sites devoted to urban parks. These parks include Harlow Platts Park, East Boulder Community Park, and Foothills Community Park, which are larger community parks. There are also several smaller, pocket parks, such as North Boulder Park, Greenleaf Park, and Scott Carpenter Park. One especially notable park is Chautauqua Park, which contains recreational facilities and historic relics, as it was founded in 1878. Additionally, Chautauqua Park contains trailheads for several Mountain Parks trails and therefore serves as an important link in the open space system. Neighborhood parks are valued as sites for active recreation that complement three indoor recreation/community facilities (OSMP Visitor Master Plan).

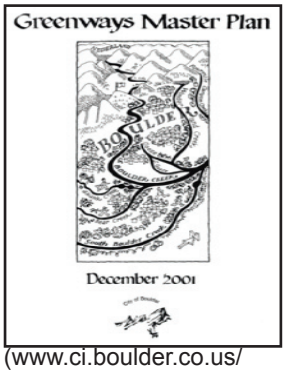
Boulder Public Library
(http://www.osmp.org)



(http://www.osmp.org)



(http://www.osmp.org)



(www.ci.boulder.co.us/publicworks/depts/utilities/projects/greenways/index.htm)

Funding Mechanisms

"It pays to shop in Boulder!"

The Open Space and Mountain Parks Program is funded by a city sales tax of 0.88%.

Acquisition Methods

The Open Space and Mountain Parks made their first purchase in 1898. They have since acquired over 375 properties. Several methods that are used for acquiring properties.

1. Outright purchase at fair market values.

2. Donations of land.

3. Conservation easement purchases and easement donations.

Properties are acquired based on the Open Space Acquisitions and Management Plan (2000-2006). This plan was adopted by the City Council in 1994 and updated in 2001. Current acquisition priorities are; properties that are most threatened by development, properties that are close to or next to existing open space, and important wildlife and riparian habitats.

Contemporary Initiatives

The population of Boulder continues to increase rapidly, and the city recognizes the burden this trend could have on open space quality and acreage. Currently, there are multiple initiatives that attempt to address the need to preserve and improve open space in the face of these changes. Many of these proposals are outlined in the Parks and Recreation Master Plan, the Open Space and Mountain Parks Visitor Master Plan, and the Greenways Program Master Plan.

Despite the increasing human population, the OSMP Visitor Master Plan outlines plans for open space acquisition. A 2006 plan states a goal of acquiring 11,000 additional open space acres, focusing on property that is most threatened by development, adjacent to or near existing open space, or containing prime riparian areas and wildlife habitat. In addition to acquisition, current master plans call for improvement and development of existing parks, renovation of Parks and Rec. facilities (swimming pools, trails, buildings, playgrounds), and improvement of historical and cultural facilities.

Boulder's aggressive strategy for maintaining quality open space is admirable. However, the impressive amount of wilderness, parks, and other open space limits area available for human habitation, and building height restrictions and zoning laws compound the issue. The Boulder open space policies have clear consequences, such as elevated housing prices and population booms in neighboring towns, which should be considered when assessing their success or applicability to other cities.

Lessons Learned

As part of developing initiatives for open space management, the city of Boulder's Parks and Recreation and Open Space and Mountain Parks departments have reflected upon the successes and failures of the current system. This critical examination of the city's open spaces will help them to determine where funds and time should be focused, thus prioritizing open space improvements.

The Boulder Parks and Recreation Master Plan outlines specific strengths and weakness of the open space system:

What works:
- Easy access to a wide variety of beautiful natural settings
- A wide range of user groups, pursuing activities from passive to active recreation, can enjoy open spaces
- Self-imposed tax for demonstrates a high level of civilian support for open space and wilderness area

Room for Improvement:
- Wildlife habitat patches are limited in extent and distribution
- Connections between individual trails and between trail networks are often weak
- Increasing crowding and consequent user group conflicts


(http://www.osmp.org)

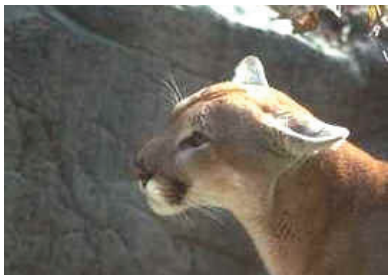

(http://www.osmp.org)

Urban Wildlife Management Plan

Boulder Wildlife

It is estimated that over 500 vertebrate species, which is about half of the total species found in all of Colorado, use the Open Space Mountain Parks area. This list of animals includes elk, mountain lions, black bears, black-tailed prairie dogs, and several predatory bird species (OSMP Visitor Master Plan).The proactive conservation and preservation policies developed by the Boulder Urban Wildlife Management program and other city departments promote this impressive diversity.

In particular, city policy helps the survival of several raptor species, including golden and bald eagles, falcons, and osprey that nest in the Flatirons foothills, part of the Mountain Parks open space. Mandatory closing of park segments protect these animals from human disturbance during their vulnerable roosting stage. This policy was developed in 1984 in response to declines in bird populations due to pesticide and other pollution sources. Today, an extensive program that monitors bird health accompanies management by seasonal closure (Boulder Urban Wildlife management Plan).



Golden eagle, Mountain Lion, Burrowing Owls (www.osmp.org)

(http://www.osmp.org)

Resources

Boulder Area Sustainability Information Network. “Calculating the Value of Boulder’s Urban Forest.” 2004. http://bcn.boulder.co.us/basin/boulder/urbanforest.

Boulder Mountain Parks Resource Protection and Visitor Use Plan. 1999. Parks and Recreation Advisory Board. http://www.osmp.org.

Boulder Public Works Greenways Program: www.ci.boulder.co.us/publicworks/depts/utilities/projects/greenways/index.htm.

City of Boulder, Colorado Official Home Page. http://www.ci.boulder.co.us.

City of Boulder Parks and Recreation Master Plan. 2000. http://www.ci.boulder.co.us/parks-recreation.

ERSys.com: Boulder, Colorado. http://www.ersys.com/usa/08/0807850/density.htm.

Total Boulder website: http://totalboulder.com/resources/53.html

Boulder Urban Wildlife Management Plan. http://www.boulderwildlifeplan.net.

Visitor Master Plan. April 2005. City of Boulder Open Space and Mountain Parks. http://www.osmp.org.

City of Boulder, Open Space and Mountain Parks. http://www.ci.boulder.co.us/open-space/

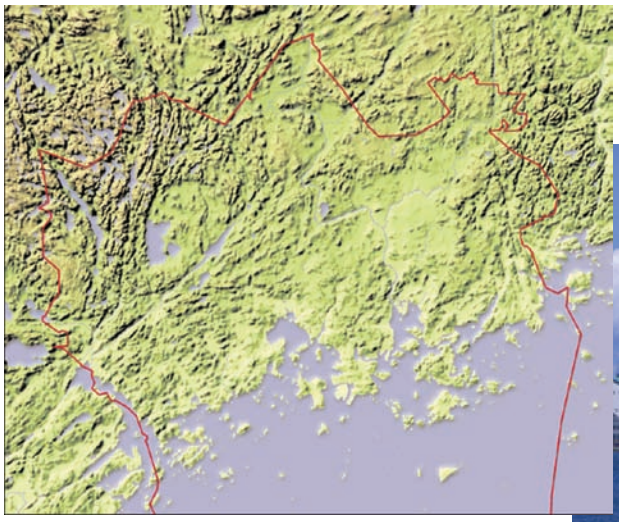
Tittle Bar Photos: http://www.osmp.org

Helsinki, Finland

Michael Michalek

Close to the Forest,

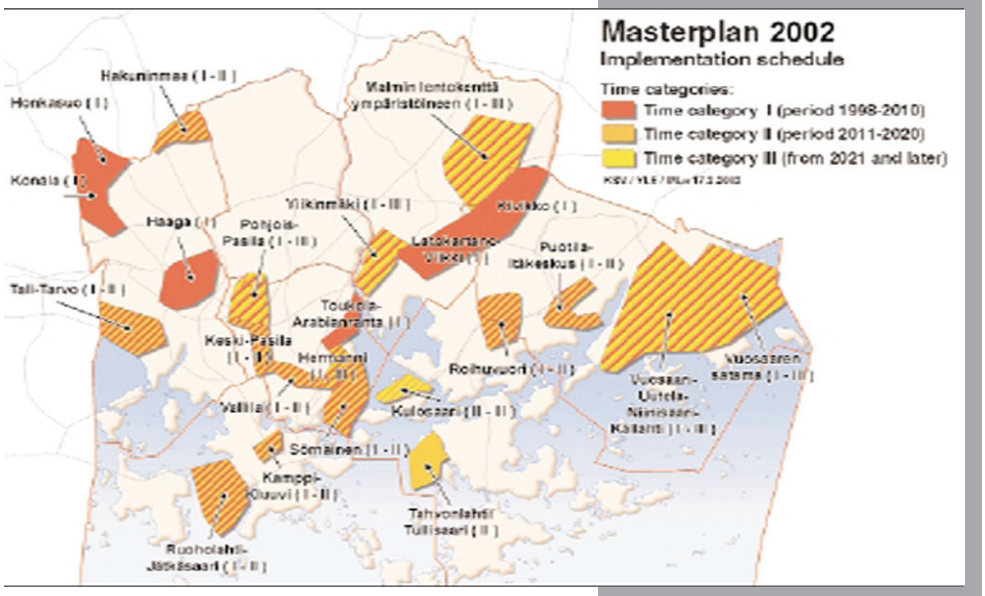
Nature in the City



§(Above) Bathimetric map of the greater Helsinki region.
**(Right) Looking upon the downtown of Helsinki.

Since Finland declared their independence in 1917, they have become one of the world's wealthiest nations. What was once a predominantly agrarian country, rapidly transformed into a modern industrial urban society. The main source of economic income became based upon paper making and engineering, and a significant portion of the population shifted from rural areas to more urban settings in Southern Finland. Within the past twenty years, Finland, more specifically Helsinki, has shifted its main economic generator to electronic and information technologies. Their shift has been quite profitable and has, again, changed their urban context. More importantly, the resulting wealth has allowed Helsinki to think progressively about open space planning, development, and management.

Helsinki is a forrested maritime city with a close connection to nature. Over one third of the cities surface area is covered by green spaces. The constructed parks and closely monitored green spaces are an essential part of the cityscape, and are integral to enhancing the quality of life for the residents of Helsinki.



§(Above) 2002 Masterplan for implementing proposed projects over three time periods of 10-20 years.

City Statistics

City Population: 559,046

City Area: 686 sq.km

Density Level: 2,993 inhabitants per sq.km

Park Acreage: 4,450

Bike Path (in km): 950

Work Force:

Agricultural	**.1%**
Manufacturing	**20.60%**
Services	**78.7%**

Average Inhabitant per Dwelling: 1.5

Context

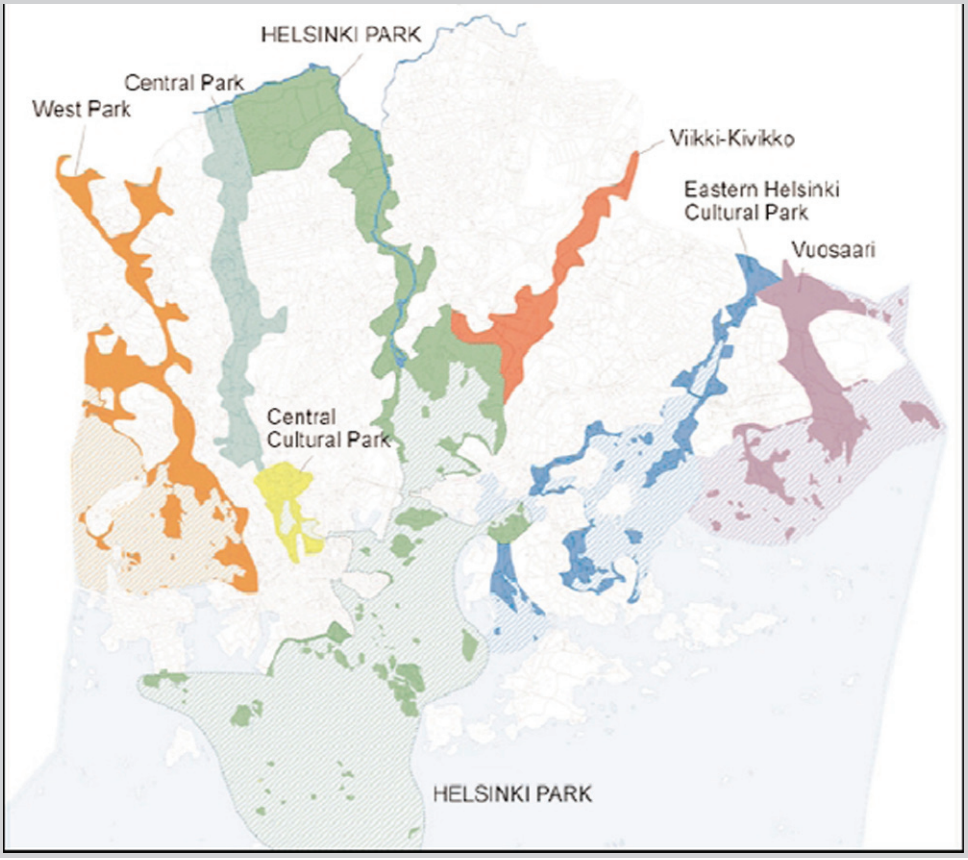
There is an intricate network of departments responsible for planning, constructing, and maintaining all of Helsinki's open spaces. Supervising these departments are various committees, among which is The Public Works Committee.

The Public Works Committee directs and supervises the activities of the Public Works Department. In particular, the committee defines the objectives for the department's operations each year, and then evaluates their progress. All plans, prepared by civil servants in the Public Works Department, are submitted to the Committee, who alone has the authority to approve.

Underneath the Public Works Department is The Street and Park Unit . They are responsible for constantly developing and maintaining the network of green areas.

Aside from departmental organization, there is a master plan which gives general guidelines for the development of Helsinki green spaces. The green area program is composed by the residents, civil servants, and decision-makers. It lasts ten years, after which a new program is composed.

This organization has lead to a variety of multifaceted parks in Helsinki. The styles and values of different communities are reflected in each open space, and alternate between districts.



§(Left) A diagram of Helsinki's "Green Fingers" conceptual plan. The goal of their open space plan is to extend large habitat corridors from the densely populated shoreline to the more rural edges of the greater Helsinki region.

Major Components

a. Connective corridors

The largest continuous forested areas in the city may be found in the Central Park, Tali, Munkkiniemi, Viikki, Kivikko, Laajasalo, Mustavuori and Uutela.

b. Anchors

The City of Helsinki owns over 10,000 hectares of forest across over 10 municipalities in Uusimaa.

Within Helsinki's borders, there are approximately 3,800 hectares of forested green areas. The City of Helsinki owns roughly 3,500 hectares of forest in the Nuuksio highland lake area in Espoo and Vihti, and these are for outdoor recreation use. In addition to these, the City of Helsinki owns large areas of forest in Sipoo.

c. Civic

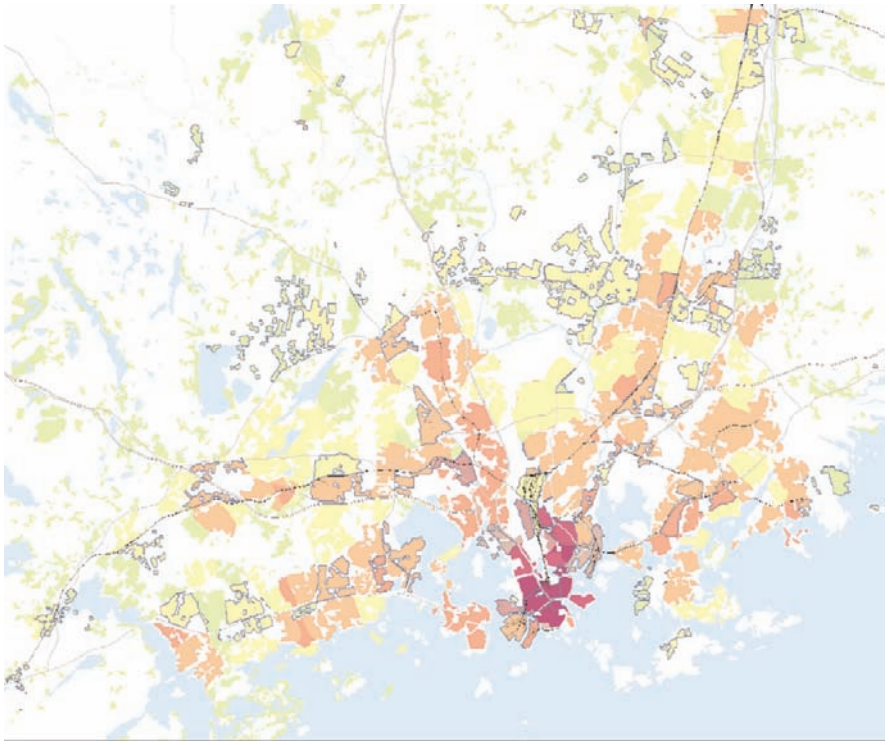
Helsinki Park

d. Neighborhood Parks

Similar to the American P-patch, Helsinki has allotment gardens. Allotments are popular leisure spots for much of the population. They are used to grow vegetables and root crops for cooking as well as flowers and bushes for pleasure.

Allotments were designated in the early decades of the 1900s for the purposes of the working population. Open green spaces and parks were making the shift from an elitist leisure activity to a classless type of recreation. In addition, the government of Helsinki intended the implementation of these allotments to help alleviate many of the health issues of the time.

The city leases the land areas to associations responsible for allotments. These associations take care of administration and monitor compliance to the use and maintenance instructions. Individual tenants deal directly with the associations.

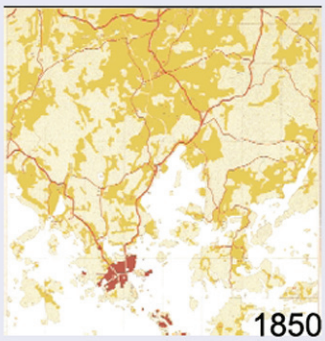


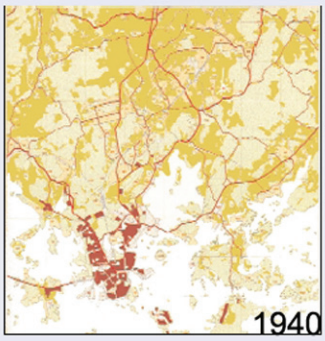
§(Above) Map showing efficiency of building density ranging from 2.1m³ to 0.1m³

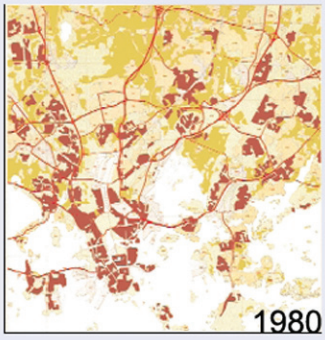
…(Above) The Esplanade's linden uplighted Photo: Seppo Kaksonen.

**(Bottom) An example of the maritime habitat which is protected by careful planning.

**(Below) A picture from the Helsinki central park water zone which demonstrates the necessity of the delicate balance between natural anvironments and human construction due to their proximity.







§(Above) The diagrams demonstrate the dramatic change in density which occured just over a 100 year span, as well as provide an understanding of development patterns over time.

Funding Mechanism and/or Planning

Funding for all services related to the construction and maintenance of open space in Helsinki is provided by the government. There are 6 divisions underneath the Public Works Department who are responsible for design, creation, and maintenance of open space. Those divisions are:

-Architectural division
-Administration Division
-PWD-Construction Management
-PWD-Technical Services
-PWD-Environmental Services
-Street and Park Division

Issues

•Increasing Population •Maintaining Cultural history through site development

•Relocation of Industry •Maintaining Integrity and density of open space

•Industrial Site Conversion

Initiatives and Ideology

Instead of segregated, monotonous “dormitory suburbs” Helsinki’s urban construction policies aim to develop areas that are richly diversified in terms of their functions and visual townscape qualities.

Following the same lines, in terms of diversified functions, are the parks and green areas. Helsinki has adopt a concept where they see the whole city as The Helsinki Park. The concept represents a kind of experimental laboratory for the development of a new park culture. There hope is that this will “be an important comfort factor in the future that will further enhance the city’s recognition.”

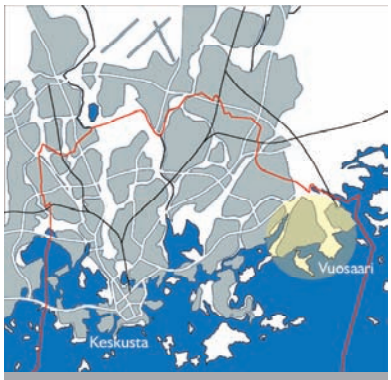
Within the boundaries of the ocean and river park extending from Harmaja to Haltiala are many of Helsinki’s most valuable attributes: the sea, unique architecture, cultural history preserved in manor estates, and natural features in greenbelt areas. The development of regional recreational facilities and parks which take advantage of these attributes, will be intensified. Particularly Helsinki intends to focus their efforts in the city center, where park areas will expand and waterfronts will be freed up for residential use.

Lessons Learned

One of the main lessons to be learned from Helsinki, is how to effectively manage and maintain a large network of open space. Helsinki has an impressive departmental structure to their government, enabling them to constantly monitor and improve all of their green spaces.

Another factor in Helsinki's great open space management is their guiding philosophy of a "green finger" network. The "green finger" division is a preservable plan which provides a constant balance of open green space for all the inhabitants. In other major cities such as Los Angeles, Califonia and New York City, New York green open space is economically distributed to the wealthier citizens who can afford to pay for it. Within the past 20 to 30 years, these larger cities have begun to realize the social injustice of open space allocation, but from earlier on, Helsinki understood the benefits of providing quality open green space to their working class.

Lastly, the prioritizing of and respect for the environment which occurs in Helsinki, allows for a stronger system of open space sustainability. In Helsinki, it seems that the majority of the population works towards a cohesive relationship with man and the environment. The residents of Helsinki support all of the necessary legislation to provide their city with quality life-enhancing green open spaces. It seems that all of the benefits which Helsinki has are because of a difference in culture. To eventually gain these same benefits, environmental education is a necessary priority.



**(Above) A simple diagram indicating the regional context or Vuosaari.

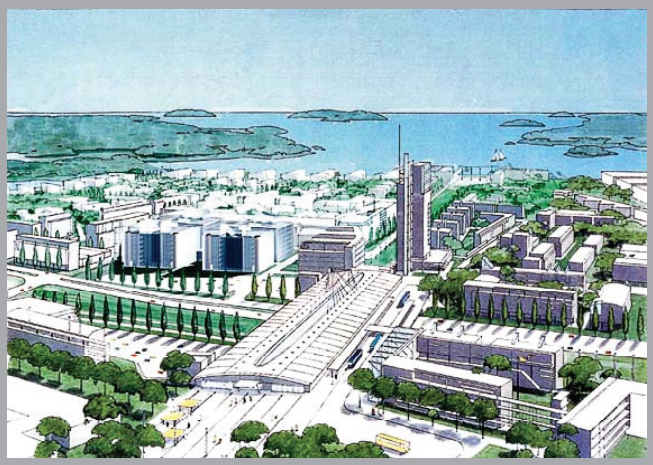
**(Above) Aerial photo of Vuosaari which demonstrates the confined urban development.

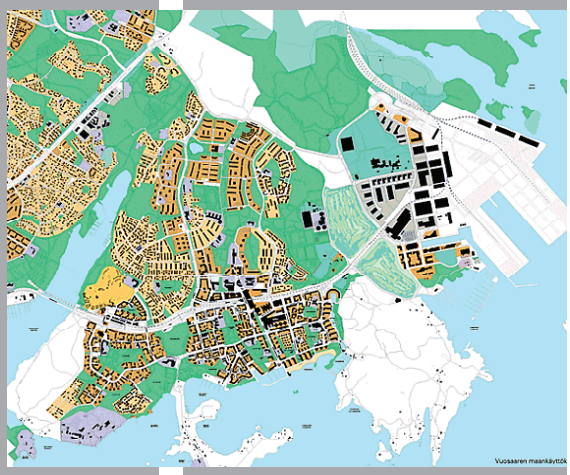
**(Below Right) A plan view of the future plan for the relocation of the Vuosaari port.

**(Below Left) A professional rendering showing the envisioned future of Vuosaari.

Story in a Box: Vuosaari

Surrounded by the sea on three sides, Vuosaari is a seaside district with many nature areas. The shores are generally open to the public. There are five small-boat marinas, with a few planned for Aurinkolahti and Vuosaarenlahti. Bathing beaches are at Rastila, Kallahti, Kallahdenniemi, Uutela and Aurinkolahti. There is a wide variety of flora and fauna, and many nature conservation areas. The area is home to the following Natura 2000 network sites: Kallahdenniemi bay; Porvarinlahti, an important wetland bird area; and Mustavuori grove. Parks, sports fileds, forests and other nature areas all provide a wide range of recreational activities.





**(Above) A plan view of the overall size and subdivion of Helsinki's Central Park. Central Park is located adjacent to Helsinki park.

**(Above) Haltiala primevil forest.

**(Below) Indoor pool and sunbathing.

Story in a Box: Central Park

Central Park in Helsinki is a perfect example of the mixture between man and nature which Helsinki strives to have co-exist. The park covers roughly a thousand hectacres and is 10 kilometers in length. Because it spans over such a long distance the terrain and species inhabiting it vary greatly from section to section.

Within the park there are four nature preserves at the northern end of the park. They include; Pitkäkoski deciduous forest, Haltiala primeval forest, Niskala arboretum, and Ruutinkoski deciduous forest. Along with the diversity in habitat is a diversity of fauna. Mammals living in the Central Park include elk, badger, fox, arctic hare, brown hare, weasel, raccoon dog, and muskrat. Bird species nesting in the park include black woodpecker, goldcrest, Eurasian jay, tits, dunnock, garden warbler, wood warbler, and red-breasted flycatcher.

On the outskirts of the city, silvicultural works are undertaken according to the principles of ecological management. For example, the nesting places of birds and mammals are preserved during logging. The city has a set of clearly defined and diverse management objectives including the conservation of biological diversity in forests

While 700 hectacres are devoted to nutral presevation, the resulting 300 are for the citizens to actively occupy and use. Depending on the area and season, a variety of recreational activites are available to partake in. Everything from kayaking to horse riding courses to running tracks are available. Again, everything is managed so that negative impacts (i.e. soil compaction around tree roots, erosion on shores, etc.) of constant human interaction in green spaces is kept to minimum.

Resources

1.) City of Helsinki Webpage. 29 January 2006 <http://www.hel.fi/wps/portal/Helsinki_en/?WCM_GLOBAL_CONTEXT=/en/Helsinki/>

2.) Ross De Alessi Lighting Design Webpage. 29 January 2006 <http://dealessi.com/gallery.html>

3.) The Network Of Metroplitan Regions and Areas webpage. 29 January 2006 <http://www.eurometrex.org/Docs/eAtlas/HELSINKI_eAtlas.pdf#search='master%20plan%20helsinki,%20finland'>

4.) Helsinki Central Park webpage. 29 January 2006 <http://www.hel2.fi/tietokeskus/julkaisut/pdf/05_09_15_taskutilasto_englanti.pdf>

5.) Facts About Helsinki. City of Helsinki Urban Facts. <http://www.hel2.fi/keskuspuisto/eng/1centralpark/>

**Photos retrieved from City of Helsinki website
§ Photos retrieved from EuroMetrex Pdf.
…Photos retrieved from Ross De Alessi webpage

Population 2001		Housing		Public Facilities		Employment		Economy		Transportation	
Inhabitants	1,304,595	Number of Dwellings	618,299	Hospital	67	Labour in Total	988,148	Urban Commercial Activities		Number of Cars	525,682
						Non-working	312,000	Offices		Private	87.10%
0-14years	18.20%	Apartments	65.50%	Education		Labour Force	676,109	Restaurants		Business	12.90%
15-64	70.30%	Rental Houses	39.30%	Universities	9	Unemployed	55,441	Hotels			
65+	11.60%	Built Before 1970	40.00%							Number of Bicycles	N.A.
				Cultural Institutions		Employed (jobs)	659,114	International Attractions			
		Average Inhabitants	2.00	Museums	95	Agricultural	0.10%	Airport			
		Per Dwelling		Theatres	84	Manufacturing	20.60%				
				Cinemas	65	Services	78.70%				
				Recreation (in ha)							
				Forrest	3,800						
				Parks	1,800						
				Bike Paths (in km)	950						

Economic Growth		1990		1995		2000		2005
Finland		-7.1		-3.6		-1.2		4.5
Helsinki Region		-4.1		-4.7		0.4		4.6

Barcelona, Spain

Peter Nelson

The Complete Integrated City

Aerial view of Barcelona
source: gettyimages.com

Barcelona is now widely known as one leader in innovative planning in the world. Internationally, it is celebrated for its accessable open space and walk-ability. It has survived the economic, environmental and social changes of the last decades through focusing upon the provision of great urban spaces that centralize activity on a variety of scales: city, neighborhood, and within each block. In short, Barcelona has been transformed into a city that provides an example of how to facilitate increasing density while maintaining a livable and relatively compact city.

Some of the guiding priciples of Bacelona's urban planning include:

- Focusing the creation of public amenities in delapitated neighborhoods first,
- Orienting the city back to the Medeteranian Sea by creating access and usable beaches,
- Provide adaquate public facilities to every neighborhood
- Reuse of brownfields sustianable planning,
- Restricting urban sprawl by focusing on redevelopment rather than new development,
- Reclaiming famous inner courtyards that act as open space within each block

"No one can survive merely by conservation. If there is on new construction, the cit y cannot stand; not even the old will endure.
-Pasqual Maragall, Mayor of Barcelona 1982-97

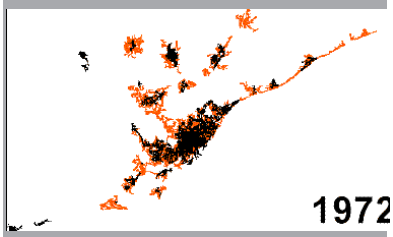
context
source: bacelona-home.com

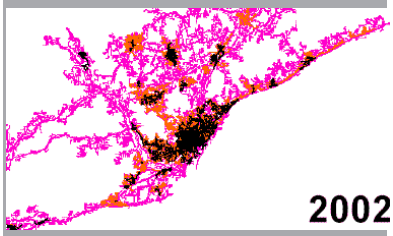
City Statistics

City Population:
1,582,000 (2003)
City Area:
101 km2
Density Level:
14.9 people / km2

Governing bodies:
City of Barcelona
Barcelona City Council

Density growth





source: geographyfieldwork.com
barcelona-home.com

Context

The foundation for Barcelona's transformation has been the city's Eixample district, a series of 520 street blocks planned on a grid with major boulevards cutting through the pattern at 45 degree angles. The visionary urban planner Ildefons Cerdá worked on the design for twenty years and has been an example to planners ever since the1860 plan was implemented. Its high quality architecture, attention to community green space on large and small scales, and ease of access have stood the test of time and still provide a city that people from around the world love to visit.

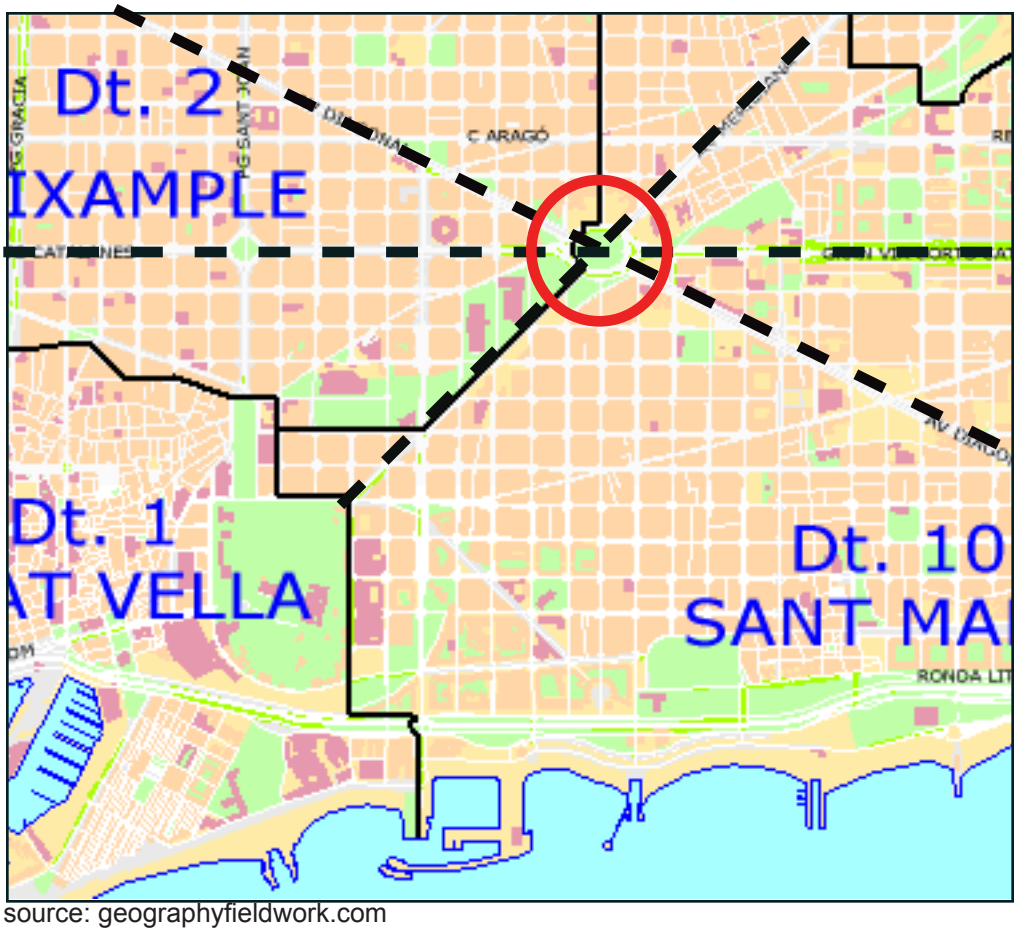
Essential Planning Timeline

1860- Walls surrounding Barcelona demolished to make way for Ildefons Cerdá's Plan for Urban Renewal

1975- End of Fraquismo and beginning of democracy
1976 - General Metropolitan Plan Implemented
1979 - First democratic municipal elections were celebrated

1980's - City is transformed in preparation for the 1992 Olympics
1980 - Architect Oriol Bohigas arrived in the city council
1983 - The inauguration of public spaces started

1982-92 - More than 490 acres of park had been gained (while 40 years of Franco produced only 172 acres)



source: geographyfieldwork.com

'

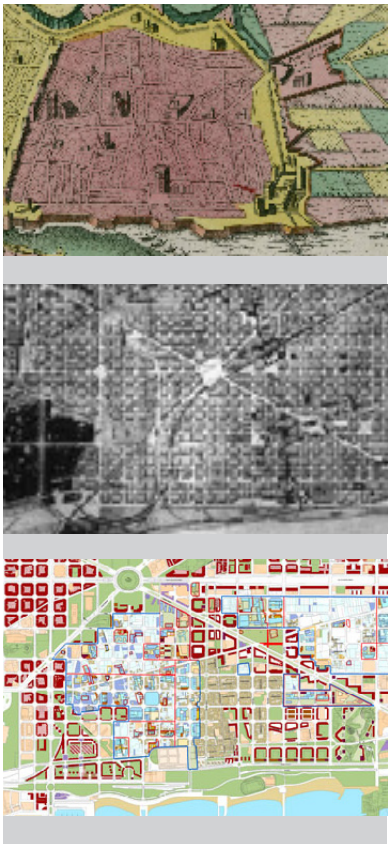
"...getting the authorities to give us a set of traffic lights meant forty days of barricades and stopping cars coming into the district where four or five fatal accidents had taken place" -Avelina Perez

Urban Renewal

The major catalyst of the modern transformation of Barcelona in the eighties to the present was the 1992 Olympics. With the end of a long dictatorship known as Franquismo, the city took advantage of its new found democracy as the Urban Social Movement began. Faced with serious problems of urban decay in both inner and peripheral districts, planners used the Games to gain enough funding to complete an amount of reconstruction that would take any city decades to accomplish.

Olympic facilities were built on neglected urban areas, with the Olympic Village, developed on brownfields close to the coast. The rail lines that cut and divided the city from the sea were opened and for the first time in its history, Barcelona has been able to turn and face the sea with pride. Six artificial beaches were created to handle the capacity of tourists that would be in the city for the upcoming Games.

This change was championed by one planner in particular, Oriol Bohigas, who used the Games as a springboard to built more than two hundred parks, plazas, schools, and other public facilities in Barcelona. Most of these amenities were inserted into derelict areas where crime was high. In one area in particular, El Rival, buildings were retrofitted to house a modern museum, police station, and other amenities.



Progression over three centuries
sources:
historiccities.huji.ac
www.cesca.es
http://www.bcn.es/22@bcn/

Olympic games 1992
source: preview.britannica.co.kr

"Barcelona is absolutely a world class city. From its architecture to its boulevards to its parks, it is a vast, diverse, center of culture and entertainment. It literally pulsates with energy." -Fred Kent (Project for Public Spaces)

Las Ramblas source: pps.org

Lessons Learned

Open city to waterfront
During the eighties, the city of Barcelona realized the value of there position on Mediterranean. Until then, they had been dumping contaminates in to the sea and making it unusable for the people. Also, there were rail lines that followed the shoreline and made a barrier from the city. They determined to redirect the rail lines and to create six artificial beaches in preparation for the Olympics.

Get your priorities straight
During the incredible revitalization in the eighties, the city prioritized the creation and reconstruction of public amenities. The city worked fast and were able to gain the approval of the community through smart planning.

Sustainable development
The topography in Barcelona has kept the city fairly compact. This has been beneficial for sustainability and has forced planners to look for creative ways to reuse much of the infrastructure. As heavy industry and shipping become less prevalent, the city has taken advantage of industrial sites for development. Right now much of the sea front in being claimed for a new high technology center with an emphasis on open space and parks.

Las Ramblas source: pps.org

Las Ramblas: One of Barcelona's great Boulevards

In a city know for great public spaces, Las Ramblas could be the greatest of them all. With a variety of cafe's, shops, and markets, tourists are presented with endless entertainment. There are a huge number of pedestrians and people-watchers, and enough street performers and artists to attract even the local Catalans. About 1.5 kilometers long, Las Ramblas are really a series of three pedestrian-oriented boulevards that link the city to the waterfront. Its central pedestrian promenade is unique in that it is wide enough to be lined on either side by seating for restaurants, or a flower stand while leaving abundant space to fit hundreds of people. Towering street trees and adequate seating are also pluses.

The street is lined with five-to-seven-story buildings, and the central walkway is, on average, 60 feet wide. The sidewalks are usually less than 10 feet wide, encouraging walking in the center. Pedestrians have precedence while cars are restricted to narrow lanes on either side of the promenade and must accommodate pedestrians at every intersection.

Artists, musicians, and magicians all flock to Las Ramblas to try and awe and amaze those passing by. People are constantly strolling up and down the promenade at any time of day to catch something new and interesting. This is truly a great public space and is full of life and community. The lesson here is to rethink how we prioritize cars and start accommodating the pedestrian. This is what creates community.

Resources

City of Barcelona Urban Planning Site
http://www.bcn.es/urbanisme/

Project for Public Spaces
www.pps.org

Current Urban Planning in Barcelona
http://www.bcn.es/22@bcn/engl/presentacion/

Barcelona Forum 2004
http://www.barcelona2004.org/eng/

Urban Planning field study on Barcelona
http://geographyfieldwork.com/barcelona.htm

Maragall, Pasqual and Benach, Nuria and Bohigas, Oriol. Transforming Barcelona. New York: Routledge. 2004.

Frampton, Kenneth and Maragall, Pasqual and Bohigas, Oriol. Barcelona: Spaces and Sculptures. Barcelona. 1987.

Gehl, Jan and Gemzoe, Lars. New City Spaces. Copenhagen. 2001.

source: azuradec.typepad.com/photos/barcelona

Guadi source: crystalcanyons.net

Parking Strip Gardens

Jocelyn Liang Freilinger

Wallingford Parking Strip
JLF

Garden space is at a premium in any city. In Seattle, residents are finding ways to use parking strip medians in creative ways. These residual spaces, typically planted up with grass and street trees, are gaining popularity as spaces for ornamental and vegetable gardens. The City of Seattle encourages “beautification of planting strips,” and even publishes recommendations for maintaining safe vehicular sightlines.

On a larger scale, Seattle has installed several Natural Drainage Systems in residential medians. These systems employ networks of weirs, swales, and plantings for the treatment, detention and infiltration of stormwater. Oftentimes, these projects also attempt to calm traffic and improve the pedestrian experience.

"A couple of years ago I found myself altering my dog-walk route to pass by the one house whose garden overflowed out onto the parking strip . . ."

-Valerie Easton

Context

Parking strip gardens have become an increasingly common feature of Seattle's vernacular landscape. Instead of a strip of high-maintenance turf that gets abused by foot traffic, vehicular traffic and dogs, homeowners are reclaiming these small strips as gardens in their own right.

These new gardens tend to fall into one of two categories. Ornamental gardens have emerged in as many styles as there are individuals caring for them. Some improve curb appeal by extending the entry sequence from street to threshold. Others are more naturalistic in appearance, providing a small patch of habitat and requiring less maintenance than traditional alternatives.

The second category involves food production. Some homeowners find that their parking strips are just large enough to accommodate a several small fruit trees. Others build raised planting beds and grow everything from turnips to sunflowers to tomatoes.

In "Residual Space Re-evaluated," Daniel Winterbottom describes the findings of a survey conducted by his students in 1996. His class found that there was a public and social component to people's decisions to plant up their parking medians. In addition to making use of this leftover space, residents enjoyed creating something that others could see and enjoy, and the resulting increase in interaction with neighbors and passersby. Others have observed a domino effect that occurs. When one resident takes the initiative with their own parking strip, others are soon to follow, resulting in an increase in cooporation and interaction among neighbors.

At the municipal scale, Seattle Public Utilities has experimented with developing some streetside right-of-ways into Natural Drainage Systems. These systems create an alternative to traditional sewer and culvert systems, but providing a series of wiers that treat water sedimentation, detain water, and regulate inflitration rates. Carkeek Cascade and Viewlands Cascade, both on residential streets, capture up to 23 and 75 acres of stormwater runoff, respectively.

Essential Elements

Parking strip gardens have become commonplace enough and provide sufficient public benefit that the Seattle Department of Transportation (SDOT) has organized a Street-side Garden Contest for the past several years. Entries are based on:

-effective use of color and foliage
-seasonal interest and approprate height
-quality of maintenance and plant health; good gardening parctices
-uniqueness of design and personality
-plant selection: drought tolerance, pest/disease resistance, absence of invasive species

More officially, however, guidelines for planting strip improvements are outlined by SDOT's Department of Urban Forestry. These outline requirements for sightlines and safety, as well as make provisions for street use permits.

Case: Natural Drainage Systems

SPU's innovative projects with SEA Streets and Cascades are successfully demonstrating alternative strategies to dealing with stormwater runoff. Traditional sewers and culverts move stormwater quickly, carrying surface pollutants into waterways at high speeds. By capturing runoff in SEA Streets and Natural Drainage Systems such as Carkeek Cascade (N.W. 110th Street) and Viewlands Cascade (N.W. 105th Street), sediment and other pollutants can be filtered out before water is detained and then slowly allowed to infiltrate.

Aquisition / Implementation Mechanisms

In majority of cases, parking strip gardens are located in a public right-of-way. Improvement of these strips are usually the result of the initiative of an abutting property owner. It is SDOT's policy to encourage these improvements. While SDOT does have a permitting process for landscape improvements to public right-of-ways, but in practice, these "temporary" uses are often overlooked unless a complaint is registered or a vehicular sight line is obstructed (Winterbottom).

Although right-of-way is not an issue in the case of the SEA Streets and Natural Drainage System projects, the scale of these projects is such that the committment of resources and the redevelopment of several blocks of residential street needs to occur with a certain degree of professional input and community consensus.

Resources

"Curbside Gardens." Home & Garden Television. http://hgtv.com/hgtv/cda/article_print/0,1983,HGTV_3566_2224953_ARTICLE-DETAIL-PRINT,00.html

"Planting Strip Landscaping and Paving." Seattle Department of Transportation. http://www.seattle.gov/transportation/plantingstrip.htm

"SDOT - Tour Seattle's 2004 Streetside Garden Contest Sites!" http://www.ci.seattle.wa.us/transportation/streetsidedevote04.htm

"Stormwater Facilities Project List." www.gaynorinc.com

"Street Edge Alternatives Project." Seattle Public Utilities. http://www.ci.seattle.wa.us/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/Street_Edge_Alternatives/index.asp

Winterbottom, Daniel. "Residual Space Re-evaluated." *Places*, 13:3, pp. 40-47.

Pedestrian and Bicycle Oriented Spaces

arielle r. farina clark

Streets and Trails

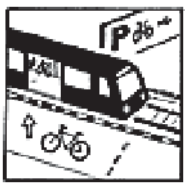
Cat Street in Tokyo, Japan. A popular pedestrian oriented space that is closed off to automobile traffic. It connects two vibrant, artistic neighborhoods and intersects with Omotesando-Dori. The street is flanked with interesting shops and filled with vendors and artists and has a reputation as a place where local color shines through.

Project for Public Spaces

Pedestrian and bicycle oriented spaces are spaces in urban areas that are designed for use predominantly by pedestrians and bicycles, rather than automobiles. These spaces can be a sidewalk, bike lane, bike path, path, walking street, or woonerf and are used for gathering or transportation. Each of these spaces are easily incorporated into the urban fabric through streetscape, greenway or greenbelt design.

The vibrancy and livability of a community are enhanced by pedestrian and bicycle oriented spaces. Spaces designed for pedestrians and bicycles create dynamic places where people interact on a human and personal scale. Most of the memorable, special places in urban areas are pedestrian and bicycle oriented.

Pedestrian and bicycle oriented spaces also combat urban sprawl by providing opportunities for modes of transportation other than car. These spaces allow people to walk or bike from destination to destination. This contributes to the heath of the person by providing exercise and the health of the ecosystem by decreasing pollution from automobiles.



"In healthy communities, walling and bicycling are a normal, routine part of daily life."

-National Center for Bicycling and Walking

Boston, MA

New York City, New York

Kungsportsavenyn
Göteborg, Sweden

Las Ramblas, Barcelona, Spain

Champs-Elysees, Paris, France

Context

Pedestrian and bicycle oriented spaces are especially vibrant in the context of dense, urban areas. In a city, walking and biking is a welcomed and utilized form of transportation when an area is designed for a pedestrian and bicycling experience.

In the context of sidewalks and bike lanes, people will choose to walk the mile or two or bike ten miles if the streetscape is an interesting place that feels safe. In Seattle, people already choose to walk to the grocery store in areas like Capitol Hill where housing, markets and streets flanked with shops are all located in close proximity and parking lots are often full. In areas such as this, sidewalks are separated from the road, are wide, often tree lined, and the street level is bustling with shops and people. Some people will choose to bicycle up to 15 miles to get work or to run errands if bike lanes are an integral part of the streetscape and feel safely separated from automobile traffic.

In the context of paths and bikepaths, people have the option to run, bike or stroll along a long segment of path dedicated to that purpose. Paths and bikepaths can also be a part of a greenway or greenbelt such as the Burke-Gillman Trail in Seattle, WA, or the Emerald Necklace in Boston, MA. Paths such as these offer a linear park environment to exercise or commute in. The ecological function of the greenway can be enhanced with plantings and an environment that also provides habitat.

Bustling walkable streets and bikepaths are not needed on every road. They merely need to link to one another or be located close to one another, lead to a destination, and feel safe.

Some successful pedestrian and bicycle oriented spaces

In Seattle, there are a number of pedestrian and bicycle oriented spaces that are acknowledged by the community as great places. Post Alley is a pedestrian oriented area that draws local people as well as tourists with activities such as shopping, people watching and eating. The area connected by transit and road, bikelane and sidewalk. Pedestrians and bicycles will fill the cobble alley at all times of the day and night. The Burke-Gillman Trail is a popular bike path is Seattle that is used daily by countless bicycle commuters and people exercising. It is pleasantly lined with greenery, connects many of Seattle's Parks and feel safe. More paths such as the Burke-Gillman would facilitate a higher number of people biking, running and walking to work, school or for exercise. Although Seattle has some pedestrian and bicycle oriented spaces, more will improve the heath, vibrancy and livability of the city and reduce further urban sprawl.

Other well known pedestrian and bicycle oriented spaces are Downtown Crossing in Boston, MA, the Pearl District of Portland, Oregon, St. Marks Place in New York City, Kungsportsavenyn Göteborg, Sweden, Las Ramblas in Barcelona, Spain, and the Champs-Elysees in Paris, France. Most of these major cities also have bike lanes and wide sidewalks.

Essential Elements

Are there certain qualities that make a space successful? Yes. It should have activities, be accessible, comfortable, and sociable.

Activities

Shopping, people watching, strolling, biking, running, talking, meeting, and eating are all common activities that will draw people to a public space.

Accessibility

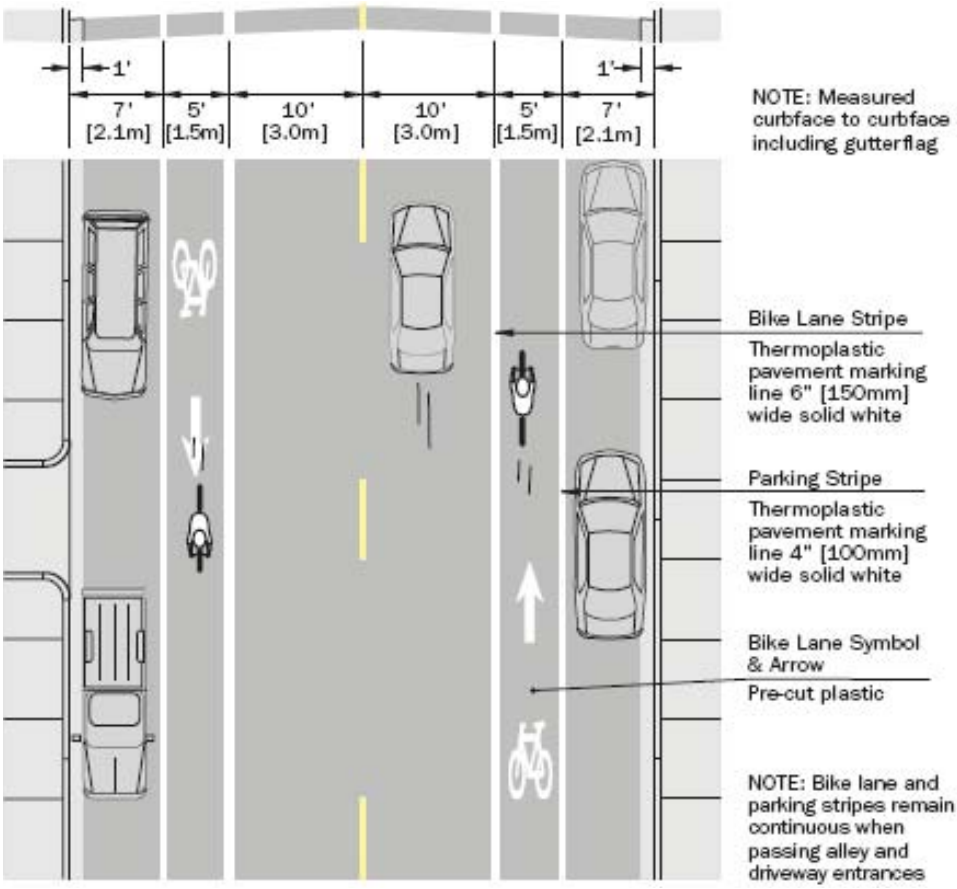
Spaces that can be gotten to are places that people will go. The places should not be completely isolated. Pedestrian and bicycle oriented spaces that are especially popular tend to connect places that people need or want to go.

Comfort

A successful pedestrian and bicycle oriented space will be comfortable and safe to be in. People will avoid places that make them feel scares or uncomfortable.

Sociability

A successful pedestrian and bicycle oriented space will also have opportunities for people to be actively or passively social. Wether it be people watching, or meeting, a place with other people in it will often draw more people.



SAFE ROUTES to School
NATIONAL PARTNERSHIP

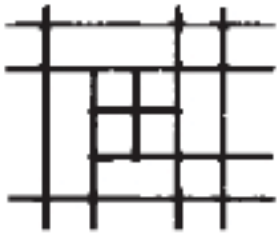
Bikes Belong Coalition

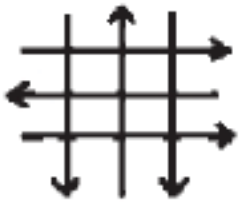
Chicago Bike lane Design Guide
Standard Road Striping

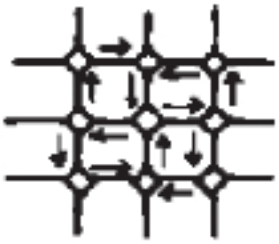
"We should all be able to walk of bicycle to school, to work, to the bus stop, or simply to explore our neighborhoods."

-National Center for Bicycling and Walking

Examples of Linkages







Pattern

- Provide Continuously linked walkways and bike paths
- Pedestrianize Intersections
- Accommodate People with Disabilities
- Place signals in visible areas
- Illuminate area for safe nighttime usage
- Simplify median crossing
- Provide a safe approach for children walking or biking to school
- Eliminate the need for automobiles to reverse
- Provide safe pedestrian access to commercial areas
- Include auto Restricted Zones and Parking Restricted Zones
- Combine walking and bicycling with transit
- Develop walkable and bikable land use planning

Acquisition / Implementation Mechanisms

Acquisition and implementation of pedestrian and bicycle oriented spaces is a simple process that requires a redistribution of space on streets. Most roads are far wider than they need to be. They generally have the ability to accommodate parking and multiple lanes of automobile traffic. On roads where there is already ample room for the appropriate lanes of traffic, edge space can be repainted as bike lanes and sidewalks can be widened. Other streets or alleys that are not arterials and have little car traffic can be converted to pedestrian streets or car free areas.

Paths and bike paths in greenblets or greenways are a bit more difficult. In an urban area, land must be acquired and designated as a greenspace. Conservation efforts and programs such as Rails-To-Trails provide a great opportunity for the implementation of paths and bikepaths.

Resources

National Center for Bicycling and Walking – An organization that promotes the development of healthy living communities through bicycling and walking.
8120 Woodmont Ave, Suite 650, Bethesda, MD 20814,
Phone: 301.656.4220 Fax: 301.656.4225 Email: info@bikewalk.org
Web: http://www.bikewalk.org

Loudoun County, Virginia Bicycle and Pedestrian Plan Glossary – Familiarizes users with terminology associated with planning for bicycle and pedestrian oriented spaces.
http://www.loudoun.gov/compplan/bikegloss.htm

Urban Ecology – An San Francisco, CA based organization that uses urban design, land use planning, and policy reform to help communities plan and build neighborhoods that are ecologically healthy, socially just, and economically fair.
http://www.urbanecology.org/index.htm

Project for Public Spaces: 30 Years of Placemaking. – An organization that
http://www.pps.org/

Walkable Communities: Twelve Steps for an Efficient Program. Florida Department of Transportation. Safety Office. Pedestrian / Bicycle Program. April 1995. http://www.smartcommunities.ncat.org/pdf/walkable.pdf

Bike Lane Design Guide
http://www.bicyclinginfo.org/pdf/bike_lane.pdf

Bikes Belong Coalition - A national coalition of bicycle suppliers and retailers working together to put more people on bicycles more often.
http://bikesbelong.org/site/intro.cfm

Streets Without Cars: The Urban Experiment of State Street
http://www.streetswithoutcars.com/

Answers. com: Segregated Cycle Facilities
http://www.answers.com/topic/segregated-cycle-facilities

Walking and Cycling Encouragement
Strategies That Encourage People To Use Nonmotorized Transportation
http://www.vtpi.org/tdm/tdm3.htm

T.A. Magazine Article. Fall 2003, p.18
http://www.transalt.org/press/magazine/034Fall/18europe.html

"In... 'active community environments' the community leaders and citizens recognize that providing active living through community design is a health issue as well as a quality of life issue."

-National Center for Bicycling and Walking

Green Structure

Sarah Preisler

Clockwise from left

Seattle City Hall
http://www.earthvision.net/ColdFusion/News_Page1.cfm?NewsID=27685

Living Wall, University of Guelph
www.uoguelph.ca/atguelph/04-11-10/featuresair.shtml.

Chicago City Hall
http://www.asla.org/meetings/awards/awds02/chicagocity-hall.html

GREEN structure comprises green roofs and green walls. These systems can be considered an unconventional form of open space that offers visual relief from the metal and concrete of our dense urban areas, while at the same time providing stormwater and pollution management benefits, habitat, and reduction of the heat island effect.

There are two type of green roofs - Intensive and Extensive. Intensive green roofs are rooftop gardens that include spaces for humans to walk and relax. Extensive green roofs have a thin soil profile and typically cover the entire roof surface. As a result, they are not meant to be walked on. Extensive green roofs provide greater overall ecological benefits primarily because they do not require irrigation.

Like rooftop gardens, foliage covered walls have been used for centuries to add to the aesthetics of designed open spaces. The new moniker, “green walls”, reflects the growing awareness that vegetated walls offer significant environmental benefits, particularly with respect to pollution reduction. Green walls are even beginning to be incorporated into building interiors in order to ameliorate the “sick building” effect.

Both green roofs and green walls can be used to provide sensory continuity between more traditional open spaces. They can also serve as habitat patches and corridors for birds and invertebrates.

“What could be more inventive and resourceful than using plants to adorn our dusty metropolitan surfaces...[while] simultaneously improv[ing] the energy performance of buildings, air quality and the urban ecology - all without taking up additional land.”
Katrin Scholz-Barth

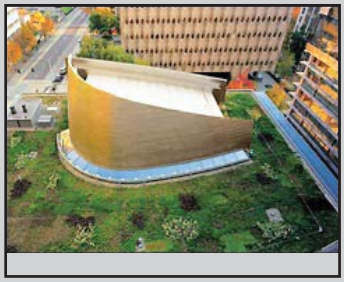
If New York City was filled with green roofs....

Context

Because green roofs and green walls do not take up ground level horizontal space, they can be used anywhere within the urban fabric. As a result, they have no special pattern of distribution. Ideally, green roofs and walls will be placed on every available surface in order to maximize the evironmental benefits they provide. The flexibility of green structures enables them to be spread widely across a city, allowing planners and ecologists to set up broad areas of habitat corridors and patches without specific knowledge prior to set up as to which particular locations are most appropriate. Information gathered about habitat migration patterns reflected in green roof and green wall usage can then be used to better site habitat patches and corridors at ground level.

The only limitations on green roof and green wall usage are the qualities of the underlying building. With respect to green roofs, the roof's pitch will influence the project's cost and complexity. An additional consideration is whether the green roof is for a new building or to retrofit an old building. It is very easy to incorporate a green roof into a new building's design. Retrofitting is more costly since a feasibility study is required and structural integrity improvements may also be required to support the green roof's weight. Gravel ballasted roofs are the most suitable for a retrofit because an extensive green roof system weighs about the same as a gravel ballast roof system.

Similarly, with respect to green walls, it is often feared that using climbing plants will reduce the wall's integrity as the plants dig into the surface to anchor themselves. However, careful plant choice and the addition of metal climbing structures situated slightly away from the wall can prevent such damage.



Seattle City Hall
http://www.earthvision.net/ColdFusion/News_Page1.cfm?NewsID=27685

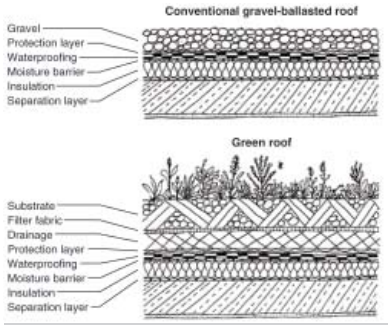
Case: Seattle City Hall

City Hall's extensive green roof uses a complete system provided by American Hydrotech Inc.. However, the soil mix was developed locally, as was the planting design. Because the green roof would not be physically accessible, local landscape architects Gustafson Guthrie and Nichols chose to: "mingle different textures and colors, so that the roof becomes one integrated carpet of plantings when you look down on it – with squares and patches of different plantings that blend together at the edges."

The roof contains 60% grasses and 40% sedums and is currently thriving.

Essential Elements - Extensive Green Roofs

Weight, the soil mix, and the planting palette are the primary considerations in good green roof design. The designer will strive to have the roof's layers perform multiple functions whenever possible. The key green roof layers include:



Waterproof Membrane/Root Barrier A spray-on fluid form membrane is the technology of choice. Because the membrane forms a single seal when dry, the fluid layer works as both the waterproofing layer and a root barrier to prevent plant roofs from infiltrating the lower roof layers and destroying the roof's integrity.

The Drainage Layer Any excess water which cannot be absorbed by the roof's growth media must be drained away from the plants' roots. A number of companies, including Hydrotech and Colbond, offer inorganic drainage mats which allow water to be stored on the green roof for future use. The excess water drains into small cups shaped like ice cube trays. The plants are then able to uptake the stored water when needed through capillary action and evaporation.

The Soil Layer The growth media is the layer with the most opportunity for manipulating weight and the most important for plant survival rates. Extensive green roofs generally have a growth media layer of 2"-6". The soil mix is primarily a lightweight aggregate, such as expanded slate, shale, pumice or perlite, mixed with heavily decomposed organic matter, such as mushroom compost.

The Plant Layer Choosing appropriate plants is the area of greatest complexity and uncertainty. Green roofs resemble alpine environments – places of intense sun and wind where plants must be able to thrive with temperature fluctuations, storms, long droughts, and relatively infertile, thin soil. As a result, alpine and rock garden plants are the plants of choice. Even within a city, microclimates can vary between rooftops. Studies are currently underway within Seattle to develop a fine grained plant palette that will take account of these microclimates.

Essential Elements - Green Walls

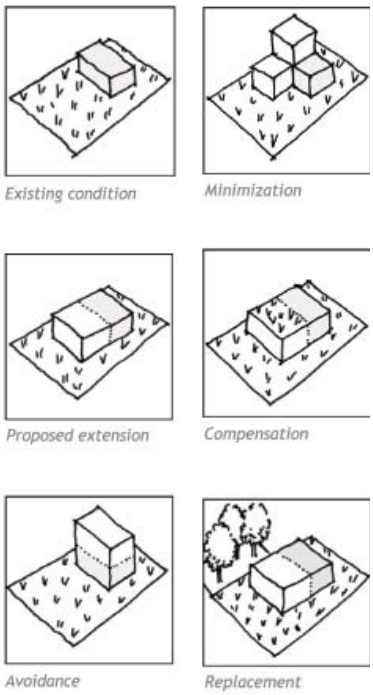
Green walls have a simpler structure than green roofs. High-tensile steel cables are commonly used as framing for climbing species with the plants themselves planted in large irrigated containers at heights all the way up the wall. An alternative system is to mount blocks of a synthetic rooting medium directly into the metal support frame. Water then percolates directly down the roof from rain runoff. In drier climates and during dry seasons, irrigation may be required. A more traditional approach, that is still in use for lower walls is to create a block stone wall with soil packed into gaps between the stones. Plants are then either deliberately planted within the soil gaps or allowed to freely colonize the soil.

Case: Guelph-Humber plant wall, University of Guelph

The interior "plant wall" at the University of Guelph rises four stories from the ground to balcony. The 150-square-meter wall includes 1,000 individual plants ranging from geraniums, hibiscus and fuchsia to spider plants and philodendrons. The plants' natural respiratory functions cool the building in summer and work as a humidifier in winter. Microbes on the plants roots also remove toxic compounds from the air, such as benzene and toulene, that have been shown to contribute to "sick building syndrome."

Guelph-Humber plant wall

"The nature, which we have on our roofs, is a piece of earth that we have killed so that we could build a house on the spot." F. Hundertwasser



Ecological Compensation Options
Ngan, Goya. "Green Roof Policies: Tools for Encouraging Sustainable Design".

Montgomery Ward Building

Aquisition / Implementation Mechanisms

Germany has the most extensive set of policies and mechanisms to encourage the use of green structure. These policies have been in place for over a decade and have yielded substantial increases in the amount and quality of green structure within German cities. These policies fall into four general categories:

Direct Financial Incentives - These incentives customarily take the form of subsidies available to developers and property owners for including green structure in their buildings. The subsidy amount is determined either by a flat sum per square meter or by a percentage of the cost of construction, usually 10-50%. The subsidies are subject to performance conditions, such as minimum runoff coefficients or substrate thickness, or maintenance commitments. Direct incentives are often used to target specific areas of the city which are considered to lack sufficient green space.

Indirect Financial Incentives - Indirect incentives are usually in the form of split wastewater fees. Wastewater fees are split into two components: sewer fees and stormwater fees. Property owners who have green structures pay only for the stormwater that leaves their site. Property owners who manage all stormwater and sewage on site can conceivably get out of paying any fees to the city.

Ecological Compensation Measures - German law requires that any intervention in nature or natural scenery must be avoided wherever possible, and if not avoidable, its impacts must be minimized, compensated for on site (such as by adding a green roof to replace the stormwater management functions performed by the site in its natural state), or replaced elsewhere (such as funding a park equal to the building's footprint nearby).

Integration into Development Regulations - Compulsory regulations commonly specify not only if green structures are required, but which kinds of structures must be greened and the minimum performance requirements for the green structures. Development regulations are used especially with respect to new building construction and public building projects. Portland, OR has been particularly successful in using developement regulations to encourage the use of green structures.

Case: Montgomery Ward Building, Baltimore, MD

The Montgomery Ward Building was constructed in 1925 and over the years had fallen into disuse. A 30,000 square foot extensive green roof was installed as part of the building's renovation in 2002 in order to attract Maryland's Department of the Environment as a tenant. Katrin Scholz-Barth, a leading green roof designer, was brought in to develop a custom solution for the roof. Despite the fact that the developer made no commitment to maintain the roof and has not been maintaining the roof, the plants have thrived and the roof is performing as hoped.

Benefits of Green Roofs and Green Walls:
Increased energy efficiency – Unlike a conventional roof, a green roof forms a protective layer which prevents the roofing membrane from heating up in summer and insulates the building from heat loss in winter, thus reducing the need to use air conditioning and heating. Green walls have a similar effect.

Reduction of Heat Island Effect - The plants on green roofs and green walls absorb the sun's rays, rather than reflecting them back into the air. The air above green roofs and walls is substantially cooler than nonvegetated structures.

Stormwater Management - During low intensity rains of ½" or less, a green roof will absorb all water and completely prevent runoff. An extensive green roof of 3-4" deep can store on average 75% of annual precipitation. The green roof will also cool and filter any runoff that does occur, a particularly important consideration in Seattle due to concern over creek and stream warming.

Habitat - Green roofs are sheltered from human activities and viewable from the air, so they are particularly beneficial to migrating birds looking for resting places and food. Green walls also offer habitat to invertebrates, such as butterflies and other insects and spiders and act as corridors for animals moving from ground level habitat to green roof habitat.

Pollution Reduction. All plants reduce CO2 emissions. Green walls have also been shown to trap dust-derived pollutants, such as heavy metals, and to break down volatile organic compounds and unburnt hydrocarbons from vehicle exhaust.

Resources

Croenenweth, Charles . "Sustainability With a View", Environmental Design +Construction, 11/2004.

Eisenman, Theodore. "Green Roofs Over Baltimore", Landscape Architecture, 8/2004, 52-61.

http://www.greeninggotham.org

"Guelph-Humber Plant Wall a Breath of Fresh Air" , http://www.uoguelph.ca/atguelph/04-11-10/featuresair.shtml.

http://www.livingroofs.org/livingpages/typevegstructure.html

Ngan, Goya. "Green Roof Policies: Tools for Encouraging Sustainable Design", Landscape Architecture Canada Foundation, 12/2004.

Scholz-Barth, Katrin. Federal Technology Alert: Green Roofs Washington D.C.: U.S. Department of Energy, Sept. 2004.

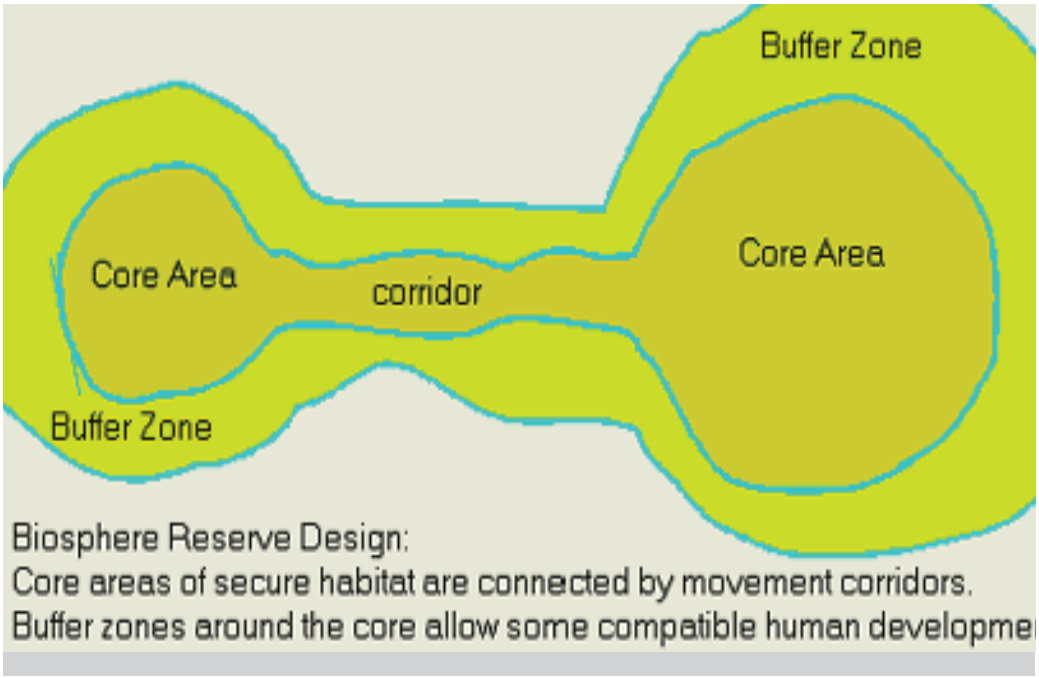
Scholz-Barth, Katrin. "Stormwater Management from the Top Down," Environmental Design and Construction, January/February 2001, 63 - 69.

Velazquez, Linda S. "Organic Greenroof Architecture: Sustainable Design for the New Millennium" Environmental Quality Management, Summer 2005, 4.

Habitat Corridor

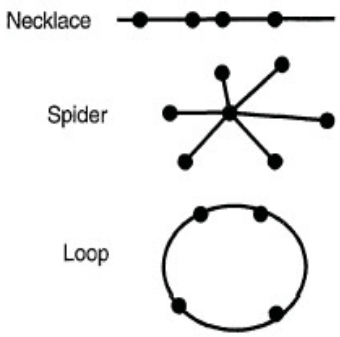
Tauschia Copeland

Urban Habitat



A Typical example of a habitat corridor connecting two core habitats

www.wildlands.org



The word “corridor” can be easily misused and improperly defined. Beier and Noss (1998) provide the definition of a habitat corridor as: a linear habitat, embedded in a dissimilar matrix, that connects two or more larger blocks of habitat and that is proposed for conservation on the grounds that it will enhance or maintain the viability of specific wildlife populations in the habitat blocks.

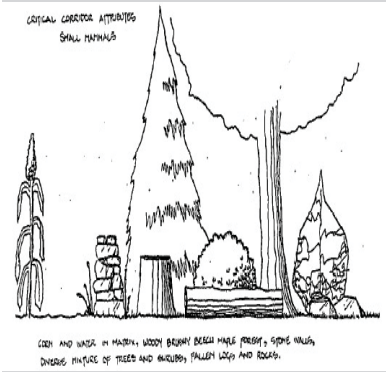
The importance of a habitat corridor can only come from the core habitat that it is connecting. Corridors rely on a matrix of existing but discontinuous natural areas to realize their full potential (dechant). In most urban areas, the wildlife habitat that does exist is rarely connected and therefore creates a dangerous environment for there are no opportunities for safe migration and little, if any biodiversity which is essential in creating any sustainable habitat.

The diagram above shows shape options for corridors.
The dot represent patches or core habitate and the lines are the corridors. The most effective corridor is the spider or starburst shaped corridor which makes it harder for the wildlife to get lost or outside of any livable habitat.

Pickett and Cadenesso 1995

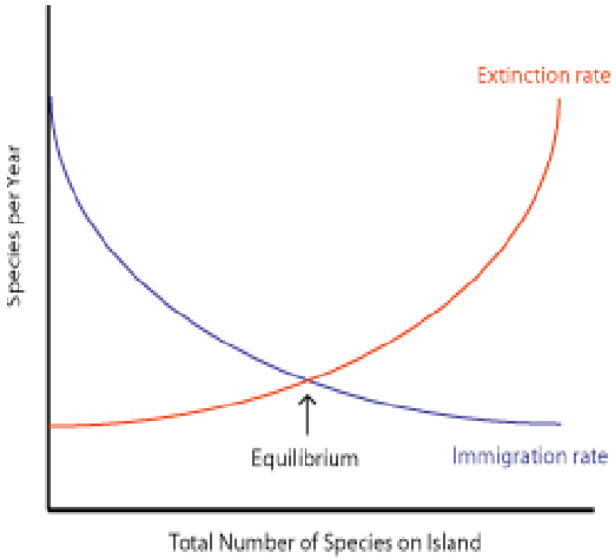
“Projects in urban design, architecture, and landscape architecture that aren’t made with an understanding of flow and connectivity are destined to fail.” Kristina Hill

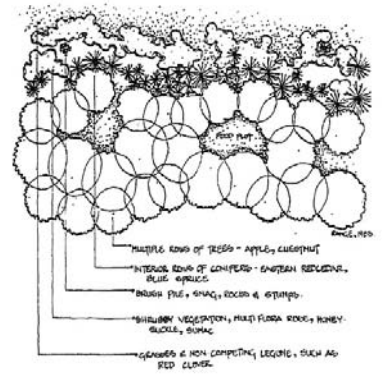
Birds



Small Mammels

Corridors are essential to any species for every species is required to migrate for survival. This graph shows how when migration decreases, the extinction line increases. This graph was developed by Robert MacArthur and Edward O. Wilson as a tool to explain the importance of habitat corridors. Without corridors and diverse landscape available to species, extinction rates increase exponentially. With natural disasters such as flood and fires, wildlife need options if their current habitat is destroyed. Landscape is considered to be a sea of habitat islands and the only way to bring them together is through connectivity brought by corridors.



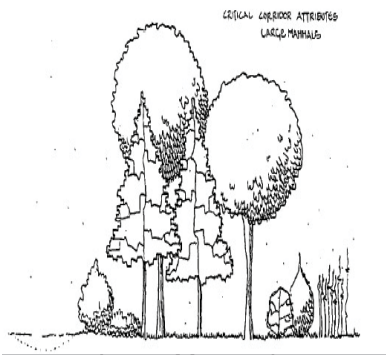


Medium Mammels

The drawings in the column are corridor structures developed by Fleury and Brown (1997). Width to length is more important than width alone, and design and quality can be just as important. The size and dimensions of corridors has not been determined as an exact science, but these drawings show what certain sizes and types of species require with a habitat corridor. Corridors are usually divided into two main categories: riparian ribbons as in rivers and streams, and on hard surface as in a hedgerow or road verge. Corridors have human function such as barriers for property lines and landscape elements. Tree lined sidewalks also create a safety environment for pedestrians and slows down traffic. Corridors are positive for humans directly with these previously stated reasons, and also indirectly by increasing biodiversity and helping wildlife survive.

Implementation is easy as long as there is support for connecting two areas of green space for corridors already exist within our urban systems, they just have to be converted into habitat corridors and supported by the public.

www.de-chant.com (entire page)



Large Mammals

Essential Elements

Determine what can be connected in Seattle

Determine what types of species are migrating through the four counties of the Puget Sound Region and also within the Seattle area in order to create appropriate corridors.

Take these two elements and incorporate them into the urban landscape. Corridors are both beneficial to humans and wildlife for corridors create green space within an urban setting that connects two larger places giving people an opportunity to walk around their urban area for corridors can be made cleaner and safer than urban sidewalks.

Nashville

Case Study

This Park in Nashville has open space but it is sectioned off with wooded corridors that connect bigger wooded patches in the area. An even smaller scale is a line of shrubs along a sidewalk or road way which gives birds and small mammals cover to reach their next destination if needed. Finding who needs what where can be useful but wildlife is also very adaptable and what is pleasing to the human eye, such as street trees, will also be useful to a species if it offers them protection and a food source during their migration. Habitat corridors are an essential addition to any open space system and are versatile enough to be useful as boundaries within a system, as well as connecting habitat for urban wildlife.

www.kottke.org

Habitat corridors in an urban area can be any natural or wildlife strip that connects two core habitats. Without the core habitat there is no corridor for the corridor represents connectivity. A study done on how blue birds make use of habitat corridors conducted in Georgia showed that the birds were more likely to stop in core habitats that had a connected neighboring habitat than core habitats that stood alone. This experiment was conducted by creating eight habitats, two connected by the third, one with two wings (discontinued corridors), and two others that stood alone. Feeders were set up and each habitat had dyed grains so that the birds could be tracked. With the birds using the three habitats that were connected as two core and one corridor habitats, the importance of connectivity is clearly brought forth.

Resources

Internet

www.de-chant.com
www.kottke.org
www.math.dundee.ac.uk
www.sciencemag.org
www.wildlands.org

Book

Fleury, A. M., and R. D. Brown." A framework for the design of wildlife conservation corridors with specific application to southwestern Ontario." Landscape and Urban Planning 37:163-186: 1997.

MacArthur, Robert and Wilson, Edward O. The Theory of Island Biogeography. Princeton, N.J., Princeton University Press: 1967.

Pickett, S. T. A., and M. L. Cadenasso. "Landscape Ecology: Spatial Heterogeneity in Ecological Systems." Science 269:331-334: 1995.

Environmental Learning Parks

Garrett Devier

Discovering local fauna at the Urban Ecology Center.

http://www.urbanecologycenter.org/

Environmental learning parks are a developing and widely defined type of open space. From pristine untouched wilderness areas, to damaged natural sites and small urban lots, environmental learning parks cover a wide variety of subjects and sizes.

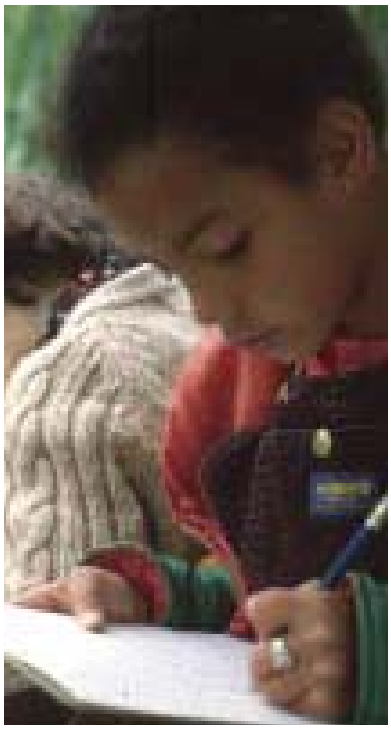
The primary focus of environmental learning parks is to connect people to the natural environment. Issues such as plant diversity, animal habitat, sustainable building, wetlands, stream ecology, macro invertebrates and much more can all be related to issues of water, soil and air quality and in return can be related to our own lives.

Environmental parks should cater to everyone. Most often school children are the primary focus of environmental learning parks. However it is important to provide opportunities for people to connect with the natural environment. All ages, genders, ethnicity, and economic backgrounds should be addressed.

In developing an environmental learning park it is important to keep in mind the location of the park in relation to where people live. Parks closer to a person's home have a greater chance of connecting a person to that place. Environmental learning parks are also very effective on or near school grounds.

http://www.naturalearning.org/walnutcreek.html

"To keep alive his inborn sense of wonder [a child] needs the companionship of at least one and mystery of the world we live in." - Rachel Carson



http://www.naturalearning.org/walnutcreek.html

Context of an Environmental Learning Park
Environmental learning parks can fit into a wide variety of spaces. There are however several important factors that should be considered.

1) Connection to the natural environment.
This can involve a wide variety of elements such as, ponds, wetlands, forests, creeks, lakes, rivers, ecosystems, and watersheds.

2) Links to the community.
It is important to have some environmental learning parks closely linked to the community. While some parks may involve a whole watershed or ecosystem, smaller more local parks create a personal connection for people.

3) Variety of sizes and uses.
Environmental learning parks should work together to provide a wide variety of sites and uses. Instead of repeating or competing curriculums and topics, environmental parks can work more effectively strung together to form a web of environments, users and opportunities.

http://www.cecenter.org/schistory.php

Stuyvesant Cove Park, NY

Located on the East River on a narrow two acre piece of land, Stuyvesant Cove Park is a small space with in the built environment. Surrounded by high apartment buildings, parking garages, gas stations and FDR Drive, it is a tiny but important environmental learning park.

Stuyvesant Cove Park was opened in 2002. It is managed by Community Environmental Education Center (CEC), who are a non profit company who provide maintenance to the site in exchange for the operation of an environmental education center that exists on the site.

The goal of Stuyvesant Cove Park is to make connections between peoples' choices and their effect on the world they live in. Concerned with the idea that "the Environment" is viewed as existing somewhere outside of the urban realm, the park aims to demonstrate and teach that "the Environment" is all around us.

Stuyvesant Cove Park and the CEC provide workshops for school children, landlords and tenants, and professional developers.

The site is landscaped with drought tolerant native species. There is an esplanade along the river and pedestrian and bike paths that connects the park with the larger trail system around the edge of Manhattan. The park also contains the first ever solar powered building in New York city.

adult who can share it, rediscovering with him the joy, excitement

Elements of an Environmental Learning Park

1) Natural Environmental Experience
An environmental learning park should connect people to the natural environ ment. Streams, wetlands, ponds, lakes, shorelines, beaches, and forests are some of the elements that can be used to connect people to the natural environment.

http://www.urbanecologycenter.org/

2) Learning Center
The learning center has become common element for environmental learning parks. A center can be a small shelter or an overnight facility. They can serve as classrooms, places to get out of the weather, equipment storage and other functions.

3) Modeling of Sustainable Development
One of the goals of environmental learning parks is to make a connection between a persons life and the natural environment. By modeling sustainable development practices, participants can better understand how these techniques can be applied to their own lives. Some examples are; sustainable building, green roofs, rain water harvesting, organic gardening, solar power, and composting.

http://www.cecenter.org/schistory.php

4) Recreation Opportunities
Environmental learning parks should promote a healthy lifestyle. A range of compatible site activities, helps promote physical activity. Some of the activities can be walking, biking, canoeing, bird watching, and gardening.

5) Stewardship
Opportunities for stewardship are an important part of an environmental learning park. Creating a sense of ownership among users and community members strengthens the connection between people and place.

6) Partnership
Many environmental learning parks develop partnerships. These partnerships are developed with like-minded, non profit organizations who help with maintenance, facilitation and providing programs at the site.

http://www.naturalearning.org/walnutcreek.html

7) Educators
Environmental learning parks offer a wide variety of programs and courses. These can be facilitated by paid staff, interns or volunteers.

"We abuse land because we regard it as a commodity belonging to us. When we see land as love and respect." - Aldo Leopold

http://www.urbanecologycenter.org/

Funding Opportunities

1) Grants

Environmental Learning Parks use grants for part of their funding. There are several different approaches that they can use for acquiring grants. First, environmental learning parks can apply for grants related to; environmental education, environmental restoration and protection, sustainable building and landscape practices, and grants targeting specific populations such as inner city youth. Second, there are several different organizations that environmental learning parks can look towards for contributing grants. These are; philanthropic foundations, corporate foundations, city, county, state , and federal agencies.

2) Program Fees

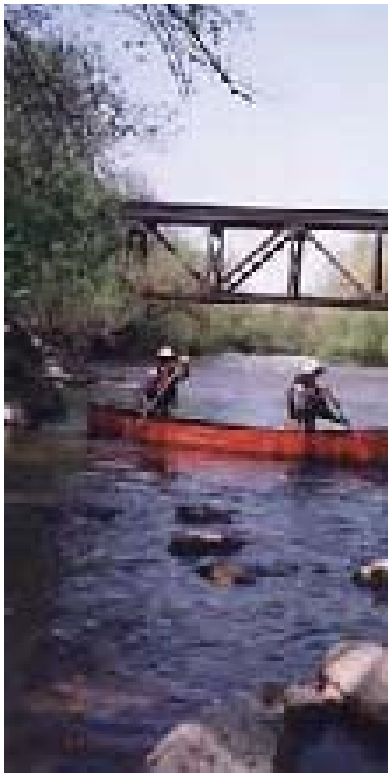
Many environmental learning parks rely on program fees for funding. These fees can be applied as an entrance / user fee. They can also be applied towards specific programs offered at the site.

3) City, County, State and Federal Funding

Environmental learning parks often are located on city, county, state or federal land. These agencies contribute to the budget or acquisition of environmental learning parks.

4) Donations

Donations are a common method of acquiring funds for environmental learning parks. They can be in the form of individual donations or businesses and corporate donations.



http://www.urbanecologycenter.org/

a community to which we belong, we may begin to use it with

Riverside Park, Milwaukee, WI

Located along the Milwaukee River, Riverside Park was a popular spot for swimming, picnicking and boating. The park was abandoned in 1991 when the Milwaukee river became to polluted and visitors no longer attended the site.

The Urban Ecology Center was started when Dr. Else Ankel, an environmental scientist working at a nearby school began taking kids and volunteer teachers to the site to teach ecology lessons.

A neighborhood based and non-profit community center, the Urban Ecology Center; works to provide environmental science programs to neighbor schools, preserves and enhances the natural resources of riverside park, promotes environmental awareness in the community, and protects the Milwaukee river.

The Urban Ecology Center provides a host of programs for the community. There is Neighborhood Environmental Education Project, which serves over 10,000 students each year, exploring the ecology of the local area. The Citizen Science Program, collaborates with universities on research related to the local environment. Adult lectures, workshops, and discussions focus on local environmental issues, environmental information, natural history, and ways to live lightly on the earth. Urban Adventures focusses on nature based outings such as rock climbing, hiking and kayaking. Community programs such as Urban Stargazers, Vegetarian Potlucks, and an Urban Ecology Camera Club are also provided. There are also stewardship programs, weekend family and youth programs, and a summer youth camp.

http://www.urbanecologycenter.org/

"To cherish what remains of the Earth and to foster its renewal is our only legitimate hope

http://www.naturalearning.org/walnutcreek.html

Urban Wetland Educational Park, Raleigh North Carolina

The Mission of the Walnut Creek Urban watershed Education Park is to promote understanding and protection of an urban wetland, enhance community pride, and encourage economic development. The park provides an accessible quiet zone for commuting with nature. It preserves the natural beauty of the wetland, protects the habitat of numerous species, and lifts the spirits of those who visit through educational and recreational experiences.

Walnut Creek is located in the most urban region of the Neuse River Watershed. The Walnut Creek Corridor is a key link in Raleigh's "green infrastructure. Because of issues such as landscape fragmentation, federal water quality mandates, endangered species protection, public health concerns, urban revitalization and sustainable development, open space preservation has become an important issue

The Urban Wetland Educational Center / Walnut Creek 2000 is designed to address each of the previous issues. This project was started by Partners for Environmental Justice (PEJ) and has four main objectives.

1. To reduce flooding and promote land clean up. This will help raise property values and improve the local businesses.
2. To develop and urban wetland educational park
3. Beautify Hammond Pond.
4. To provide clean water for those living downstream and reduce problem chemicals in North Carolina's estuaries.

http://www.naturalearning.org/walnutcreek.html

The Effects of Playing and Learning in Natural Settings

- Stimulates all aspects and stages of child development.
- Offer multi-sensory experiences.
- Stimulate informal play experiential learning, and natural learning cycles.
- Stimulate imagination and creativity in a special, boundless way.
- Integrate children by age, ability, ethnic background.
- Help children feel good about themselves. Enhance self-esteem.
- Offer children a feeling of "intense peace."
- Center children in the environment where they live.
- Help children understand realities of natural systems.
- Demonstrate the principle of cycles and processes.
- Teach that nature is regenerative.
- Support interdisciplinary, environmental education curricula.
- Provide flexible and forgiving settings.
- Aesthetically appealing to all people.

* http://www.naturalearning.org/effectofplay.html

of survival." - Wendell Berry

Runner at Stuyvesant Park, NY
http://www.asla.org

Resources

http://www.naturalearning.org/walnutcreek.htm

http://www.urbanecologycenter.org/

http://www.cecenter.org

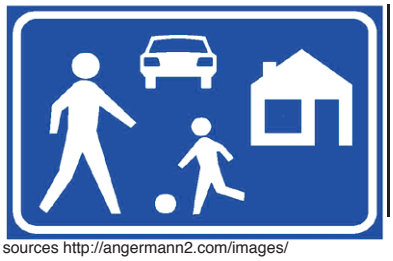
http://www.asla.org

The Sand Point Magnuson Park Outdoor Learning Laboratory: Report of the Environmental Education Program Steering Committee, October 2003, Cedar River Group and Sheldon & Associates, Inc.

Foss, Diana, Creating A School Habitat

Playgrounds

Noelle Higgins & Nathan Brightbill



sources http://angermann2.com/images/

WHY PLAY?

Play helps a child become a fully functioning person by integrating all aspects of development.

Play enhances cogitative, affective and psychomotor development.

Cognitive- language, symbolism, mathemathical relationships and scientific principles.

Affective-social skills, experiencing emotions and handling strong feelings (such as anger).

Psychomotor-large and small motor development and coordination.

sources http://www.standards.dfes.

Playgrounds not only serve the needs of children (above) they can also serve the greater needs for urban communities to access open space and facilitate urban ecological systems.

If used creatively playgrounds can serve as part of the system for the following urban functions.

Urban sustainability.
City Livability.
Social equity.
Environmental responsibility.
Environmental education and stewardship.
Habitat creation and restoration .
Storm water management and filtration
Low energy use or energy contributors.
Community development & involvement.
Greening the city.
Density promotion.

Children are the foundation of the world's future.

Children have played at all times in throughout history in all cultures.

Play along with the basic needs of nutrition, health, shelter and education, is vital to develop the potential of all children.

[Source: IPA Declaration of the Child's Right to Play, Brett.]

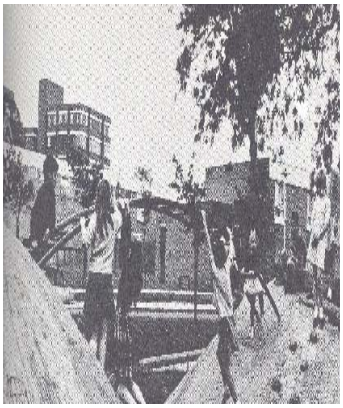


image source: “A playground for all Children.”

“Ideally a child’s play space should never be finished, it should be in a constant state of change,” says Susan Goltsman, a principal in the Berkeley, California, based firm Moore Iacofano Goltsman, who planned and designed the play space. “Children, you know, have a way of creating their own worlds.” -From *Kids Don’t Need Equipment, They Need Opportunity*, By Ellen Ruppell Shell, Smithsonian Magazine, 1994.

image source: http://www.antulov.com/north_

Playgrounds-Critical elements

Safety-engage in constructive and responsible risk taking.
Versatile-for children at different stages of development.
Equipment, Design features and a variety of settings –this allows it to be used in different ways depending upon the interests and imagination of children.
Physically modifiable elements.
Meet the **individual needs** of children with exception needs.
Provide places for adults.
Facilitate social interaction-peers and intergenerational.
Aesthetically pleasing.

image source: “http://www.secession.at/presse/regierung/friedl_playgrounds.jpg”

Playground Types

Traditional
American playgrounds
School Yards
Adventure Playgrounds
Open playgrounds-democratic
Playparks
Play streets
Temporal playgrounds
Sensory playgrounds
Waterparks
Urban Farms

(Types hilighted in red are the focus of this report).

image source: “A playground for all Children.”

"Does a vacant lot or waterfront dump look like a playground or park to you? If so, go get it!" -Project for Public Spaces.

Acquisition

Transfer of Development Rights - Through Transfer of Development Rights (TDRs) communities can preserve open space by selling developments rights so that another site can be built at higher density. Sites that sell rights are called "sending sites" and sites that purchase them are called "receiving sites."
Levies and Bond Issues - Citizens can vote to tax themselves to fund parks. An example in Seattle is the Pro Parks Levy.
Developer fees - Higher density development can be offered in exchange for park development funds which can be applied to a variety of projects including play areas. Vancouver assesses fees called Community Amenity Contributions when zoning changes are granted.
Other - The Project for Public Spaces provides information on many funding sources from user fees and taxes to public/private partnerships and taxable bonds (http://www.pps.org/upo/info/funding/?referrer=upo_contents).

Implementation Mechanisms

Partnerships and Collaborations - Linking play areas with schools and community centers allows more efficient distribution of funds and greater potential to hire staff. Play areas can be implemented through public agencies, nonprofits and volunteers or a combinations thereof. Project for Public Spaces details several possibilities (http://www.pps.org/upo/info/management/?referrer=upotopics_contents).
Cities can also draw up maintenance agreements in which the city provides resources for citizens to perform park services. An example in Seattle is the traffic circle garden program.

"Many architects and designers think of playgrounds as a necessary evil, something to tack on reluctantly, budget permitting, after the real work of creating buildings is done. This helps to explain why so many inner-city housing developments offer so little for children- typically a trio of swings set in four globs of cement adrift in an asphalt sea. Usually the swings have no seats. Often the asphalt is strewn with broken glass. The thinking, or lack of it, that led to this tragedy is changing, but slowly and sporadically. And while theorists argue and government agencies equivocate about what to do, a handful of activists are slipping bits and pieces of childhood back into the inner city."

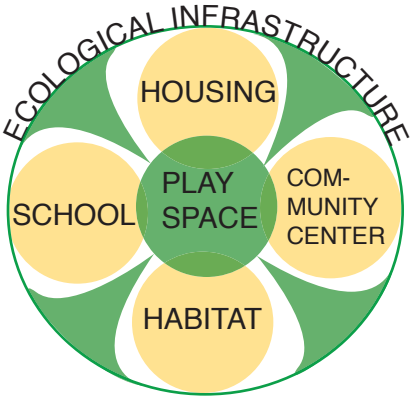
-Ellen Ruppell Shell, Smithsonian Magazine, 1994.

Pattern: Connected Play, Connected Nature

68 Connected Play
Lay out common land, paths, gardens, and bridges so that groups of at least 64 households are connected by a swath of land that does not cross traffic. Establish this land as the connected play space for the children in these households.

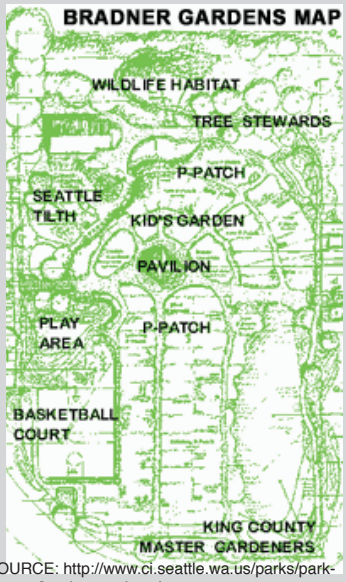
73 Adventure Playground
Set up a playground for the children in each neighbourhood. Not a highly finished playground, with asphalt and swings, but a place with raw materials of all kinds- nets, boxes, barrels, trees, ropes, simple tools, frames, grass, and water- where children can create and re-create playgrounds of their own.
-From Christopher Alexander's A *Pattern Language*

It is important that play spaces be linked together to take best advantage of resources. Start where children already go. Schoolyards can be combined with community centers to make community parks that can then allow all day supervision for sports, adventure play, urban farm or craft activities. These spaces can be linked with ecological infrastructure such as storing rainwater to maintain a garden that 1) can be a great educational tool and 2) generate a constituency that will care for it.



Play space should take advantage of multiple resources, border and serve multiple entities, be used in multiple ways and be connected to a larger ecological network.

SOURCE: http://www.mountbaker.org/dir/info/bradner.htm



SOURCE: http://www.ci.seattle.wa.us/parks/park-spaces/bradnergardens.htm

"Bradner Garden's Park is a jewel in Seattle City Park's crown"

http://www.ci.seattle.wa.us/light/Green/greenPower/Accomplishments/bradner.asp

BRADNER GARDENS PARK

Location: 29th Avenue South and South Grand Street, Seattle, WA 98144

This case study site integrates children's play with adult spaces and urban agricultural processes. The Dutch, British and Germans have been leaders in this movement for several decades. This is a particularly playful version of a children's farm, which integrates the community process so familiar in Seattle designs. The expert groups involved in this Park advise, educate and stimulate interest in natural, native, urban and open space processes with Children and community groups.

Features included are

- Seven ornamental theme gardens of the Master Gardener border:
  - butterfly & hummingbird,
  - fragrance,
  - sensory,
  - shade,
  - xeriscape,
  - winter interest
  - northwest native.

- 61 p-patch plots.
- Children's A to Z garden.
- Learn how to grow food crops in the Seattle Tilth and Urban Food demonstration gardens.
- Watch birds take shelter in the native plant habitat.
- See more than 50 varieties of ornamental street trees recommended for small spaces.
- Play basketball on the renovated court that has one regulation hoop and one adjustable hoop.
- 33-foot-tall vintage (1916 to 1933) Aermotor windmill that circulates water from the sea -sonal pond to the dry streambed next to the children's play area.
- Integrated art throughout the garden.

Source: http://www.ci.seattle.wa.us/parks/parkspaces/carkeek-park/elc.htm

image source: http://www.ci.seattle.wa.us/parks/park-spaces/carkeekpark/elc.htm

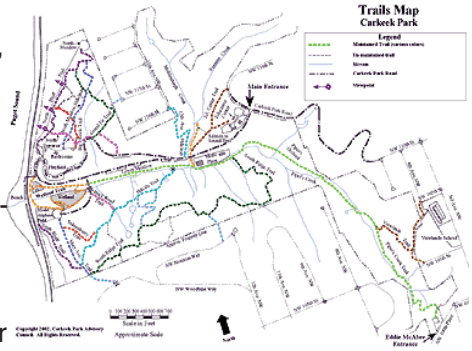
Image SOURCE: http://timlloyd.org/photos/slideshow.php?set_albumName=carkeek-park

"Conservation begins at home"

Nancy Malmgren,community activist

CARKEEK PARK

Location: 950 Northwest Carkeek Park Road, Seattle, WA 98177



This park's 216 acres has a salmon creek, a wetlands walk, beach access and an innovative playspace for children, hiking trails and expansive views of mountains and water, which accommodate bird watching. The Carkeek Park Environmental Learning Center (ELC) was built to provide space for environmental education and stewardship activities and to create additional community gathering/meeting space.

Features includes are

- The children's play area features a giant salmon slide.
- Kids can climb over concrete "tide pools" imbedded with tile "sea creatures".
- The wetlands walk, located close to the beach access, offers a short boardwalk through still, dark water full of ducks and other birds.
- Places to pause and observe the area.
- A trail passes through native plantings to the creek.
- During the salmon run, Piper's Creek is alive with salmon returning to their spawning grounds.
- Naturalists stay on hand to give out information, and the park celebrates the return of the salmon with nature programs and events.
- The environmental learning center has a water collection and filtration system.

"People typically envision an elementary school surrounded by concrete and asphalt playgrounds and parking lots. Our campus parks program grew out of the unconventional idea that we can surround our schools with green, open spaces filled with grass, trees and flowers," -Mayor Daley.
http://www.cps.k12.il.us/

source: http://www.cps.k12.il.us/

CHICAGO SCHOOL DISTRICT: Campus Parks Program

In early 1997, the City of Chicago created what is now referred to as the Campus Park Program. To date, some 100 schools and their surrounding neighborhoods have benefited from this program. The Campus Park program consists of a partnership between the Chicago Public Schools, the City of Chicago and the Chicago Park District working together to transform underused and neglected land surrounding schools into landscaped playgrounds, gardens and recreation areas to serve the schools and neighboring communities. Schools are considered for the Campus Park program based on four criteria: Need, Opportunity, Partnerships and Commitment.

image sources: http://www.pbcchicago.com/subhtml/press/pr_funston.asp

Features & Concept intent

- Campus parks provide a safe area for children to spend their time and participate in activities during and after school.
- Improved learning environment at schools.
- Increases green space amenities in neighborhoods surrounding schools.
- Improves quality of life in neighborhood and at school

ADVENTURE PLAYGROUNDS: Kolle 37

A significant principle of Adventure playgrounds is the opportunity for children to manipulate their environment. They should provide play types that are typically more available in rural environments. Other playgrounds are typically very static, whereas adventure playgrounds contain loose parts that allow children to create the park and structure play however they deem fit.

Adventure playgrounds have many benefits. Because of their unmanicured nature they can occupy left over spaces, such as vacant lots, and in some cases this may be more desirable from the child's point of view as long as the place is secure. They can be supplied with materials at little cost because discarded building materials, old cars or tires that might otherwise go to the dump can be used and will be put to good use by children. The opportunity to negotiate how these materials will be used with other children is important for building relationships and development. Given the large amount of structured activity in children's lives, adventure playgrounds would be a valuable counterpoint.

In the United States adventure playgrounds are rare and often less elaborate than their European counterparts. The have not caught on in the states because of aesthetic, funding and liability issues. Adventure playgrounds do require an adult supervisor. Linking them with other community services, however, might make it more feasible.

One adventure park in Berlin, called Kolle 37, combines a community center with an adventure playground and many other ecological projects. The playground is based on the principles of understanding fire, water, earth and air. The site includes an ecological garden and the community building incorporates green features such as stormwater and energy management. By linking the playground with a community center that provides many other services, such as music and crafts, a staff of six is possible and fundraising and community organizing is more feasible.

Ecological Potential: Reuse discarded materials. Environmental education. Urban agriculture. Water management.

Kolle 37 allows all kinds of play from mud pits to animal farms. The community center provides a place to clean up. (Photos: Kolle37).

"Fire and water - two of the basic elements of the earth and two that are so attractive and fascinating to humans. Access to both are symbols of luxury in modern adult life, yet both are almost totally absent in children's play. Why?" -Barbara Hendricks

TEMPORAL PLAYGROUNDS AND LEFT OVER SPACES

Development in the urban environment can leave left over places that can serve as play areas in the short term or be appropriate long term. Large parcels do not necessarily have to be used for play areas. Taking advantage of left over spaces and spaces in transition can promote urban density and create unlikely and interesting play opportunities. These spaces may change in the future, but in the meantime can serve a valuable purpose. Large sidewalks, vacant lots and spaces created by roads can be used to add play materials.

In Roubaix France all of the sidewalks on the south side of the street were widened from 4 to 10 meters and recreated as play spaces. The space created by setbacks can also be used.

In Seattle (University Bridge Wall of Death), Portland (Burnside Bridge Skate Park) and Vancouver (Cambie Bridge playground and greenway) space underneath bridges has become covered gathering and play space.

From time to time places normally used for something else can be appropriated as play spaces temporarily, for example denoting a play street for a day or holding an event in a parking lot. Play space can also be mobile as well. In Germany, old buses have been converted into various kinds of play buses, such as a water play bus made from a fire truck that travels from neighborhood to neighborhood and turns ordinary places in play spaces for a day.

Ecological Potential: Put vacant land to use and promote urban density. Generate connections between divided places, such as under freeways.

In Roubaix, France sidewalks and building setback were used to generate play areas (Photo: Rouard/Simon).

Play space, basketball courts and a greenway link are provided under the Cambie Bridge on the Vancouver Waterfront (Photo: Nathan Brightbill).

WATERPARKS

Water holds a fascination for most people, particularly children. Waterparks provide a safer means for children to physically interact with their environment. Waterparks are more frequent in the United States, because they have a greater element of safety and tend to be cleaner. They typically occur on paved surfaces, though; combining them with dirt would likely be more desirable to children.

Barbara Hendricks notes that allowing children to explore their fascination with elements like fire and water helps them better understand the dangers of them. She believes that under supervision these elements should be available in every play area (see also Adventure Playgrounds). At a minimum, however, waterparks allow contact with water and do not necessarily need to be supervised. These parks should contain sprays, shallow streams and fountains.

Ira Keller Fountain in Portland is exciting for children. Because of its high walls, children are cautious and learn boundaries. (Photo: http://www.scenefrommylife.com/archive/2005/0718.html).

Water parks can be very simple. This one at the Farmer's Market in Davis, CA provides simple jets of water for children to interact with. (Photo: City of Davis).

Emery Barnes park in Vancouver is a more formal space serving as a promenade for adults, but still provides interest and challenge for children. (Photo: Nathan Brightbill)

RESOURCES

Allen , Hurtwood, Lady of, (1968). “Planning for Play”. London :Thames & Hudson.
Bengtsson, Arvid, (1970). Environmental Planning for Children’s Play. London: Crosby Lockwood & Son, Ltd.
Carbleback, M. and Moore, R. 1993. The Complete Playground Book. Syracuse University Press: Syracuse, New York.
Carr, S., Francis, M., Rivlin, L., Stone, A. 1992. Public Space. Cambridge University Press: Cambridge.
Cooper Marcus, C. 1998. People Places. John Wiley and Sons: New York.
Eriksen, A. 1985. Playground Design. Van Nostrand Reinhold Company: New York.
Hendricks, B. 2001. Designing for Play. Ashgate Publishing Company: Burlington, Vermont.
Hogan, P. 1974. Playgrounds for Free. MIT Press: Cambridge.
U.S. Department of Housing and Urban Development, City Planning ,Office of (1978). A playground for all Children, Book-3, Resources Book. New York: H.U.D., Office Of City Planning.
U.S. Department of Housing and Urban Development, City Planning ,Office of (1976). A playground for all Children, Book-1, Users Groups & Site Selection. New York: H.U.D., Office Of City Planning.
Van Eyck, A. 2002. The Playground and the City. NAi Publishers: Rotterdam.
http://www.antulov.com/north_durras_oct_01.htm

Bradner Gardens
http://www.gocitykids.com/browse/attraction.jsp?id=27139
http://www.seattletilth.org/directions/bgardens
http://www.solarwashington.org/Tour/2005/regions/Seattle-KingCo/Bradner.htm
http://www.ci.seattle.wa.us/parks/parkspaces/bradnergardens.htm
http://www.ci.seattle.wa.us/light/Green/greenPower/Accomplishments/bradner.asp
http://www.mountbaker.org/dir/info/bradner.htm
http://www.secession.at/presse/regierung/friedl_playgrounds.jpg

Carkeek Park
http://timlloyd.org/photos/slideshow.php?set_albumName=carkeek-park
http://thelateralline.com/tom_jay/sculpture.html
http://www.ci.seattle.wa.us/parks/parkspaces/carkeekpark/elc.htm
www.seattlepi.com-Friday, June 6, 2003, Carkeek environmental center to open in July, By LISA STIFFLER, SEATTLE POST-INTELLIGENCER REPORTER

Chicago
http://www.cps.k12.il.us/
http://www.tpl.org/tier3_cd.cfm?content_item_id=10666&folder_id=588
http://www.pbcchicago.com/subhtml/press/pr_funston.asp
http://www.cps.k12.il.us/AboutCPS/PressReleases/Archives/July_2002/MayorDedication071302/mayordedication071302.html

Kolle 37 and other Adventure Playgrounds
http://www.kolle37.de/html/start25.htm
http://www.ci.berkeley.ca.us/marina/marinaexp/adventplgd.html
http://adventureplaygrounds.hampshire.edu/
Adventure Playground Information Kit. Canada Mortgage and Housing Corporation. 1980.

Acquisition
http://www.realtor.org/libweb.nsf/pages/fg804 TDRs
PPS Funding: http://www.pps.org/upo/info/funding/?referrer=upo_contents
PPS Management: http://www.pps.org/upo/info/management/?referrer=upotopics_contents

Pocket Parks

Alison Blake

Urban Parks

Greenacre Park, New York City, NY
photo credit:
psu9jm85100, webshots.com

Pocket parks, also known as minipark or vest-pocket parks, are urban open space at the very small scale. Usually only a few house lots in size or smaller, pocket parks can be tucked into and scattered throughout the urban fabric where they serve the immediately local population.

These diminutive parks tend to act as scaled-down neighborhood parks, but still often try to meet a variety of needs. Functions can include small event space, play areas for children, spaces for relaxing or meeting friends, taking lunch breaks. etc. They can be a refuge from the bustle of surrounding urban life and offer opportunities for rest and relaxation. However, because space is restricted and user needs are both diverse and vary throughout the day, conflicts can sometimes arise between different groups. Thus, in organizing pocket parks, designers must often work out a delicate balancing act so that all groups can use the space in peaceful co-existence.

One of the unique and exciting characteristics of pocket parks is that they may be created out of vacant lots or otherwise forgotten spaces. Many pocket parks are the result of community groups, private entities or foundations reclaiming these spaces for the benefit of the local neighborhood. Unfortunately, they are sometimes easier to create than to maintain because without functional design, community support, use and maintenance, they may fall into disrepair.

The ecological functions of pocket parks are probably limited as they are typically designed for heavy use by people and because they are typically located in dense urban areas. However, they do present opportunities for increasing the amount of permeable surfaces throughout the city and could also function as patches for some animals, particularly birds.

We must provide facilities for recreation, reset and relaxation that are available to all citizens in every walk of life. We must consider the urban citizen who wants his recreation within the city. We must, in particular, consider the pressin gneed of the low-income families living amid the congestion, noise, drabness, and unbroken monotony of asphalt and brick characteristic of the deprived areas of our cities. Here, obviously, we have the greatest deficit of green space and recreational facilities.
Robert C. Weaver “Recreational Needs in Urban Areas” (From Whitney North Seymour Jr. An Introduction to Small Urban Spaces p3)

The midtown park may be defined as a small park- yet big enough in essence to reaffirm the dignity of the human being. Robert L. Zion

For such parks to contribute effectively to city life, they must be readily available. Further, they should not be looked upon as mere amenities. They have become necessities, and necessities must, by definition, be close at hand, easily come by. Their presence must be felt everywhere thoughout the area- on the way to work, on the way home, as well as during the lunch hour. If such a system of parks is to succeed, there must be proximity as well as profusion- one such park for each square block.
New Parks for New York Exhibit, 1963 (From Whitney North Seymour Jr. An Introduction to Small Urban Spaces p3)

Contexts

Ideally, pocket parks are closely tied into the neighborhoods they serve. By nature, they tend to be scattered and disconnected because they are usually created opportunistically. With some planning, they can be connected if they are placed along greenways or bike paths as long as they would still be visible to a sufficient number of pedestrians who are also potential users.

From an ecological standpoint, pocket parks, at best, act as very small patches. Because they need be sited in areas of heavy pedestrian traffic so they themselves remain safe and functioning, potential use by many other animal species is negligable. However, greenery within pocket parks can help regulate microclimates and act as the "lungs" of the city, while permeable surfaces increase infiltration.

The establishment of pocket parks throughout the urban environment also has the potential to benefit the overall ecology of cities because communities who have parks that meet their needs within walking distance are less likely to drive far away for the same resources, thereby reducing pollution, traffic and the consuption of resources such as oil. Along these same lines, pocket parks could relieve pressure on the same larger, more distant parks. These large parks would conceivably see fewer demands for play areas (and the other needs that pocket parks can meet), allowing them more flexibility to devote larger park areas to habitat and ecological function.

Philadelphia's Pocket Parks:

Location: Philadelphia, Pennsylvania
Dates created: 1961-1967
Number of Parks created: 60
Sizes: 900 sq. ft. to 9,000 sq ft. (average size, around 3,000 sq. ft.)
Overseen by: Philadelphia's Neighborhood Park Program
Uses: Play, sitting (focusing on children and the elderly)
Features: Climbing structures, areas for exploration, bright colors, community involvement, basketball courts, flower or vegetable gardens, "tot lots," etc.

Philadelphia was one of the first cities to begin developing pocket parks within its neighborhoods. These were constructed on the site of vacant or abandoned lots that had become eyesores and were located in low-income areas that needed local open space in addition to the limited facilities already available. These parks involved the community in their design and construction and had a specific focus on childrens play areas.

Three Philadelphia Lots Transformed
photo credit: City of Philadelphia & Philadelphia Neighborhood Park Progam

Essential Elements

Small Size:

Pocket parks tend to between 1-3 lots in size, with a tendency to be larger on the west coast than on the east (Marcus, 150)

Local Community:

These parks rely on a local population for their use and often for their upkeep (to at least make sure they are maintained)

Uses/Functions

Small Events, especially neighborhood events
rest, relaxation
lunch breaks
Play, both individual and group

Elements (Not all elements can neceesarily be accomodated within any one park)

plantings, trees, often water
natural elements are a common feature of pocket parks
Play areas
Areas to Slt
Gathering places

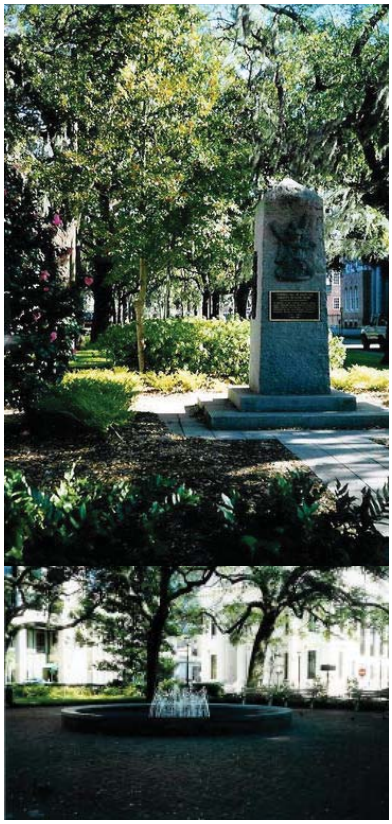
Greenacre Park:

Size: 6,360 square feet
Location: New York City, New York
Date opened: 1971
Developed by: Greenacre Foundation
Designers: Hideo Sasaki & Harmon Goldstone
Purpose:“some moments of serenity in this busy world.”
Features: Visible from the street, moveable chairs, overhead trees, greenery, a waterfall, concessions, heat lamps for cool weather

Project for Public Spaces describes the waterfall at the back of Greenacre Park by saying that it “provides a focal point and a dramatic reason to visit the park and its noise creates a sense of quiet and privacy” and that “there is shade in the summer from the trees yet their thin structure allows a beautiful dappled light to pass through.”
That this level of relief from the urban environment can occur in a slot of space only .14 acres in size speaks to the amazing potential of the pocket park and why it should not be quickly dismissed as an open space typology.
Greenacre Park is a privately endowed New York park that caters mainly to professionals, tourists and shoppers. It has now been a successful open space for over thirty years, which is a testament to the quality of the design, which has all the qualities of a successful small urban space, including visibility, flexible seating, things to eat, climactic comfort (shade or heat lamps, depending on the weather), and a key location with many potential users.

Views of Greenacre Park, New York City
photo credit: Project for Public Space

It is the redevelopment of the smaller parks, reserves and street closures that makes a difference to the local community. -Roger Jasprizza



Aquisition / Implementation Mechanisms

Community Activisim

Many pocket parks have been created as a result of community groups organizing and rallying for more open space and identifying spaces for parks within the urban environment.

Vacant Lots and Parking Lots

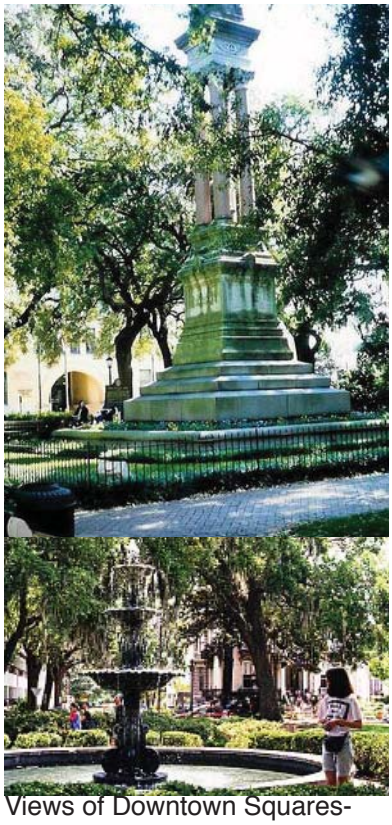
Leftover spaces, othen eyesore present opportunities to become pocket parks and important amenities to communities. These are often purchased and owned by cities, with the agreement that they will be run and maintained by a foundation or other organization if the city is unable to maintain the park itself.

Foundation Owned and Run

City Organized

Land for Philadelphia's pocket parks was acquired at Sheriff's sales "at no cost other than the write-off of municipal liens, which often are unrecoverable"

Public-Private Partnerships



Views of Downtown Squares- photo credit: Project for Public Space

Downtown Squares, Savannah, GA

Size: .46 acres to 1.38 acres
Total Number of squares: 22
Location: Savannah, Georgia
Dates created: 18th & 19th century

Features: Variable by square, but range from seating, fountains, statues, mature trees, shade, monuments, gazebos, recreation areas, gardens, etc.

Although the largest of Savannah's downtown squares are somewhat larger than a traditional pocket park, the squares are notable as a comprehensive system of small parks that are an incredible asset by serving many functions and shaping the character and image of the city itself. Unlike other cities' pocket parks, which are oftern squeezed into leftover spaces, the Downtown Squares were designed with the city grid, placing them at the heart of the neighborhoods. The central location of these parks encourage heavy use and exploration by residents and visitors alike. The connectivity of this system also encourages pedestrians to walk throughout the neighborhood, rather than drive.

Patterns:

4-Block Radius User Group
People Places states that "few minipark users will walk more than four blocks, and most will come from a one-to-two-block radius. Thus, the design of a pocket park should attempt to serve the needs of this immediately local community.

Frequency:
Ideally, there will be one small park sited within every city block in order to meet the range of user group needs without causing conflict between groups.

Microclimates:
Pocket parks should be appropriately sited and arranged so as to respond to the local microclimate, thereby encouraging use.

User Needs:
Accommodate as many different users as possible, according to neighborhood needs; however be careful not to pack too many uses into such a small space that conflicts are inevitable.

Visibility
Pocket parks should be visible from the street

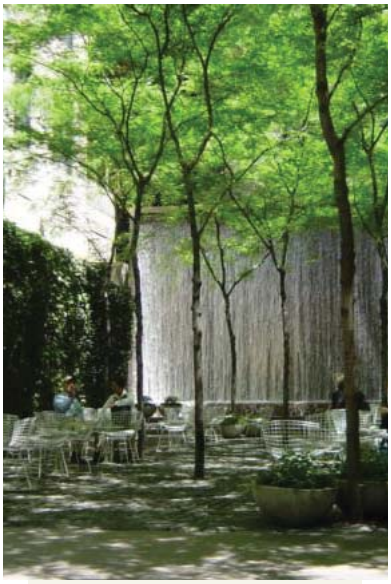
Location:
Parks should be sited in areas of heavy pedestrian traffic so that they are convenient to get to and pass through. They can be sited on block corners, mid block, or may even transect a whole block to create a pedestrian corridor.

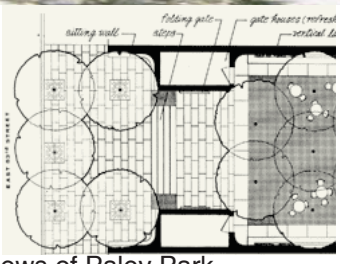
A Midtown Pocket Park: Paley Park

Size: 4,200 square feet .1acre
Location: Midtown Manhattan, New York City, New York
Date created: 1967
Designed by: Zion and Breene Associates
Funded by: William Paley, former Chairman of CBS
(the William S. Paley Foundation)
Uses: Rest & relaxation, lunch area, sight-seeing, meeting spot, etc.
Features: 17 honey locust trees, 20-foot waterfall on back wall, moveable chairs, concession stand, ivy-covered walls.

Paley Park is one of the most widely known and most successful of all pocket parks. It is designed as an oasis away from the bustle of Manhattan while still maintaining clear sight lines and a connection with the street. Unlike some pocket parks, Paley Park does not attempt to be multi-functional. It is primarily a place for sitting and relaxing and, despite catering to a limited user group, is extremely busy and popular because of the high density of workers, shoppers, and tourists in the area.

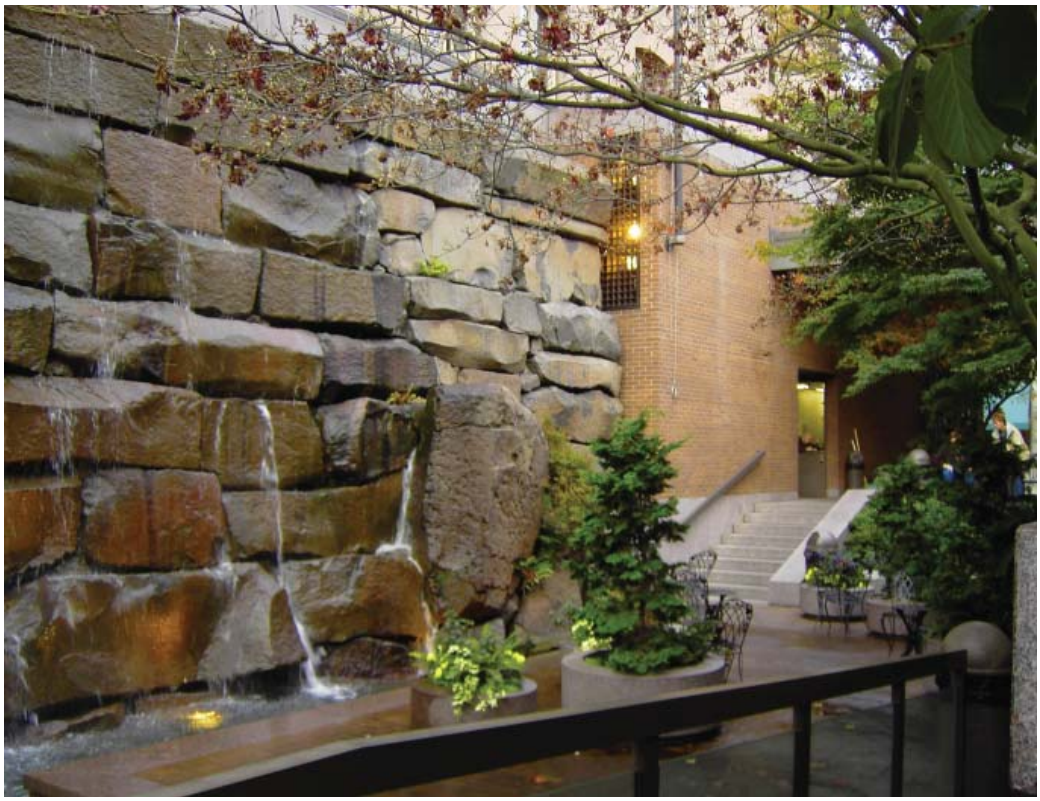
The midtown park is for adults- office workers, shoppers, tourists, and passerby. Its purpose is for rest- for the office worker who has finished lunch, a place to spend the remainder of the lunch hour; for the shopper, an opportunity to put down parcels, recline in a comfortable chair, and perhaps sip a coffee before continuing; for the tourist or passerby an oppourtunity to be refreshed visually by the scale of the place, by the dense green growth and, hopefully, by the quiet of the tiny space. Zion, p.75

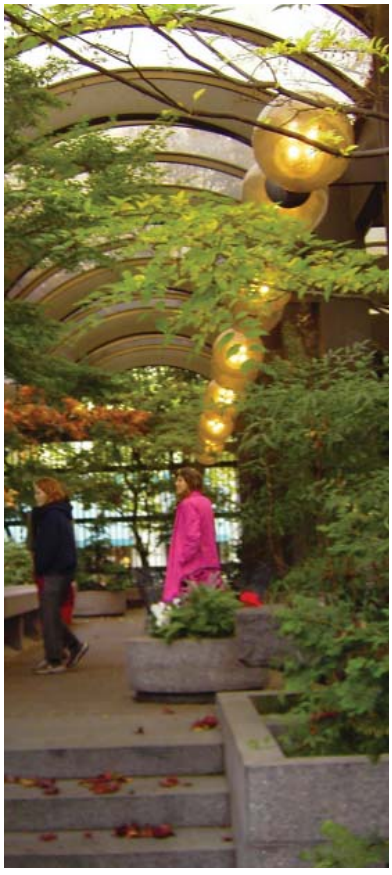




Views of Paley Park
photo credit: Project for Public Space

Possible area for text/quote, photo. establishes mood and continuity of layout





Resources

Jasprizza, Roger. "Small Spaces Make a Difference" ***Landscape Australia*** **1999 Nov.-2000 Jan., v.21, n.4 (84), p.292-294**

Marcus, Clare Cooper and Carolyn Francis, ***People Places, 2nd Edition.*** **John Wiley and Sons Inc. New York 1998**

Projects for Public Spaces; www.pps.org

Seymour Jr., Whitney North. ***Small Urban Spaces: The Philosophy, Design, Sociology and Politics of Vest-Pocket Parks and Other Small Urban Spaces.*** **New York University Press, New York. 1969.**

GREENSWARD FOUNDATION, www.greenswardparks.org

Public Art: Linking Form, Function and Meaning

Elizabeth Umbanhowar

public art
ART AND
ECOLOGICAL
PROCESS

Betsy Damon *Living Water Park* Chengdu, China 1998
Source: Keepers of the Waters

Art fulfills a variety of functions within the public sphere, providing opportunities for, among other things: artistic self-expression; community dialogue; education and enjoyment; inspiring participation in appreciation and creation of art; community problem solving; enhancement of the physical infrastructure and environment; and dermarcation, celebration and transformation of place,

Public art comprises a vast and multidimensional urban typology, which ranges from objects placed in a site, to site-based works, to more ephemeral and performative works that explore dynamic processes, artistic and biological. As such, public art can serve to provoke profound changes in both the mental and physical environment, often mediating the real and/or perceived divide between cultural aesthetics and ecological function.

For the purposes of this examination, the discussion will focus on the history and practice of environmental, or “land” art as it manifests itself in the public realm. Even within these narrowed parameters, the range of art and artists cannot be easily defined. Author Jeffrey Kastner, however, has provided a useful framework for understanding the spectrum of work by breaking down artistic endeavors into five distinct and yet fluid categories: integration, interruption, involvement, implementation, and imagination (see page 6).

Robert Smithson *Spiral Jetty* 1970
Source: www.uazg.hr/likovna-kultura/crta.htm

Art is contemplation. It is the pleasure of the mind which searches into nature and which there divines the spirit of which Nature herself is animated. ~ Auguste Rodin

Buster SImpson *Beckoning Cistern*
Source: *Seattle Daily Journal of Commerce* February 19, 2003

The Roots of Land Art

Environmental or ecological art has its roots in the early 1960s when conceptual artists such as Alan Sonfist, Carl Andre, Robert Morris, Robert Smithson, Michael Heizer, Nancy Holt and others consciously broke from the constraints of the gallery to explore language and metaphor in the more unbounded terrain of land and landscape. Despite their departure from the New York scene, these "land artists" as they were called maintained a close affinity to architecture, both in terms of materials and form, and as such, their work was primarily sculptural. Artists like Smithson were concerned with the way time and natural forces impact on objects and gestures. Many were involved in the creation of monumentally-scaled earthworks, which were alternatively aggressive and nurturing toward the landscape. At one and the same time, these works were both "critical of and nostalgic for the notion of the 'garden'."

Artists following in the footsteps of these early innovators continue to use both natural and human-made materials to make marks within both the topographical and psychological landscape; to challenge assumptions about the social and political role of art; and to explore more explicitly the connections among the individual, community, nature and language. An interest in environmental science has inspired the reclamation or rehabilitation work of artists like Mierie Ukeles, Mel Chin, Patricia Johanson, Jackie Brookner and Agnes Denes.

from Jeffrey Kastner, editor, *Land and Environmental Art,* London: Phaidon Press, 1998 and GreenMuseum.org

Robert Morris *Ring with Light* 1965
Source: Re-title.com

Robert Morris *Johnson Gravel Pit*
Source: Center for Land Use Interpretation

Case Study: Early Efforts in Land Reclamation

Robert Morris began his career as an abstract expressionist, like Jackson Pollock and Mark Rothko. However, his focus soon shifted to minimalism and an emphasis on the control of hard, sculptural materials to the degree that the hand of the artist disappeared entirely. As he shifted to examining softer materials, Morris began to explore the possibilities of large-scale monumental work.

"Robert Morris was selected to design an earthwork in conjunction with the symposium, *Earthworks: Land Reclamation as Sculpture.* The purpose of the 1979 symposium was to create new tools to rehabilitate land abused by technology and provide artists with design opportunities for surplus King County property in gravel pits, surface mines and landfill sites. Morris was selected to work on a 3.7-acre site, a sand and gravel pit abandoned in the 1940s. "The work consists of a series of descending concentric slopes and benches located at the top of the site. A hill-form rises on the lower third of the site," describes Morris. Cleared of all of the undergrowth and trees, the land was terraced and then planted with rye grass. The creation of this artwork returned the land to active use." from 4Culture http://www.4culture.org/publicart/project_profile.asp?locID=16

While the work does not entail ecological restoration, it marks a shift in the focus from purely aesthetic works, to land art which actively and simultaneously evokes and cloaks human disturbance through the evocation of the pastoral. Morris himself observed that "It would perhaps be a misguided assumption to suppose that artists hired to work in industrially blasted landscapes would necessarily and invariably choose to convert such sites into idyllic and reassuring places, thereby redeeming those who wasted the landscape in the first place." from Thomas Heyd, "Revisiting the Artistic Reclamation of Nature" *The Trumpeter* Volum 15, No. 1 (1998)

Essential Elements--Defining Environmental Art

While the definition of environmental art might seem self-evident, in reality, the range of artists who define their work as "environmental" comprises a broad category. The spectrum runs the gamut from aestheticists like Andy Goldsworthy, who utilizes natural materials and forms and explores ideas of cycles of birth and decay, process and ephemera; to research such as Mel Chin, whose creative undertakings test the boundaries between science and art; to activists such as Helen and Newton Harrison, who act as consultants and instigators for large-scale community, regional and even national dynamic living system projects.

Contemporary definitions of the goals and objectives of environmental art are summarized by Lynne Hull in an essay she wrote for the online compendium GreenMuseum. She observes that environmental art:

- Interprets nature, creating artworks that inform about nature and its processes, or about environmental problems
- Concerns environmental forces and materials, creating artworks affected or powered by wind, water, lightning, even earthquakes
- Re-envisions human relationship to nature, proposing new ways for people to co-exist with our environment
- Reclaims and remediates damaged environments, restoring ecosystems in artistic and often aesthetic ways

from Lynne Hull "What Is Environmental Art", GreenMuseum.org

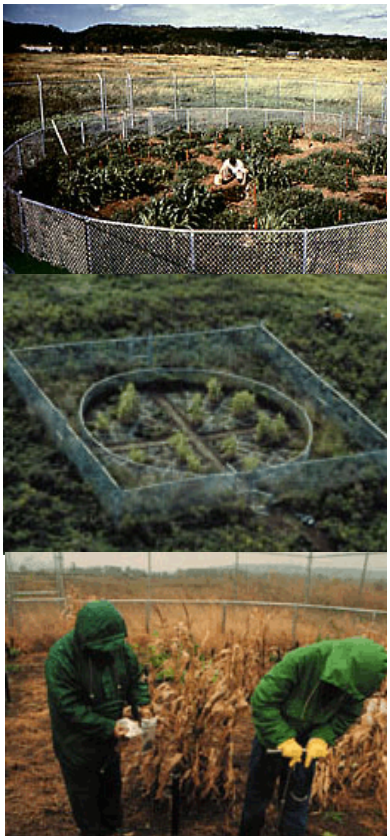
In order to make up our minds we must know how we feel about things; and to know how we feel about things we need the public images of sentiment that only ritual, myth, and art can provide.... Art and the equipment to grasp it are made in the same shop.

~Clifford Geertz

Case Study: Blurring the Boundaries of Science and Art

Prompted by an interest in testing the boundaries between art and science, artist Mel Chin applied to the National Endowment for Arts in the early 1990s to fund a project involving phytoremediation in conjunction with the Walker Arts Center in Minneapolis, Minnesota. Chin describes the intersection of art and science as a kind of alchemy, an exploration of the "...transformative processes and the mutable nature of material." As a sculptor, Chin views his work as a subtractive process in which plants would comprise the "sculptural" tools to shape and transform a landscape, thereby ensuring the health of a diverse ecosystem. Chin received NEA funding, which was then subsequently denied, when his proposal was deemed more science than art. Chin negotiated with NEA Chairman John Frohnmayer, who helped reinstate the grant based upon the artistic merits of the project.

Chin located Rufus Chaney, a USDA scientist whose research had examined the properties of *hyperaccumulators*, or plants that have evolved genetically to uptake metals or other minerals. While Chaney had spent years in the lab researching toxic uptake in plants, he had not conducted any field tests. Together, he and Chin located *Revival Field* at a site at the Pig's Eye Landfill in St. Paul, Minnesota in 1991, making it the first such experiment in the United States. They planted 96 plots with a variety of plant species, including several known cadmium and zinc hyperaccumulators, including *Thlapsi caerulescens*, *Silene cucubalus* and hybrid *Zea mays*. The aesthetic form of the fencing served dual purposes, both to demarcate the form of a target, as well as to divide the control plots from the test plots. Research revealed that the *Thlapsi* performed most effectively and the results were published in both scientific and art journals. Plantings were continued to ensure the complete detoxification of the soil.



Mel Chin *Revival Field*
Source: GreenMuseum.org

It is the moment when belief has become outrageous that offers opportunity to create new spaces, first for the mind and thereafter in everyday... always compose[d] with left-over spaces and invisible places. ~Newton Harrison

Lorna Jordan *Water Works Garden*
Source: Lorna Jordan

Acquisition / Implementation Mechanisms

Public art is the both the manifestation of the ideals of a democratic society and also the site of profound contention. As a result, the social and political agendas of individuals and groups often play a role in manipulating the site and content of public art to align with specific moral or aesthetic values. Despite these inherent challenges, mechanisms to ensure fair and representative work have been established through the creation of arts commissions or boards, comprised of community members, as well as a paid professional staff. Boards have oversight of budgets, design review and de/commissions, while staff are employed to assemble artist selection panels, to facilitate public participation, and to ensure the maintenance and augmentation of public art collections.

Public art is created and funded through a variety of methods. For municipalities, counties and states that support public art and artists, funding may be dedicated through line item designations, the general fund, or through percent for art programs. In King County, public art programs are funded through a one percent addition to all capital projects undertaken by the county.

In a period of economic and social upheaval, federal funding and public support for public programs has waned. As a result, public art programs have sought alternative funding streams, including pursuit of private dollars through development efforts. Several agencies, such as King County's 4Culture, anticipated the decrease in available monies, and transformed itself into an independent cultural development agency, a more entrepreneurial entity, which combines the benefits of a public agency, and the flexibility of a private nonprofit.

Alan Sonfist *Time Landscape Reflection Series 1965-2002*
Source: Paul Rodgers Gallery

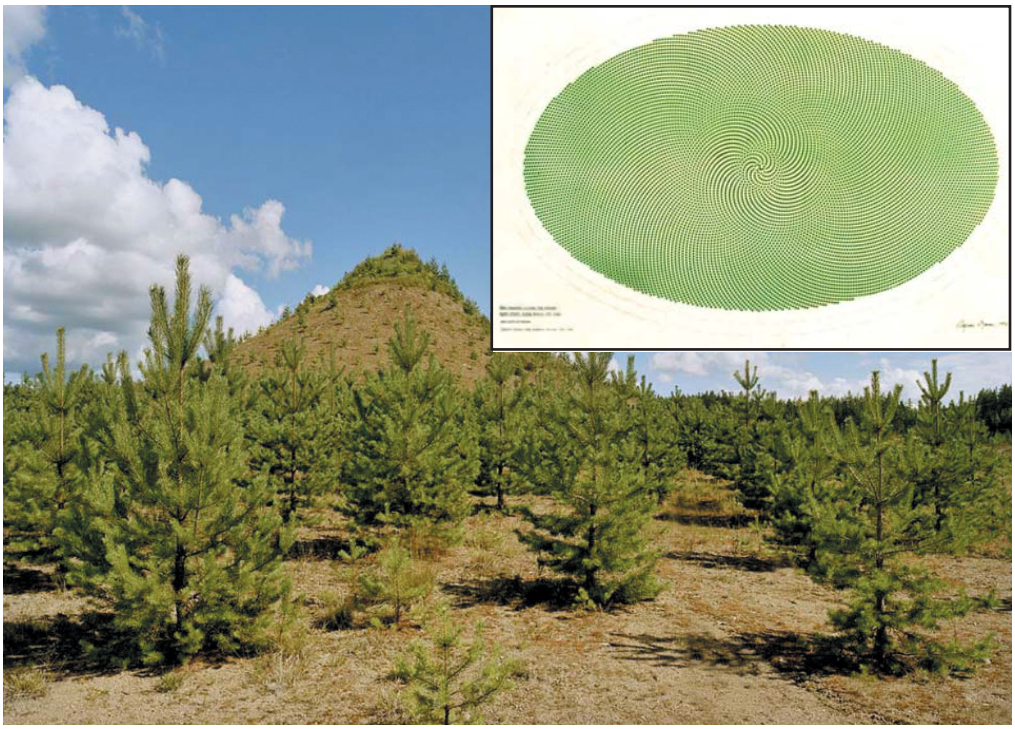
Case Study: Artistic Process, Ecological Process

Artist Alan Sonfist was an early advocate of urban forests and historic preservation of disappearing or lost landscapes. In 1965, he began *Time Landscape*, an effort to preserve such landscapes through artistic intervention. This public art piece, located in Manhattan, is a 45 foot by 200 foot patch of oaks, hickories, junipers, maples, and sassafras that recalls a pre-colonial landscape. As an artistic piece, *Time Landscape* performs several ecological roles: absorbing rainwater, releasing oxygen, and absorbing pollutants such as airborne metals and carbon dioxide. Unfortunately New York City Parks Department, which owns the work, has never monitored the impacts of the park itself.

Sonfist insisted that both physical and mental healing are critical components of landscape reclamation. He noted that one must "repair the hole in the psyche which is left when all traces of our biological and ecological roots are obliterated." While Sonfist's artistic gesture marked an innovative turn in understanding the role of the artist in ecological interventions, some critics have suggested that the piece is flawed by the lack of accessibility (the site is locked) and thus its failure to offer a "social site filled with human content." Indeed Louise Mozingo criticizes Sonfist's work for failing to be "iconic". As a result, she argues, the piece disappears into the fabric of the city, with nothing to demarcate or celebrate its presence.

Despite these criticisms, Sonfist's work must be acknowledged for shifting the framework of the form and function of public art and parks. As a result of his work, New York City Parks and Recreation began to re-examine its own parameters for acceptable landscaping plants. Sonfist's series of mini-landscapes planned in 1965--although never realized--curiously match the city's Greenstreets Map created in 2002.
~ from GreenMuseum.org

Pattern finding is the purpose of the mind and the construct of the universe. ~Agnes Denes



Agnes Denes *Tree Mountain with Small Tree Pattern* 2000 Inset: *Tree Mountain Aerial View* 1996
Source: Haggerty Museum of Art

Agnes Denes observes that "'Everything in our life is but a transitory state and a recombination of this primordial dust. Yet throughout these cycles of change, there is a deeper component of all things that remains constant, unaltered, and mainly invisible - a deeper reality that lies beyond appearance.' Amid a world of continuous change, there are fundamental patterns to be found in both the depths of the mind and the depths of the universe. Her art, clearly, is intended to illuminate those patterns, and, in the exactitude of her math, reason is one of her basic tools."

~ from *New York Arts Magazine*
August 2001

Case Study: Artist As Environmental Activist

Helen and Newton Harrison, two environmental artists from San Diego, have worked as consultants and activists in the field of ecological and community restoration. Their work has "...stressed the significance of invention. Not only do they publicly articulate the inventive aspects of each of their projects, but they believe that every artist's role is: to search, to discover value, to value discovery, to discover qualities of value... to bespeak those values, to be self-critical... to re-speak the values more clearly, to be self-critical again. From this process, new metaphors emerge and old ones are tested for value." from GreenMuseum.org

"They advocate allowing nature to repair itself through the reintroduction of diverse species of flora and fauna to areas devastated by overpopulation or industrial pollution. They support "green" farming, and promise new revenues and jobs from ecotourism and the sale of organic produce and purified water. They also argue that the apparently prohibitive costs of such undertakings are in fact far less than the eventual costs of simply doing nothing. What separates their approach from that of other planners, urban and environmental, is the tenor of their examination. They are poetic but pragmatic, insistent yet gentle, and while vested with urgency are also aware of the persistence of rhythms that have their own pace. They are also inclusive beyond multiculturalism and diversity, since they embrace all factors of place, not just the human component."

from Eleanor Heartney, "Mapping a better world" *Art in America* October 2003.

Helen Mayer and Newton Harrison
Vision for the Green Heart of Holland
Source: Feldman Gallery

public art
PERFORMANCE AND EPHEMERALITY

Nature is in a state of change and that change is the key to understanding. I want my art to be sensitive and alert to changes in material, season and weather.

Each work grows, stays, decays. Process and decay are implicit.

~Andy Goldsworthy

Andy Goldsworthy *Tossing Sticks in the Air* 1980 **Source:** www.art-word.com

Andy Goldsworthy *Rivers and Tides*
Source: Thomas Riedesheimer

Themes, Goals and Characteristics of Environmental Art(ists)

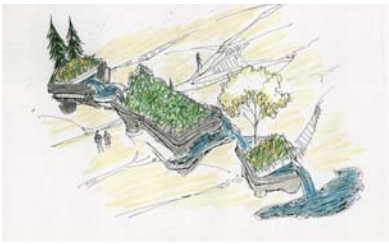
Integration
• Manipulation of landscape as a material in its own right
• Artist adds, removes or displaces local natural materials to create form
• Like minimalism, emphasis on materiality, elemental geometries and siting
• Examines relationship of site characteristics, evidence of human intervention
• Monumental in scale; simulate spatial expanses they occupy

Interruption
• Conjoin environment, human activity using non-indigenous, man-made materials
• Large scale
• Manufactured substances and structures, or machines and technology to frame, set in motion or harness natural elements
• Emphasis on transgressive qualities in activities, questioning notions of "natural"
• Critique terrestrial exploitation
• Interrupt landscape by bringing it into gallery space

Involvement
• Individual acting in relationship with land
• Scale in relationship to human form
• Emphasis on primal, symbolic link to earth, forms of ritual and reaction against monumentality of early land art
• Engage conceptualism and substitute words to evoke physical experience

Implementation
• Investigate environment as ecosystem and depository of socio-political realities
• Explore nature as dynamic, interactive system
• Critique of industrial development, urban expansion, mass market agriculture, scientific intervention of natural processes
• Sculptural and performative

Imagining
• Land as concept, metaphor and signifier
• Environment as historical narrative, symbols describe contemporary society
• Forms of measurement such as maps and place names deconstructed and played with as acts of interpretation



Noel Harding *Elevated Wetlands* 1996 Toronto **Source:** City of Toronto

Resources

Engler, Mira. *Designing America's Waste Landscapes.* Baltimore and London: The Johns Hopkins University Press, 2004.

Frost-Krumpf, Hilary. *Reclamation Art: Restoring and Commemorating Blighted Landscapes.* http://slaggarden.cfa.cmu.edu/weblinks/frost/FrostTop.html

Grande, John K. *Art Nature Dialogues: Interviews with Environmental Artists.* Albany: State University of New York Press, 2004.

Kastner, Jeffrey, ed. *Land and environmental art.* London : Phaidon Press, 1998.

Lippard, Lucy. *The lure of the local: senses of place in a multicentered society*. New York: New Press, 1997.

Meyer, Elizabeth K. "The Post-Earth Day Conundrum: Translating Environmental Values into Landscape Design." In Michel Conan *Environmentalism in Landscape Architecture.* Dumbarton Oaks: Washington DC, 2000.

Spaid, Sue. *Ecovention: current art to transform ecologies.* Greenmuseum.org; Cincinnati, Ohio: Contemporary Arts Center; [S.l.]: Ecoartspace, 2002.

Strelow, Heike, ed. et al. *Ecological Aesthetics: Art in Environmental Design: Theory and Practice.* Basel; Boston: Birkhäuser, 2004.

4Culture Public Art Program http://www.4culture.org/publicart/index.htm

GreenMuseum http://www.greenmuseum.org/

Water Streets

Elizabeth Powers

Streets, Trails

Water Streets: Variations on the green street concept where two important things occur:

1. the street design and its integration with surrounding buildings and open spaces attempts to mimic pre-development hydrological function, or the most appropriate hydrological function for the area given changes development may have made on the local water cycle.

2. water is an integral part of the design, providing education on ecological function, contributing to the atmosphere the designer wishes to create, and enhancing psychological well being.

Consequently, a water street provides both ecological function and social benefit.

Context: A water street is particularly suited to an urban setting with limited horizontal space. A water street uses vertical and linear elements in revealing and collecting water. These elements have smaller footprints and can be layered vertically to fit in a dense urban environment. At the same time, a water street should reveal the flow and cycle of water through the city, either its natural flow along a topographical gradient or its "technical" flow as it is reused or distributed differently for human needs.

Essential Elements:

- Provides hydrological processes and/or helps conserve water resources
- Uses layers of vertical and horizontal elements
- Reveals the flow of water and uses

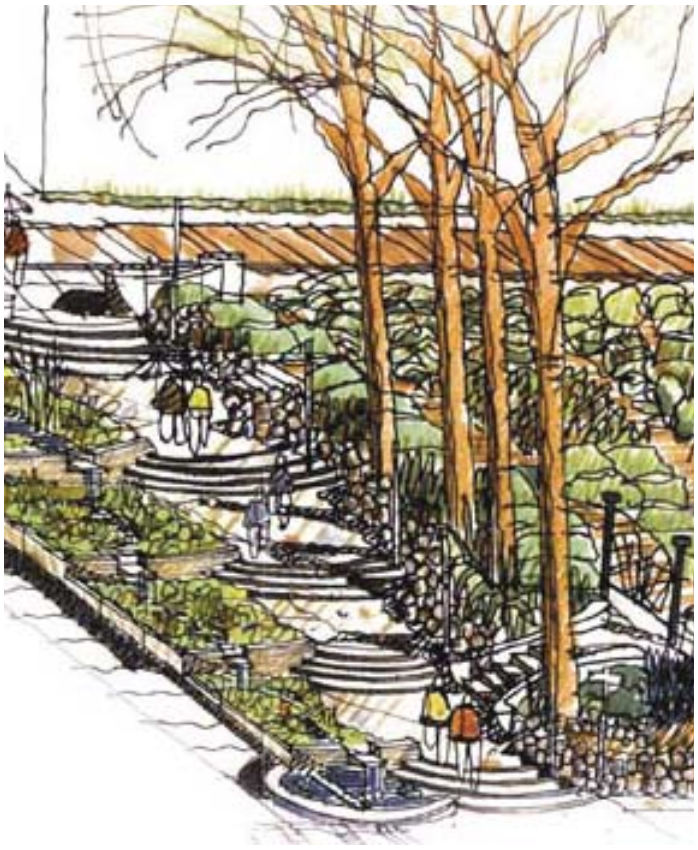
Acquisition / Implementation Mechanisms: As water streets are generally in the public right of way, their implementation will be largely dependent on the public sector. Initiative for a particular street or municipality could begin with neighborhood activism, such as the Growing Vine Street project (see next page), or be driven by the drainage utility like Seattle's Natural Drainage projects. Cooperation from transportation departments is essential and ideally they would play a leadership role, especially streets needing repair or retrofits. City leaders and planning departments can also take the leadership to put implementation mechanisms in place that encourage or require private developers along a street to develop components of the street.

Pattern: Build Green Streets on all residential streets draining directly to creeks and main city streets with a pedestrian focus. Install the Water Street variation of a green street on urban streets running to streams and shores and where a high level of activity is desired and space is limited.

Case Studies: Some examples from local projects are on the following pages and the last two pages comprise a design project based on this concept and developed while this research was conducted.

Photo: EADP Nov 2005

Case Studies



Growing Vine Street

The Growing Vine Street project is a community initiative to develop a set of green solutions for urban streets like Vine Street. Their objectives are three-fold: “to treat roof runoff through biofiltration, to create a refreshing green space for the community, and to reintroduce the natural hydrologic cycle into our urban lives.”

A central concept in their plan for the whole street is a runnel running the street’s entire eight-block length surrounded by native greenery. Storm water would be collected from roofs in large cisterns along the street and supply the runnel while the planting will treat the water. Completed projects along the street include the Beckoning Cistern and planted downspout at 81 Vine Street (above) and the cistern steps at the bottom of the hill, just completed this fall. All three provide functions of collection and treatment and reveal the urban water flow.

Seattle Natural Drainage Projects

Over the last five years, Seattle Public Utilities has been developing new approaches to managing the damage from storm water run-off in particular to respond to the first listing of a threatened species in a major urban setting - the Chinook salmon. Their projects, called “natural drainage systems” are designed to serve multiple functions. SPU outlines these essential elements for each project:

- They help to manage flooding in neighborhoods.
- They improve the appearance and function of the street right-of-way.
- They provide responsible stewardship of the environment.
- They help the City meet local, state and national environmental regulations.

Their first project call the Street Edge Alternatives or “SEA Streets” was very successful, retaining, infiltrating or transpirating 98% of the storm water run-off and was very popular with the residents. The 110th Cascade project treated a street with significantly more slope and installed weirs to contain water. This resulted in more exposure of water flow than the SEA Streets which had large planted beds. To date, all of the natural drainage projects have been on residential streets or neighborhoods. The concept of a water street with narrower treatment areas could perhaps be the next target for SPU’s projects.

Resources

Alexander, Christopher. A Pattern Language, Towns, Buildings, Construction 1977.

Augustin, Viola. A water boulevard vision for Jackson Street : getting storm water out of the pipes and into people’s minds. 2004.

Dreiseitl, Herbert. Waterscapes : planning, building and designing with water. 2001.

Green streets : innovative solutions for storm water and stream crossings. 1st ed. Portland, OR : Metro, 2002.

Growing Vine Street website, http://www.growingvinestreet.org/concept.php, accessed December 2005, and in person research Fall 2004.

Seattle Public Utilities Natural Drainage Projects, http://www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/Natural_Drainage_Systems/index.asp. Accessed December 2005.

A Water Street for a Community Open Space Initiative in the Chinatown/International District

(the following is an excerpt from the final report for Landscape Architecture 503 Studio in the Fall of 2005, taught by

[Pedestrian Bridge to Weller]: Elizabeth Powers *An Unfolding Journey*

This design tackles three sections along a east- west axis that have inherent properties of or potential

to express three essential urban forms - the grand boulevard, a square, and a market. The concept for the design is to link and strengthen these three from with a "water street."

A Water Street

A water street is a type of green street in that it should be part of a natural drainage system for the buildings and surfaces surrounding it. In the case of this project the three sections link a proposed green street on Weller between 6th and 7th, and the original shoreline of the city which would cut just under Union Station. The Pioneer Square and Stadium Districts were once the tide lands of the city.

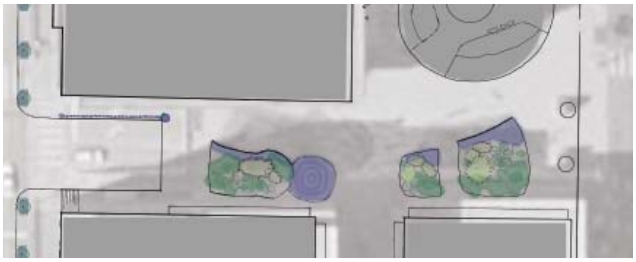
The idea of a water street should also reveal water through vertical and linear elements that collect and convey water. These elements have smaller footprints and can be layered vertically to fit in a dense urban environment.

Weller Street - Market and Water Collection. As water falls on the proposed market street between the current Uwajimaya and the Block 1 project it will begin collection and treatment through green roofs, planted gutters, and storm water planters on terraces. At the first floor level glass awnings will collect the water and funnel it into street cisterns. These cisterns are not meant to store water, but to express the idea of collection, adding art and energy to the street, while funneling water into an underground collection system. The example shown on the next page would show the level of water inside through glass portals that were also lit at night. At the street level, pervious paving would mark the parking and crosswalks. Large pavers in the crosswalks with small impressions would imply stepping stones and collect and reveal small bits of water. Through out the design impressions in the form of a stream system would line the curbs, also collecting small bits of water. The diagram at the top of the next column shows the collection system in a garage proposed under the new development for water reuse in the building.

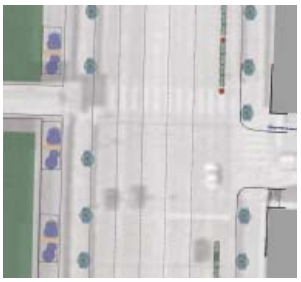
Union Station - Square and Water Treatment. The node at the intersection of Weller and 5th and the Union Station plaza is alread a very successful area. The major change then is to use the existing planting areas to create water treatment bioswales to convey unused water from the collection system as well as continue to collect water. Some of this conveyance would be revealed through design of pools and runnels along the edge of the beds.

4th Avenue - Boulevard and Water Dispersal. There are many great boulevards that handle large amounts of traffic. To turn 4th Avenue to a great entry for both neighborhoods, to increase safety for bikers that now use the sidewalk, and to enhance the pedestrian environment for an expected increase in residents, the design reduces the street to one turn lane and two lanes in each direction with a bike lane on the west side. Trees will line both sides with a subsurface linear bioretention system collecting and dispersing water under the sidewalk. All water would eventually be piped back into the sewer system and discharged into the Sound, though ultimately the whole system could be infiltrated in the tidelands. Further storage and art have could be incorporated into backyard pools for the residences over the train tracks. Finally, vertical art display along the median by the bike path would reinforce neighborhood identity.

Site Plan - Weller between 4th and 5th

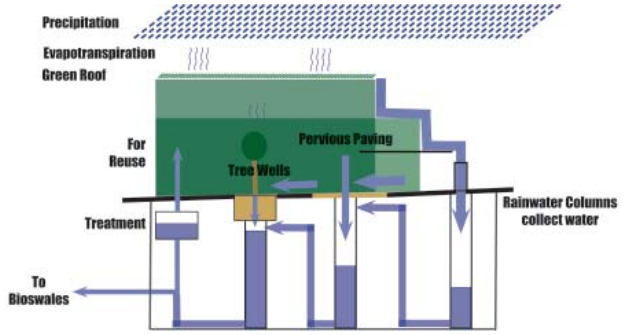


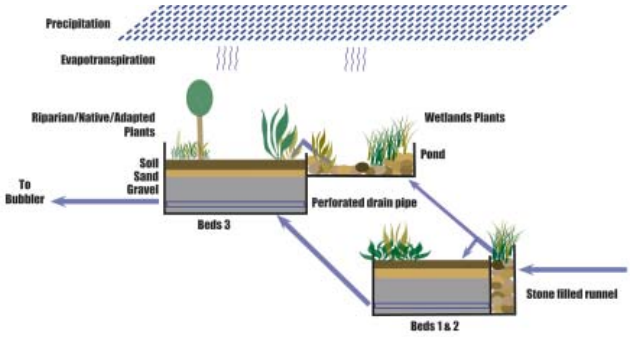
Site Plan - Union Station Square

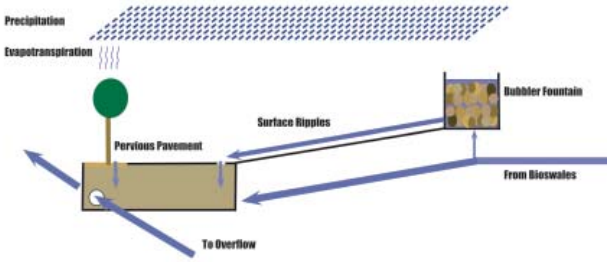


Site Plan - 4th Ave Boulevard

Weller Street "Cisterns."





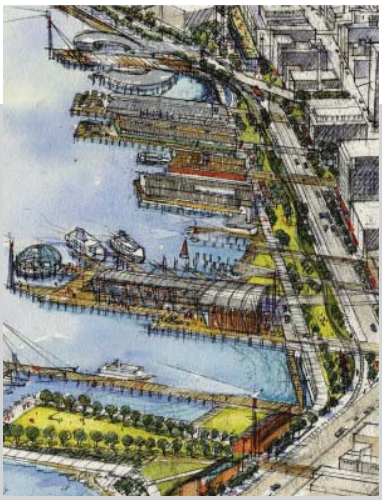


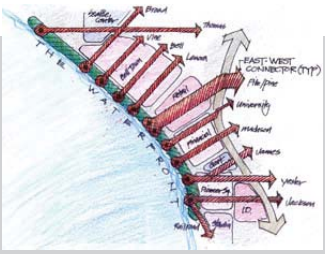
4th Avenue Grand Boulevard

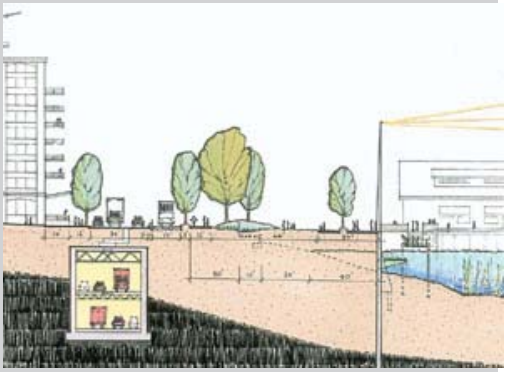
Waterfronts

open spaces and interfaces of edge environments

Seattle Open Space 2100
Waterfront Typology







A few results of Seattle's Waterfront Design Collaborative

alliedarts-seattle.org

Waterfronts are dynamic places by nature. As an edge environment, the overlap of different communities of users and dramatically different conditions make for enormous amounts of complexity and energy. In the non-human realm, waterfronts are the interface of the aquatic and the terrestrial, the site of complex intertidal communities, the point of release for wave action, and the vehicle for many dispersal patterns. As related to human history and use, waterfronts have a long history of changing types and levels of uses, and are now coming back into potentially thriving and layered public use. Once the site of first settlements and exploration, they have long served as transportation corridors and ports, hubs of trade, travel centers, recreation venues, and much, much more. Waterfronts have been extensively used by humans for their utility in travel, trade, recreation, and general enjoyment, and have also suffered cycles of abuse and neglect from these very use patterns.

Cities seek a waterfront that is a place of public enjoyment. They want a waterfront where there is ample visual and physical public access - all day, all year - to both the water and the land. Cities also want a waterfront that serves more than one purpose: they want it to be a place to work and to live, as well as a place to play. In other words, they want a place that contributes to the quality of life in all of its aspects - economic, social, and cultural.

-*Remaking the Urban Waterfront*, the Urban Land Institute

Seattle's Waterfront -

"A once-in-a-century opportunity to create a new front porch for Seattle."

-Seattle Department of Planning and Design

Seattle's waterfront viewed from Denny Hill, 1888
Courtesy Paul Dorpat

Stetson and Post Sash and Door Co. mill, from King Street, 1882
Photo by Carleton E. Watkins, Courtesy UW Special Collections

Historical Progression of Waterfronts

COASTAL SEAPORT: Settlement and Initial Development
The development of modern North American seaports began with early European settlers. As ships were the primary mode of transportation for both goods and people, sites for ports that provided shelter from harsh weather and geological formations that allowed for convenient ship movement and docking became the center of all transportation-related activity. These port sites developed into bustling developments to support shipping-related activities and served as a staging area for further movement.

INDUSTRIAL CENTER: Shipping and Manufacturing
Once established as a port city, these settlements then came to also serve as centers of shipping to export newly found resources, as well as sites of industrial manufacturing. As shipping becomes more advanced and the ships more massive in size, more elaborate docking structures and cargo storage infrastructure is constructed, often resulting in dredging the natural shoreline, and railroad infrastructure may be introduced. Culturally, these port cities also served as centers for exchange of ideas, information, and other cultural happenings.

DECLINE AND DECAY: Changing Economies and Changing Land-Use
As the shipping industry moved to more reliance on the trucking industry, and industrial manufacturing became unfeasible, these large industrial waterfront developments were abandoned. The structures obsolete and the land often polluted, waterfronts became airports, parking lots, red-light districts, and the like.

NEW YORK, New York, USA

The Waterfront as the Last Untapped Open Space

"The Waterfront Park Coalition is an alliance of environmental, civic and community groups that support revitalization of the New York City waterfront with public open space and restored ecological habitat. These groups have come together as a coalition to promote: (1) public access to the city's waterfront and waterways in each of the five boroughs; (2) adequate and equitable financing for waterfront public space and access; and (3) protection and improvement of waterfront habitat."

New York League of Conservation Voters website
http://www.nylcv.org/Programs/WPC/Waterfront_Park_Coalition.htm

The *New York Waterfront Blueprint* is a document produced by the WPC which chronicles over 100 complete, ongoing, and proposed waterfront projects throughout the coastlines and waterways of New York City's five boroughs. The projects point out opportunities for design and redevelopment intervention to provide publicly accessable and enjoyable open space, often made available by existing conditions including working and abandoned rail-lines, abandoned warehouses and factories, industrial sites, and capped landfills. Planned improvements go beyond park uses, often including residential housing and office complexes, as well as environmental remediation and habitat restoration. These projects have huge potential to open one of the world's most densly populated and constantly (internally) redeveloped cities up to a previously grossly underutilized open space: the waterfront that surrounds and cuts through the entire region!

The Waterfront Park Coalition is comprised of public agencies, non-profit organizations, and private foundations, and these projects are enjoying a great amount of public support and media coverage.

Factors Contributing to the Resurgence of Waterfront Development

Available Land
Abandoned waterfront facilities led to depressed land values, ripe for ambitious redevelopment schemes.

Cleaner Water and Land
Environmental regulations and remediation, beginning in the 1970s and 1980s made the land again appealing along the waterfront.

The Historic Preservation Movement
Preservationists took to preserving historic structures, much of which were located along the waterfront and still standing because of a long period of abandonment.

Citizen Activism and Leadership
Citizen activism in relaiming 'lost' waterfronts and historic regions pushed much redevelopment by city agencies.

Urban Revitalization
With the revitalization of urban downtowns and the construction of residential developments with supporting services, waterfronts have become prime real estate.

-*Remaking the Urban Waterfront*, ULI - the Urban Land Institute

Chicago's Lincoln Park on Lake Michigan
http://www.nationalgeographic.com/destinations

San Francisco urban waterfront
www.citykayak.com

Waterplace Park and Providence Park, Rhode Island, USA

"a Venice in New England" -New York Times

In the mid-19th centurty, Providence was a city with a prominent waterfront, Cove Basin, surrounded ty the wide Cove Prominade. However, with the rise of the industrial revolution, Providence's waterfront was soon populated by overflowing sewers, woolen mills, textile-dying plants, meat-packing plants, and elevated rail tracks. The three rivers which move through and meet in Providence were decked-over, hidden from sight and removed from access.

This public called a stop to this decline once the iconic Biltmore Hotel was closed in 1975. Buiness leaders united to form a private group to purchase, rehabilitate, and reopen the "elaborate landmark hotel." This momentum lead to a sweeping proposal to dramatically reshape and reinvigoroate the city core of Providence. The plan sought to bring people back to the center of the city, to work and to live, and used the obsured rivers to drive the plan. In total, this dramatic re-shaping involved burying railroad tracks, removing the over-river decking, changing the course of a river, relocating freeways paths, and reclaiming the lost Cove Basin.

These dramatic moves required dramatic leadership and creative financing. There were many changes in ownership, responsibilities, and funding mechanisms, but in the end it took committed leaders, passionate citizens, and a well-articulated vision to bring about the reclaimed city center and ensure high-quality public open space.

Gondolas on the Woonasquatucket and Providence Rivers
http://www.providenceri.com/gondola.html

"The waterfront isn't just something unto itself. It's connected to everything else." -Jane Jacobs

Park at Battery Park City
http://www.nylcv.org/Programs/WPC/blueprint/boroughs/manhattan/pages/5_battery/index.htm

Aquisition / Implementation Mechanisms

As waterfront redevelopment typically follows heavy industrial waterfront sites that have experienced a period of decay, the process to reinvigorate these spaces can be messy. The three primary areas that must be successfully managed in these projects are: politics, finance, and urban design.

According to the Urban Land Institute, the most effective waterfront redevelopment plans include:

- Strong leadership and vision, each locally rooted.
- Good relationships and links between the redevelopment agency and all levels of involved government.
- Good relationships with local residents and business members.
- Ability to coordinate high-quality private development projects with local public benefits.
- Clearly defined land ownership.
- A long term, sustainable financing plan.
- Transparent project contract-award process.
- Small development increments in tight phasing plans
- Adoption of existing infrastructure and buildings; phased construction of new.
- Continuous public access to waterfront edge.

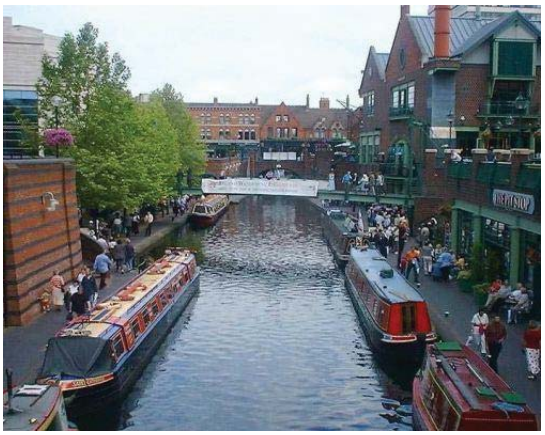
British Waterways

Birmingham, England

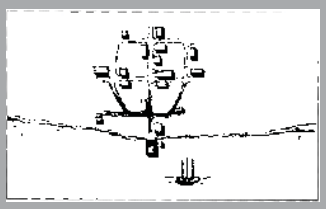
Canal Waterfronts and an Open Space System

Birningham became a bustling center of Britain's Industrial Revolution in the mid 1700s, during which time over 200 miles of canals were constructed by various companies to strategically connect Birmingham to the rest of England. However, with the decline of Birmingham's metals manufacturing industry in the 1930s, the canals also suffered decline of use and were abandoned. Silt accumulated in the canals and activities from World War II inflicted more severe degredation of the canals, and in 1958 all canals were placed under the supervision of British Waterways, a public corporation charged with managing Britain's inland waterways.

In 1988, an "urban regeneration brainstorming session" became the basis of the Birmingham Urban Design Strategy, a plan that calls for development of a visual identity at a pedestrian scale in revitalizing the city. Here, the city's control of the existant, though modest and derilict, waterways provided a framework from which to develop a system of public open spaces. The canals will serve to organize an open space system, and will provide a catalyst for further redevelopment throughout the city by virtue of the extensiveness of the existing system.

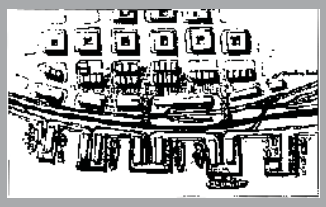


Pattern of Waterfront Development

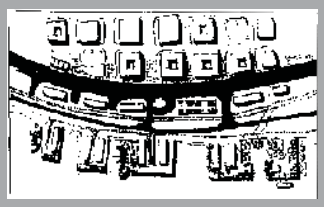


SETTLEMENT
A port settlement is established in a safe harbor; inhabitants have direct contact with the natural shoreline.

A PORT IS ESTBLISHED
The settlement becomes a city with a port authority; docks made of stone and fill replace wood structures.



CITY DETACHES
As commerce and shipping expand and industrialize in nature, the distance between the shoreline and the city center increases significantly.



DECLINE
As shipping decreases, or larger facilities are developed elsewhere to accomodate large modern ships, the original shoreline is abandoned.

REDISCOVERY
Redevelopment spearheaded by the city's redevelopment agency brings about environmental clean up and reconnects the city to its waterfront

Remaking the Waterfront, ULI

Port of Seattle cranes, Duwamish Waterway, Seattle skyline, September 2001
Photo by Priscilla Long

Resources

The Waterfront Park Coalition. *New York Waterfront Blueprint.* New York Conservation and Education Fund, January 2002.

Fisher, Bonnie, et.al. *Remaking the Urban Waterfront.* ULI_the Urban Land Institute, Washington, D.C., 2004.

http://www.alliedarts-seattle.org

http://www.britishwaterways.co.uk/

http://www.birmingham.gov.uk/citycentrecanalcorridor.bcc

http://members.virtualtourist.com/m/81e43/4d5f5/

http://www.nycgovparks.org/sub_newsroom/biennial_report/biennial_02_03/html/waterfront.html

http://www.ci.seattle.wa.us/dpd/Planning/Central_Waterfront/index.asp

Seattle's Waterfront
http://www.ci.seattle.wa.us/dpd/Planning/Central_Waterfront/DPD_000551.asp

Seattle's Central Waterfront Plan

From the DPD website:

Over the years Seattle's central waterfront has evolved from a frontier wilderness to a major economic center, fueling growth in the Pacific Northwest and beyond. However, in recent years the Alaskan Way viaduct and the seawall along the central waterfront have been damaged and weakened. This condition has thrust the waterfront towards yet another major milestone in its evolution.

The Waterfront Advisory Team was made up of 12 members, representing Puget Sound regional issues, urban design/public art, the environment, historic preservation, economic development, neighborhoods/community development, public development, private development, landscape architecture, labor, and general waterfront issues

City planners are working to take advantage of this once-in-a-century opportunity to create a waterfront that will meet Seattle's challenging needs. Planning activities have been focused on generating creative ideas about what the future waterfront should be.

Reconnecting Seattle to its Central Waterfront is the overall goal used in developing the draft Waterfront Concept Plan. Other goals include:

* Restore the natural environment and culture
* Strengthen diverse mobility choices
* Celebrate Northwest character and maritime heritage
* Renew a sense of place

Seattle's Waterfront Concept Plan
http://www.ci.seattle.wa.us/dpd/Planning/Central_Waterfront/COS_004367.asp

February 2004 Visioning Charette
http://www.ci.seattle.wa.us/dpd/Planning/Central_Waterfront/DPD_000552.asp

Seattle's Waterfront
1907 (top)
2002 (bottom)

http://www.kokogiak.com/projects/seawft/default.asp

Traffic-Restricted Streets: Woonerfs and Transit Malls

Paul chasan

Streets for Living: WOONERFS

Traffic restricted streets offer new possibilites for creativley integrating social space with the p. Children play in the right-of-way in this European woonerf.

Image: Hamilton 2000

Streets often constitute up to 1/3 of the land use in a city yet, in our municipal landscape they are often treated as utilitarian corridors rather than vital public spaces. This chapter looks at two street typologies that challenge this axiom: Woonerfs and Transit Malls. Both of which seek to balance the functional need for movement of people and goods with the basic desire we share as individuals and communities for opportunities for social interaction and cultural exchange.

Residents living on Annas Straat in Utrecht set up temporary shelters to watch the Euro 2000 soccer championships. *Image: Hamilton 2000*

"Imagine driving down a street with no traffic lights, stop signs, lane dividers, or sidewalks. Pedestrians, cyclists, and playing children wander about the road at will, and trees and flowers are planted in the right-of-way. How do you avoid hitting anyone—or anything? Simple. You slow down, maintain eye contact with people around you, and stay alert."

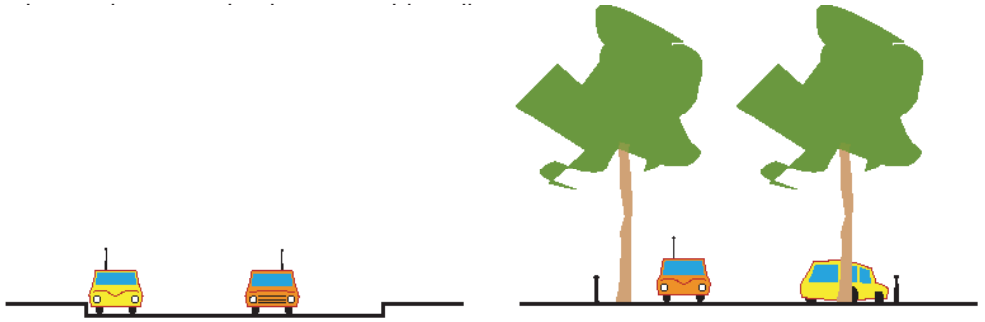
–Sierra Magazine January/ Febuary 2005

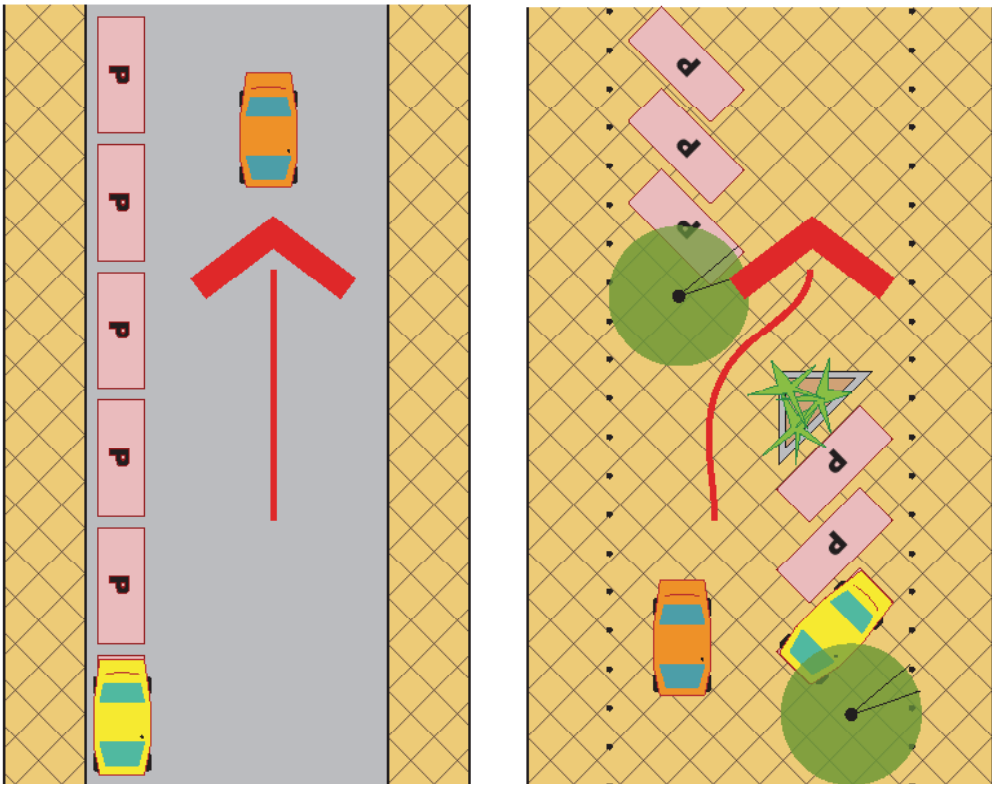
Streets for People

Woonerfs are streets built with high quality urban design where the boundary between people space and car space is intentionally blurred. In doing so, the pedestrian space is extended from the sidewalk, and into the traffic zone. Whereas in a normal street, pedestrians are made to feel like guests in the cars space when they cross the street, woonerfs reverse this axiom. By designing high quality urban spaces, drivers moving through a woonerf are made to feel like guests and modify their behavior accordingly.

In Seattle and other American cities, coercive strategies are generally used to ensure safe driving in neighborhoods. Such tactics include extensive signage, traffic markings and of course traffic laws along with a fleet of traffic cops to enforce them. These methods are costly, create lackluster streets and are largely ineffective. Indeed since people tend to drive as fast as they feel they can control their vehicles, some of our tools for traffic engineering such as lane striping may encourage unsafe driving.

Rather than coerce people into driving safely, woonerfs incent them to do so by using design cues. They achieve this by using the principle of ambiguity. For example, by planting trees in the right-of-way, eliminat-
in
ar
ca
ga
w
dr





"...Designing streets so that walking, cy¬cling, social activities, children's play, park¬ing and local car traf¬fic could all share the same space struck me as such an eminently sensible idea..."
–Ben Hamilto

European studies have shown that woonerfs are significantly safer than traditional street configurations and surprisingly do not compromise travel time in residential settings. This is because, by eliminating stop signs, drivers are able to maintain a steady if slow constant speed that is similar to the average speed traveled in start/stop traffic over equivalent distances.

Gateway sculpture empasizing transition to social space. *Image: Hamilton 2000*

Children and picknick tables share the street. *Image: Hamilton 2000*

Kids, bikes, and plantings in the street *Image: Hamilton 2000*

No traffic markings. *Image: Hamilton 2000*

Using parking configurations to obsucre sight lines. *Image: Hamilton 2000*

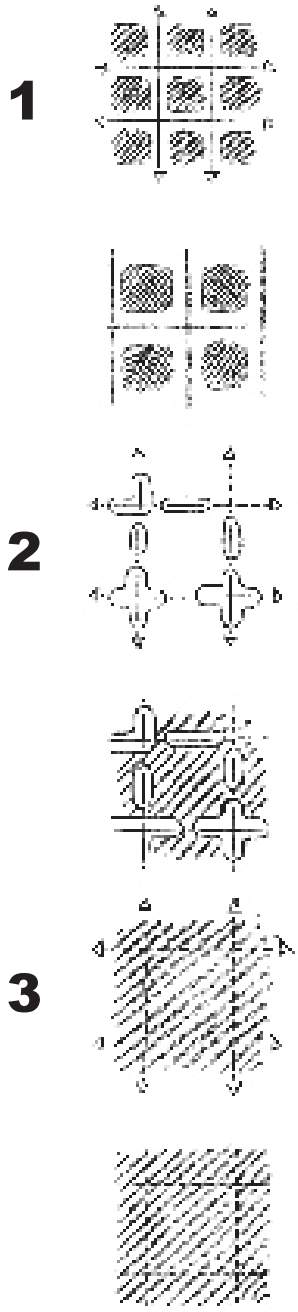
Intricate paving detailng. Note the lack of grade seperation between the sidewalk and the street. *Image: Hamilton 2000*

Essential Elements

Woonerfs offer a way for planners and designers to curb the deleterious effects cars can have on neighborhood streets.

There are several methods employed by woonerf designers use to reclaim the street right of way:

- Obscure sight lines
- Plant trees or place other features in the right of way
- Install detailed, intricate paving patterns
- Eliminate the grade separation between sidewalk and the carriage way



Evolution of a System

1. Traffic flows seperate calmed residential areas.
2. Major arteries are adapted to overcome severance.
3. The city as a coherent social zone; traffic volumes determined by environmental capacity

Image: Hamilton, 2000

Challenges

Woonerfs offer an exciting lens through which planners and designers can rethink the neighborhood street and interest in replicating this European model for streets continues to grow in the United States. There are challenges that have surfaced by American attempts at building Woonerfs in the different urban context of American towns and cities. Designers should expect to grapple with how to provide access for emergency vehicles, and will need to pay attention to accessibility issues for people with disabilities. Current engineering standards can for example render it impossible to build woonerfs in many American cities. None of these issues is insurmountable. Brookline, Massachusetts, and West Palm Beach, Florida have for example successfully implemented woonerf projects. The idea is likely to continue to spread to more north American cities.

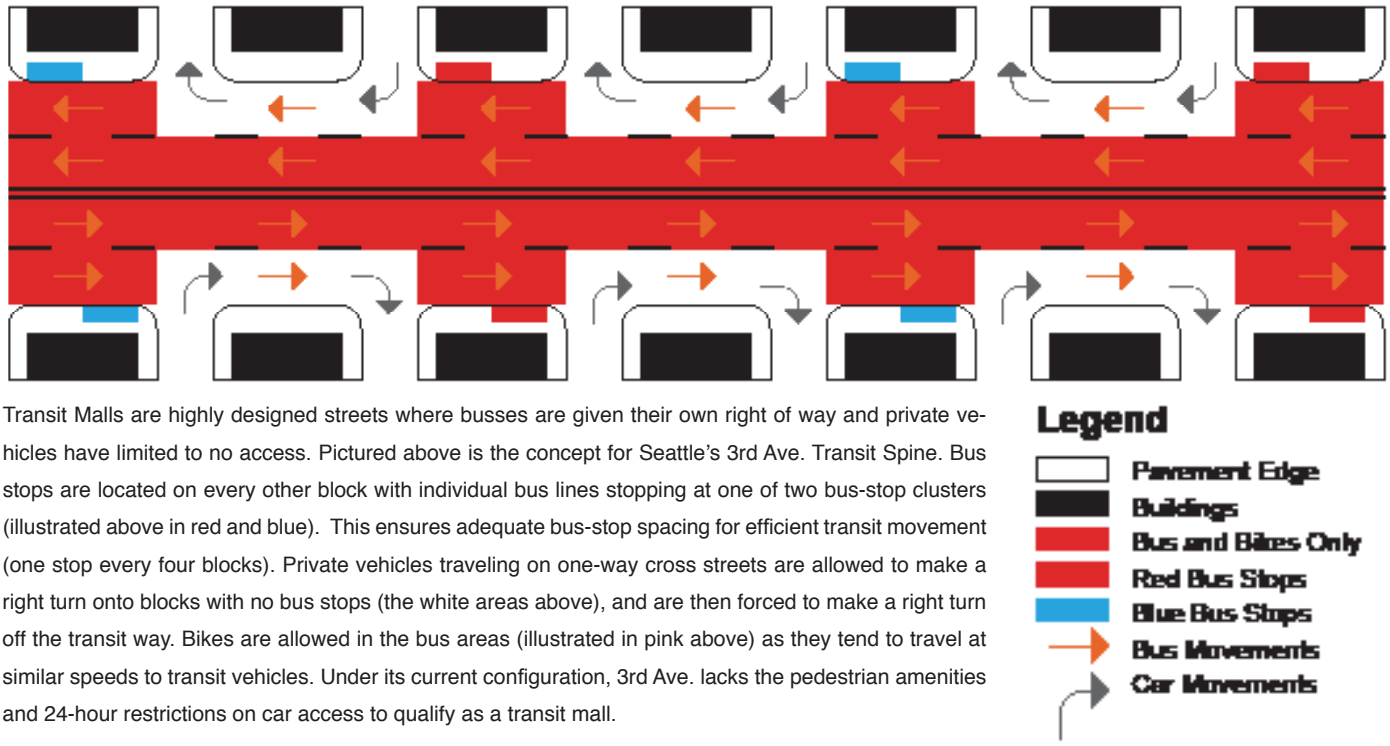
Possible / Implementation and funding Mechanisms

Green Street Projects
SPU stormwater projects
Incremental implementation following street maintenance, utility work and large construction bonds
Neighborhood matching funds
The mayors proposed downtown open space impact fee

Possible / Opportunities for Pilot Projects

UW Campus Expansion, especiall the more urban southeast campus
South Lake Union redevlopment
Downtown Alleys
Yesler Terrace Reconstruction

Concept:



Transit Malls are highly designed streets where busses are given their own right of way and private vehicles have limited to no access. Pictured above is the concept for Seattle's 3rd Ave. Transit Spine. Bus stops are located on every other block with individual bus lines stopping at one of two bus-stop clusters (illustrated above in red and blue). This ensures adequate bus-stop spacing for efficient transit movement (one stop every four blocks). Private vehicles traveling on one-way cross streets are allowed to make a right turn onto blocks with no bus stops (the white areas above), and are then forced to make a right turn off the transit way. Bikes are allowed in the bus areas (illustrated in pink above) as they tend to travel at similar speeds to transit vehicles. Under its current configuration, 3rd Ave. lacks the pedestrian amenities and 24-hour restrictions on car access to qualify as a transit mall.

Transit Mall

Transit malls can be effective tools to ensure the efficient movement of transit in congested urban corridors while providing quality pedestrian and in some cases, retail environments.

With the recent closure of the bus tunnel to renovate it for light rail, Seattle has created the nascent underpinnings of a transit mall along Third Ave. downtown. Third Ave. is uniquely situated for this role as it is runs the length of downtown and is roughly equidistant from the water and I-5. The new "3rd Ave. transit spine" was initially conceived as be a transit-only street throughout the day, but the city caved at the last minute and the street currently acts as a transit mall solely during peak commute times when private cars are effectively restricted from the street.

Whether or not the street will remain a transit mall when the bus tunnel reopens remains to be seen. However the City Center Circulation Report, a policy document available on SDOT's website that was written in 2003 calls for the street to remain a bus only corridor.

Should the city choose to keep the street as a bus way, an opportunity exists to enhance the public realm with urban design treatments. Unique paving, street trees and street furniture a la San Francisco's Market Street or the Portland Transit Mall (see case study), can cement the 3rd Ave. as Downtwon Seattle's Main St. Such a move would make 3rd Ave. a true spine for the city both as an organizational framework for our bus system as well as in the mental maps of the residents and denizens who inhabit our downtown.

Public ameneties along the Portland Transit mall
Images: TriMet

Case Study Portland:
The Portland Transit Mall was created in 1977 as the culmination of a two pronged strategy to improve transit flow downtown and spark downtown development, especially retail. Limited car access was provided in one lane on some parts of the transit-priority streets but on-street parking was removed and replaced with widened sidewalks, lavish street furniture, public art, fountains and street trees.

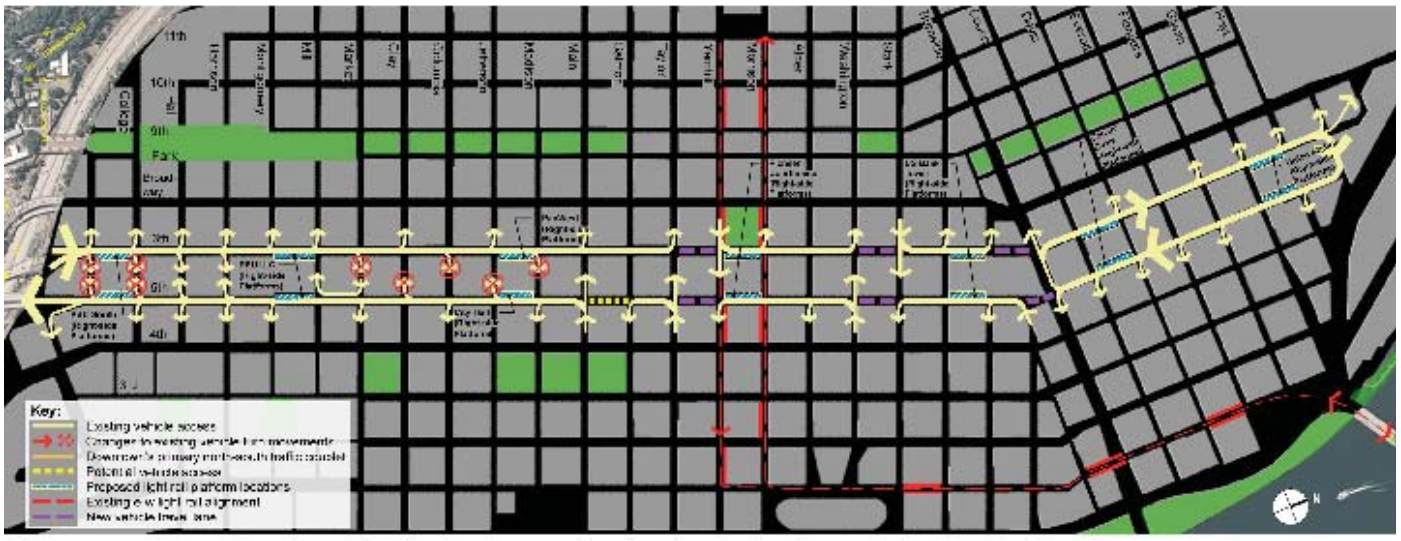
While the commercial space on did not develop to the degree city officials had hoped, transit flow was greatly enhanced. There have been issues with business owners along the mall wanting on-street parking. The city recently studied increasing parking supply, but decided against it because the street space was needed for a future light rail expansion.

Over time, the city has continued to tweak the transit mall's design and is currently undergoing a design process to update the corridor.

Cities that have either implemented or are studying creating transit malls:

- Portland, OR
- Vancouver, BC
- Toronto, ON
- Sydney, Australia
- San Francisco, CA
- Seattle?

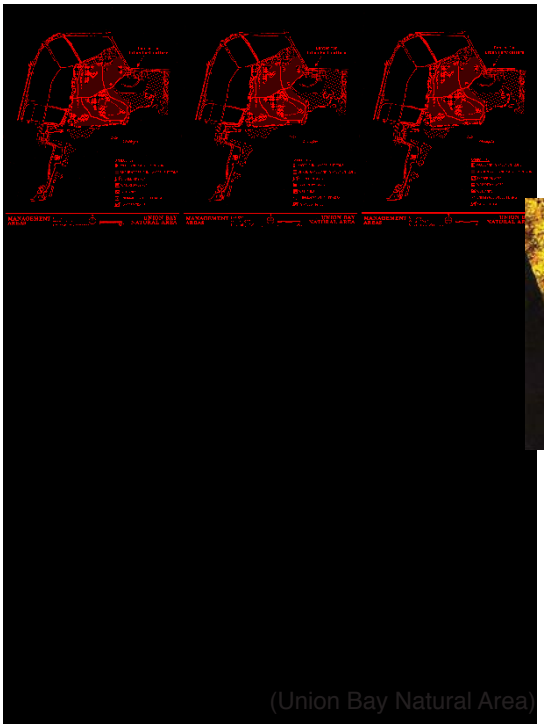
Portlands Transit mall: Limited car access, and generous pedestrian ameneties.
Image: TriMet. http://www.trimet.org/inside/photogallery.htm



Car Access along the Portland Transit Mall. *Image: TriMet*

Botanical Gardens

(UWBG)



(Union Bay Natural Area)

(Washington Park Arboretum)

"One generation plants the trees under which another takes its ease"

(Chinese proverb taken from www.mobot.org)

Botanical Gardens provide an opportunity to construct ecologically functional landscapes on a large scale while at the same time educating individuals, professionals and organizations about sustainable green infrasrtructure. Because of their large scale and their role as educational facilities, they hold a unique potential to significantly influence the direction and pace of urban green space design and planning. In addition to the numerous ecological and informal educational opportunities available in large urban parks, Botanical Gardens provide the following opportunities:

Education: Botanical gardens are usually committed to some level of public education. This function is usually carried out through the combined use of demonstration gardens and displays, informal and formal instruction through classes, tour and web-based resources, outreach using publications such as newsletters, and by making the most of passive experiential learning opportunities.

Research: Botanical gardens, whether public, private or associated with an academic institution, usually contain as part of their mission an aim to improve the understanding of plant biology, the role of plants in the environment and the relationship between people and plants. This often includes efforts to extend research networks and expand collaborations on both global and local scales. Botanical gardens often serve as both informational and physical databases (housing seed, live plant and herbarium specimen collections) for professional and amateur plant researchers.

Recreation: Like large public parks, botanical gardens provide healthy recreational opportunities and an escape from the urban infrastructure

Users: The typical audience and users of botanical gardens include the general public as well as the professionals responsible for shaping urban lanscapes.

Botanical Garden:

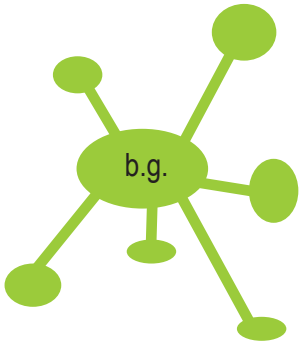
"a garden often with greenhouses for the culture, study, and exhibition of special plants"

(Miriam-Webster online)

(Missouri Botanical Garden)

Context

Botanical gardens have traditionally been landscapes of learning. Whether through passive or active opportunities, visitors to botanical gardens expect to be presented with new information, new sights and new experiences. When combined with the large scale of botanical gardens, their traditional role as educational landscapes puts them in a unique position to significantly influence the urban green infrastructure currently, through physical means, and into the future, through demonstration and education.



botanical garden with satellite landscapes in diverse environments

Botanical gardens as spatial and informational hubs:

spatial- Most cities can only support one botanical garden. However, they are often composed of multiple landscapes, or associated with partner gardens, all with different foci and located in different environments. The large, diverse landscapes of the botanical garden and its satellite partners provide multiple opportunities for developing diverse, ecologically functional systems. They can serve as source landscapes and refuges for biological organisms at multiple scales as well as filter and store water in the urban landscape.

information systems: Botanical gardens can serve as a city's informational database for ecologically sustainable design by actively educating the public through classes and the construction of demonstration landscapes as well as by serving as a clearing house for information about sustainable design.

access: Botanical gardens should make a significant effort to ensure accessibility to the entire public and to develop an aggressive outreach campaign to attract people to the gardens and to distribute information about sustainable design.

MISSOURI BOTANICAL GARDEN

Integrating beauty, pleasure, education and research:

Mission: "To discover and share knowledge about plants and their environment, in order to preserve and enrich life.

The Garden seeks to engage its visitors on a profound level - "to preserve and enrich life" by illuminating the importance of plants to the balance of life on Earth.

While most visitors discover a heightened appreciation and understanding of the world's rich botanical heritage, few realize that beyond the floral panoramas and exhibits there exists another realm; our internationally renowned research enterprise. This is the "Unseen Garden."

http://www.mobot.org/

CASE STUDY: Missouri Botanical Garden (St. Louis, Missouri)

a model for research-focused gardens

A private non-profit, 79 acre National Historic Landmark founded in 1859 by Henry Shaw on the site of his private estate. Although a separate organization, the garden has an intimate relationship with the Botany Department at Washington University. It runs on donations from individuals and corporations and grants from public agencies.

focus: dedicated to botanical research and conservation, science education and horticultural display

features:

research: research centers, library, herbarium, botanical database
horticulture: display gardens, classes for the public
education: partnership with local schools to develop an overnight education center for young students

http://www.arboretumfoundation.org/

Aquisition, Implementation, Support and Mangement

Public Facilities
State Owned and Managed Lands-
University or College Gardens
City Owned and Managed Lands

Private Donation of Land to Public Agencies- Kubota Gardens

Privately Owned Business - Butchart Gardens

Private Non-profit - Missouri Botanical Gardens

Public- Private Partnerships-
Washington Park Arboretum: City-owned land but managed by three-way partnership between University of Washington, Arboretum Foundation and City of Seattle
Bellevue Botanical Garden- City of Bellevue Parks and Bellevue Botanical Garden Society

Arboretum Foundation

. . . preserving a northwest treasure

Additional Opportunties for Support and Management-
Program, Course and Entrance Fees
Concessions
Volunteer labor

CASE STUDY: Butchart Gardens (Victoria, B.C.)

a model for pleasure gardens

www.butchartgardens.com

Begun in 1904 on a former rock quarry, this family owned and operated classical garden has an international reputation for providing magnificent floral and foliage displays year-round. In 2004, the 55 acre garden was designated a National Historic Site of Canada

focus: pleasure garden, horticulture, garden styles
Italian Garden, Japanese Garden, Rose Garden
floral and foliage displays

features:
year-round entertainment -
fireworks saturdays (sell & rent blankets)
summer evening light display
holiday light displays and activities
music and theater “Summer Evening Sounds”
Historical Perspectives walk- viewpoints provide historic views of the gardens

http://www.redbuttegarden.org/

Essential Elements

local landscapes: demonstration gardens highlighting local landscapes serve to teach visitors about the complex environment in which they live and the role plants play in maintaining a healthy, functioning system

global landscapes: demonstration gardens highlighting different landscape types from around the globe illustrate the relationship between the local landscape and the larger, global environment

demonstration beds: living examples of design approaches to addressing current challenges in urban landscapes illustrate alternatives to the traditional approaches to urban landscapes. demonstration beds include information about the application of demonstrated technologies to residential and other urban spaces

experimental landscapes: new approaches to constructing a green urban infrastructure are explored and explained in the gardens

wayfinding and information: botanical gardens should have a clear, easily accessible wayfinding system that provides information in multiple formats and clearly illustrates the relationship between plants, people and their environment

relaxation and escape: the entire landscape should be designed with theintent to provide opportunities for escape from the built environment

conservation: preservation of species diversity through maintenance of living collections as well as seed collections and herbarium specimens

http://www.redbuttegarden.org/

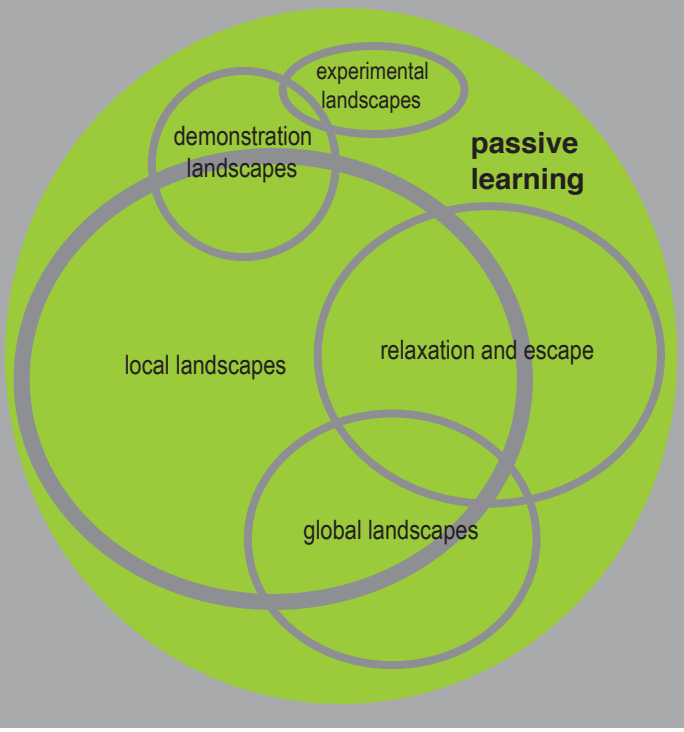
CASE STUDY: **Red Butte Botanical Garden** (Salt Lake City, Utah)

a new model for urban gardens

Nestled against the foothills of the Wasatch Mountains on University of Utah property, Red Butte takes visitors through highly sculpted and maintained landscapes containing ornamentals to the native, arid landscape of the northern Utah desert.

focus: horticulture - demonstration of ornamental and native plants that are well-suited to Utah's desert climate

Pattern: Dedicated to Learning



(Bellevue Botanical Garden)

CASE STUDY: Royal Botanic Gardens, Kew (U.K.)
a model for global perspectives

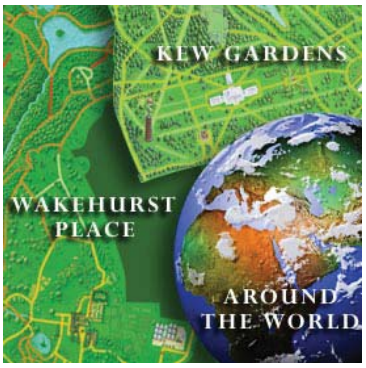
http://www.rbgkew.org.uk/

Royal Botanic Gardens, Kew
at Kew Gardens, Surrey, and Wakehurst Place, West Sussex

Mission:
To enable better management of the Earth's environment by increasing knowledge and understanding of the plant and fungal kingdoms - the basis of life on earth.

changing the world by:
developing global reference collections,
conducting world-wide research in all areas of plant biology,
supporting conservation and sustainable use of plants in UK and world-wide,
developing world-class gardens that provide window into RBG's work
enabling world-wide collaboration, training and information exchange

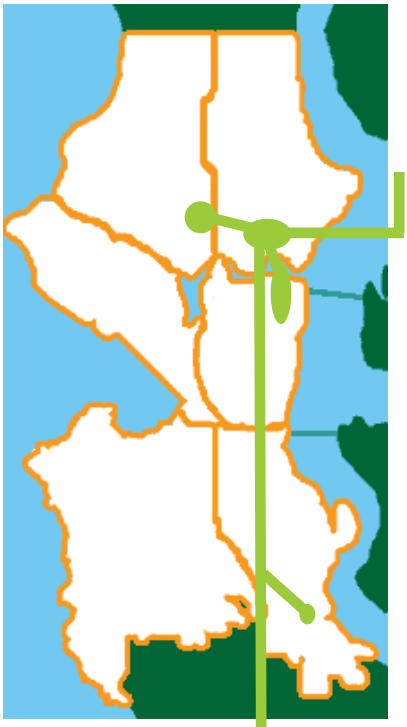
Focus on People and Plants



focus: Science and Horticulture
Conservation and Wildlife
Education
Collections: plants, seeds, references, herbarium specimens
Data and Publications (collaboration and outreach)

features:
collections: formal gardens, wildlife areas, themed collections

entertainment: guided and self-guided tours
'Kew Explorer' people mover, 'Climbers and Creepers' interactive play area, Festivals and Events - art exhibits, Christmas fete, ice skating



Making Connections: Resources in and around Seattle

University of Washington Campus

UW Botanic Gardens - 90 acres of display and natural areas

Demonstration gardens: 16 acres
Orin and Althea Soest Herbaceous Display Garden
Marilou Goodfellow Grove
Seattle Garden Club Entry Shade Garden
McVay Courtyard
Children's Garden

Union Bay Natural Area -
74 acres, 4 miles of shoreline

UW Erna Gunther Botanical Gardens

UW Herb Garden/Pharmacognosy Lab

Within Seattle City Limits:

Washington Park Arboretum - 230 acres, 3 miles of shoreline
Kubota Gardens
Woodland Park Zoo

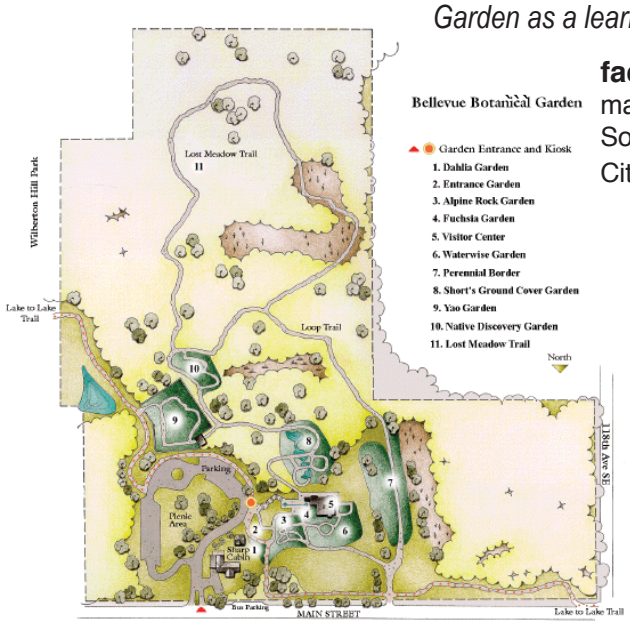
... Beyond Seattle

Bellevue Botanical Gardens
Rhododendron Species Botanical Garden

CASE STUDY: Bellevue Botanical Gardens (Bellevue, WA.)

a local model of collaborative management

Mission: "Perpetuate and further enhance the Bellevue Botanical Garden as a learning resource in partnership with the City of Bellevue."



facts: 36 acres of display gardens and managed jointly by City of Bellevue and Bellevue Botanical Garden Society (501c3) and acquired through private donation and City designation

focus: Education: Develop, maintain and promote interpretive programs and facilities for public education in gardening, horticulture and conservation relevant to the botanical heritage of the Pacific Northwest.
Garden Development: assist the City of Bellevue to develop the BBG into a resource of regional and international renown.

features: Waterwise Garden-
Water Conservation Demonstration Garden -
project of City of Bellevue Parks and Utilities Departments

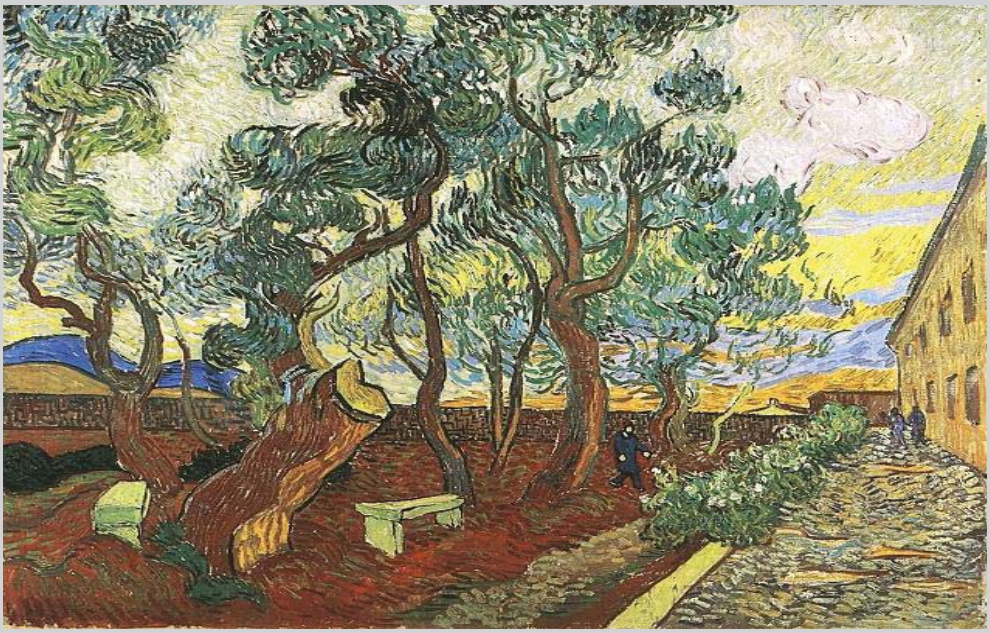
Botanical Garden Resources:

American Association of Botanical Gardens and Arboreta (AABGA)
www.aabga.org

Healing Gardens

Betsy Severtsen

Gardens



"Garden of Saint Paul Hospital"
~ Vincent Van Gogh

The artist painted the asylum's garden while he was a patient.

Credit: zallio.hollosite.com

Healing landscapes have long been an important aspect of human life. When people first began erecting dwellings, healing places could be found within nature through sacred groves, special rocks and caves. In the Western world, monastic communties supported infirmaries that were based in the use of herbs and prayer and almost always included a cloistered garden. Modern advances in technology towards healing has largely diminished the importance of nature in the healing process and this has been one unfortunate result of the "cure over care" phenomena found within many aspects of the healthcare field.

More recently, there has been a growing interest in the healing effects of nature. The Kaplans and Roger Ulrich have provided much of the literature on how a landscape can be restorative. Providing a sense of fascination as well as a greater extent, separating users from distraction (Kaplans, 1998), reducing negative emotions, holding a person's attention, and blocking stressful thoughts (Ulrich, 1981) have all been shown to occur in natural landscapes. Ulrich has also shown that patients with views of nature have significantly less post-operative stay times, fewer negative comments from caregivers, less medication use and experienced fewer minor post-operative complications than patients with views of a wall (1984). Researchers have also found that nursing home residents with physical or visual access to nature have significantly greater caloric intake and exercise than those without (Cohen and Weisman, 1991).

Based on research by the Kaplans and Ulrich, it could be argued that any garden is healing. However, to be defined as such, a healing garden should give a sense of restoration from stress and have other positive influences on patients, visitors and staff/caregivers. These healing landscapes can be located in or outdoors, but to qualify as healing "gardens" they should have real nature such as plants and/or water features (Cooper-Marcus and Barnes, 1999).

"*Nature is but another name for health...*"
Henry David Thoreau

"*Not long ago, operating rooms had windows. It was a boon and a blessing in spite of the occasional fly that managed to strain through the screens and threaten our sterility...there was the benediction of the sky, the applause, and reproach of thunder...the longevity of the stars to deflate a surgeon's ego. It did not do the patient a disservice to have Heaven looking over his doctor's shoulder. I very much fear that, having bricked up our windows, we have lost more than the breeze; we have severed a celestial connection.*"
Richard Selver

"...[Good garden design] employs the mind without fatigue, tranquilizes yet enlivens it and thus gives the effect of refreshing rest and reinvigoration."
Frederick Law Olmsted

"Design directs perception through space. Therapy guides healing over time. Therapeutic design is the guidance of healing through space and time."
Marni Barnes

"I only went out for a walk and finally concluded to stay out until sundown, for going out, I found, was really going in."
John Muir

Contexts

Traditional healing gardens are often found within or adjacent to indoor healthcare settings. Healing gardens can be found in mental health hospitals, schools and centers for the disabled, hospices and nursing homes; however, possibly the most popular examples of healing gardens are found within or adjacent to hospitals and Alzheimer's treatment facilities.

Healing Gardens meant for users that are specifically ill or disabled will be useful to the extent that these special needs populations are present and able to physically or at least visually access these sites. However, even within a healthcare setting, healing gardens are often used by a larger population including staff and visitors as well as patients and/or residents.

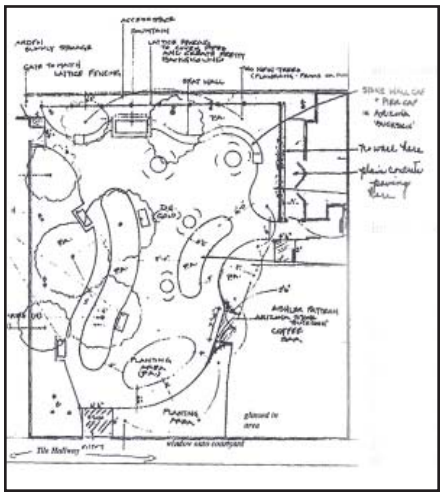
At a larger scale, some believe that any garden can be a healing garden and that the general population can find restorative benefits from such spaces, regardless of pnysical health needs. Taken at this scale, green spaces with restorative effects should be easily accessible by the surrounding population. Seattle's goal for accessible open space is to have 1/4 to 1/2 acre of usable open space within 1/4 to 1/2 mile of every resident (City of Seattle Parks and Recreation, 2001).

Photos and Plan Credit:
Cooper Marcus, 2001

Case 1: Healing Gardern at Mount Zion Clinical Cancer Center, San Francisco, California

This courtyard garden is bounded by hospital buildings and a commercial property, Thankfully roughly half of the garden still receives direct sunlight at noon. Plants were chosen to provide blooms throughout the year and to provide a variety of green hues. There is a small fountain to screen out noise from a nearby street and many wooden benches, tables and moveable chairs. The garden was once a mostly-hardscaped courtyard, designed by Tommy Church. An artist-patient at the center provided the idea and effort to redesign the space into a more garden-like setting.

During the design process workshops were held where patients and staff provided suggestions on the necessary garden elements. There were also a number of tile-making workshops where patients added their survival stories to tiles with imprints of Asian plant specimens used in cancer treatment. These tiles made up the wall of the indoor corridor that passes by the garden; the tiles are one element of permanence next to a constantly changing garden. This garden has been quite successful with patients, staff and visitors. It is a green oasis within the hospital complex and gains much of its popularity through the community process that is was created from (Cooper Marcus, 2001).



Healing gardens are effective if they foster the following elements:

Sense of control
Patients/residents must know a garden exists, be able to find it easily and be able to access and use the space in an active or passive way. It should also have areas for privacy that are shielded from window views. A variety of types of spaces can aid in allowing users to make choices. Feelings of control can also be enhanced by involving users in the design of the garden.

Social support
Spatially enclosed settings that allow for socializing are often preferred by users. Designing for small as well as the occasional large group (associated with hospital initiated programs and large extended family visits) is important. However, all considerations for social support should not deny access to privacy (which undermines patient control).

Physical movment and exercise
Mild exercise can be encouraged by designs that allow for patient accessibility and independence and provide features such as walking loops. For children, areas that allow for stress-reducing physical activities and play should be included.

Access to nature and other positive distractions
Medicinal and edible plant species and those that engage all of the senses are often a good choice for the design's plant palette, as are plants that encourage wildlife. Poisonous, thorny plants, and those plants that encourage large amounts of unwanted insects (i.e. bees) should be avoided, especially in gardens used by children and the psychologically ill (Cooper Marcus and Barnes, 1999).

Photo Credit:
1- http://www.healinglandscape.com/
2-http://www.eastriding.gov.uk/social
3-http://www.bevan-lodge.com
4-http:// www.kuris. com

Case 2: Gardens at Lucas Gardens School, New South Wales, Australia

This special education facility is linked to a nearby pediatric hospital. A series of courtyards have been developed into gardens over the years. Most of the young users rely on wheelchairs or cots, and thus the garden is universally designed to accomodate the needs of all.

A sensory garden is the centerpiece of the landscape. It has a series of curved, raised planters that enclose a number of "activity stations" and provide space for sensory plantings. The activity stations allow children to explore different textures and play with water through a splash table.

There are also a number of quieter areas useful for music therapy sessions and family time. Other spaces include: a shade house, compost area, grassy field, outdoor concert stage, potting shed, earthworm bins and a native plant propogation area.

The garden is open to the larger community. Visually impaired and physically disabled students from surrounding schools visit, mildly physically disabled people engage in work experience and a nursing home reading group meets regularly there (Cooper Marcus and Barnes, 1999).

Because the garden provides for robust uses, and is community-based it has been quite successful.

Credit:
Plan:
Cooper Marcus & Barnes, 1999

Painting and photo:
http://www.lucasgarde-s.schools.nsw.edu.au/

Volunteers constructing toolshed for nursing home garden. Photo credit: http://www.news.cornell.edu/Chronicle/03/5.1.03/garden_

Horticultural therapy
Photo credit: http://www.hort.vt.edu/mastergardener/health.html

Aquisition / Implementation Mechanisms

Many examples of healing gardens were initiated by strong leadership but were implemented through a strong community process. Exterior spaces of healthcare facilities have been overlooked for quite a long time and the budgets alone of these facilities often cannot support the creation of a therapeutic landscape.

Of the case studies I have read, most gardens were funded through private donations and grants, often gained through long fundraising drives. Likewise, the construction of many of these spaces has relied heavily upon volunteer input. Many facilities have implemented the healing garden or gardens slowly by converting left-over or underused exisiting spaces one at a time.

Tile wall created by patients, Mount Zion Clinical Cancer Center
Photo credit: http://www.annchamberlain.net/public%20art/healing%20garden/healing%20garden1.html

Photos and Plan Credit:
Cooper Marcus & Barnes, 1999

Case 3: Graham Garden, Saanich Peninsula Hospital, Vistoria, British Columbia, Canada

The garden for this facility was desired for some time, but was only implemented in the mid-90's. It is located in between the two extended-care wings of the hospital. Approximately 90% of its users rely on wheelchairs, and about half of the population has some form of dementia. The main design philosophy was to create a welcoming space that could be used for exercise, gardening and an escape from the normal nursing home routine.

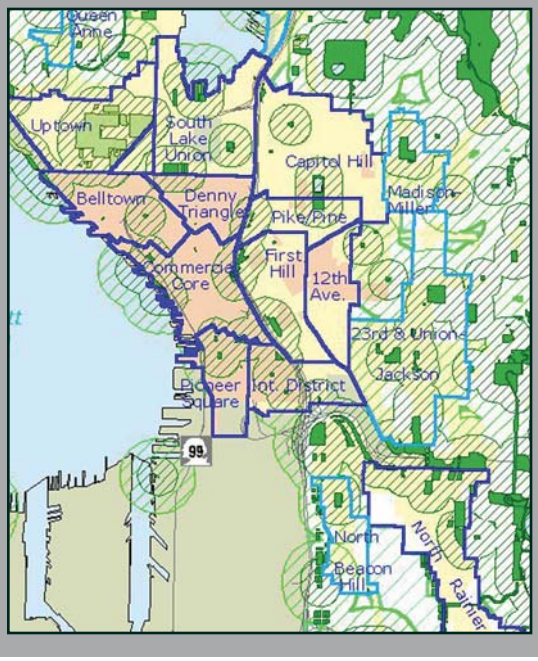
One major element in the garden is a dry stream with a wooden bridge; this compnent gives visual depth to an area that must be level for accessibility. Other elements include: a fire pit, wheelchair accessible planters, sculptures that reinforce wayfinding for confused users, a pergola walk, and a gazebo resembling a country market stall. Seasonal plantings encourage people to get outside when weather pemits. The design highlights rural views of small wild ponds and mountains.

The advantages of this site include the design's reference to the larger landscape and features that emphasize comfort and accessibility for all users (Cooper Marcus and Barnes, 1999).

Spatial Layout Pattern:

Healing gardens depending on their accessibility by the general public, could provide necessary open space for users living 1/4 to 1/2 mile away, the minimum area from users as specified by the City of Seattle.

Ideally all healthcare, extended-care, and disability-focused centers should provide some form of a healing landscape. Since many ill, disabled and elderly users may not be able to physically use the space during the colder months in Seattle, care should be taken in the siting. Integrating indoor and visually accessible outdoor spaces (that can be physically accessible in warmer months) is often the best choice. Paying attention to the location of seating as it relates to the elements, especially sun and wind within a site is likewise important.



Indoor restorative environments linked to exterior spaces is important for wintertime use

Photo credit: http://www.members.aol.com/jdjandsje/greenwich/around_hospital/

Resources:

City of Seattle Parks and Recreation. 2001. "An Assessment of Gaps in Seattle's Open Space Network". website: http://www.seattle.gov/parks/open_spaces/gap_analysis_report.htm.

Cohen, U. and G. Weisman, 1991. "Positive Outdoor Spaces" in *Holding onto Home: Designing Environments for People with Dementia.* (pp. 73-79). Baltimore: John Hopkins University Press.

Cooper Marcus. C. and M. Barnes. 1999. *Healing Gardens*. New York: John Wiley & Sons.

Cooper Marcus, C. 2001. "Hospital Oasis." *Landscape Architecture*. 91(10): 36-39, 99.

Kaplan, R., Kaplan, S. and R. Ryan. 1998. "Restorative Environments" in *With People in Mind*. (pp. 67-77). Island Press.

Lucas Garden School website: http://www.lucasgarde-s.schools.nsw.edu.au/.

Ulrich, Roger S. 1981. "Natural Versus Urban Scenes: Some Psychophysiological Effects." *Environment and Behavior*, 13 (5): 523-553.

Ulrich, R.S., 1984. "View Through a Window may Influence Recovery from Surgery." *Science*. 224: 420-421.

"*One of the most delightful things about a garden is the anticipation it provides.*"
W.E. Johns

"Nature trail" at Lucas Gardens School.

Photo credit: http://www.lucas-garde-s.schools.nsw.edu.au/mobility.htm

Real Estate Excise Tax

Betsy Severtsen

Public Financing

Washington state levies a real estate excise tax (REET) on all property sales. This state tax rate is 1.28% of a property's full selling price. A locally-imposed tax is also authorized, though the rate and uses of the funds differ by population size and whether the city or county is planning under the Growth Management Act (GMA). All cities are allowed to levy a 0.25% tax on property sales (REET 1), cities and counties that are planning under the GMA may also levy a second quarter percent tax (REET 2). For non-GMA planning entities, REET 1 can be spent on any capital purpose identified in a capital improvements plan (streets, parks, sewers, swimming pools, etc) or aquisition of lands associated with such improvements. Cities operating under the GMA must spend their funds solely on capital projects listed in their comprehensive plan. The aquisition of land for parks is not a permited use of REET 2 funds, though this is an eligible use of REET 1 funds.

County authorities may submit a ballot proposition for an additional real estate excise tax (not to exceed 1%) to be used for the acquisition and maintenance of conservation areas. The property buyer, rather than seller pays this tax. San Juan is the only Washington county to levy this tax to date.

The major disadvantage of the REET taxes is their volatile nature. The amount of revenue is completely dependent upon the price of real estate. Currently, with high property costs record amounts of REET funds are being collected. If the real estate bubble bursts, the decrease in revenue may come as a shock to state and local entities reliant on the funds.

Most recently the City of Seattle has used REET 1 funds ($200,000) for the Dahl playground renovation and REET 2 funds ($600,000) for the Olympic Sculpture Park and Shoreline Restoration Project.

Resources:

City of Seattle. 2002. Economic Update: http://www.ci.seattle.wa.us/financedepartment/docs/July_2002_Update.pdf

City of Seattle. 2005. Council News Review: http://www.seattle.gov/council/newsdetail.asp?ID=5683&Dept=28

Municipal Research & Services Center of Washington. 2002. Real Estate Excise Tax: http://www.mrsc.org/subjects/finance/reet/reetweb.aspx

REET 1 & 2 Uses, Seattle

REET 1	REET2
Parks/Trails	Parks
Streets/Highways	Streets/Highways
Sidewalks	Sidewalks
Street Lighting	Lighting systems
Traffic signals	Traffic signals
Bridges	Bridges
Water systems	Water systems
Sewer systems	Sewer systems
Judicial facilities	
Administrative fac.	
Law enforce. fac.	
Fire protection fac.	
Recreation fac.	
Libraries	

Left: Olympic Sculpture Park
Source: http://www.metrokc.gov/mkcc/members/d4/trolleybarn.htm

Above: Dahl Playground
Source: http://www.ci.seattle.wa.us/parks/parkspaces/dahl.htm

Intermediary Agency

Garrett Devier

The Trust for Public Land (TPL) is a national, nonprofit, land conservation organization that conserves land for people. With an emphasis ensuring livable communities for future generations, they focus on parks, historic sites, community gardens, rural lands, and other natural places,

TPL acquires a wide range of properties. These include; small city lots, community gardens, parks, and additions to National Parks and Forests. TPL is not a land management agency and do not own long term properties. They work with government agencies and private organizations to assume ownership of the properties acquired.

For financial support TPL relies on charitable contributions from individuals, corporations, and foundations. They also rely on fees from private landowners and government agencies.

TPL's Conservation Services*

- Conservation Vision: TPL helps agencies and communities define conservation priorities, identify lands to be protected, and plan networks of conserved land that meet public need.
- Conservation Finance: TPL helps agencies and communities identify and raise funds for conservation from federal, state, local, and philanthropic sources.
- Conservation Transactions: TPL helps structure, negotiate, and complete land transactions that create parks, playgrounds, and protected natural areas.
- Research & Education: TPL acquires and shares knowledge of conservation issues and techniques to improve the practice of conservation and promote its public benefits

TPL's Conservation Initiatives*

- Parks for People: Working in cities and suburbs across America to ensure that every one in particular, every child—enjoys close-to-home access to a park, playground, or natural area.
- Working Lands: Protecting the farms, ranches, and forests that support land-based livelihoods and rural ways of life.
- Natural Lands: Conserving wilderness, wildlife habitat, and places of natural beauty for our children's children to explore.
- Heritage Lands: Safeguarding places of historical and cultural importance that keep us in touch with the past and who we are as a people.
- Land & Water: Preserving land to ensure clean drinking water and to protect the natural beauty of our coasts and waterways.

* http:www.tpl.org

Resources:

Trust for Public Land: http://www.tpl.org
Land Trust Alliance: http://www.lta.org
(information on community land trusts and conservation easements)

THE TRUST for PUBLIC LAND

Mission Statement:

The Trust for Public Land conserves land for people to enjoy as parks, gardens, and other natural places, ensuring livable communities for generations to come.

Mountains to Sound Greenway, WA

Photo by: Dan Lamont

Following Washington's Interstate 90 from the shores of the Puget Sound into the Kittitas Valley, the Mountain to Sound Greenway embraces 100 miles of natural wonder, beauty and history. For more than a decade, TPL has partnered with the Mountains to Sound Greenway Trust to protect these lands that complete the linkage of trails, recreation areas, scenic and productive forestlands, open space and wildlife habitats. Since 1983, TPL has helped protect more than 10,000 acres in the Greenway.

* http:/www.tpl.org

Transfer Development Rights

Noelle Higgins

What areTDR's?

"Transfer of development rights (TDR) is a market based technique that encourages the voluntary transfer of growth from places where a community would like to see less development (called sending areas) to places where a community would like to see more development (called receiving areas). The sending areas can be environmentally-sensitive properties, open space, agricultural land, wildlife habitat, historic landmarks or any other places that are important to a community. The receiving areas should be places that the general public has agreed are appropriate for extra development because they are close to jobs, shopping, schools, transportation and other urban services." (Source:Pruetz, AICP, 1999).


farmlands


environmentally sensitive sites


cultural sites

Definitions

Development Rights

Land ownership is commonly described as consisting of a bundle of different rights. Usually when someone purchases a parcel they purchase the entire bundle of rights that might be associated with the land. Owning a development right means that you own the right to build a structure on the parcel. Development rights may be voluntarily separated and sold off from the land.

Sending Sites

Parcels that have productive agricultural or forestry values, provide critical wildlife habitat or provide other public benefits such as open space, regional trail connectors or urban separators. Preservation of these types of areas has been identified as a goal of King County. By selling the development rights, landowners may voluntarily achieve an economic return on their property while maintaining it in farming, forestry, habitat or parks and open space in perpetuity.

Receiving Site

Development rights that are "sent" off of a Owning a development right means that you own the right to build a structure on the receiving parcel. Development rights may be voluntarily separated and sold off from the land (sending site) and placed on a receiving site. A receiving site is a parcel of land located where the existing services and infrastructure can accommodate additional growth. Landowners may place development rights onto a receiving site either by transferring them from a qualifying parcel they own, by purchasing the development rights from a qualified sending site landowner, or purchasing them from the King County TDR Bank. With transferred development rights a landowner may develop the receiving site at a higher density than is otherwise allowed by the base zoning.

Source : http://dnr.metrokc.gov/wlr/tdr/definitions.htm .

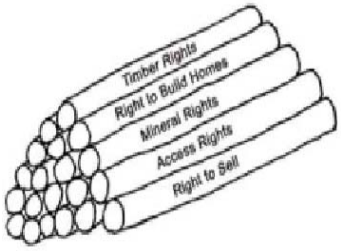
Examples: National TDR Programs

New York, NY became the first community in the United States to adopt TDR provisions when it approved its Landmarks Preservation Law in 1968. According to John Bredin, writing in the November 1998 issue of the PAS Memo, the City adopted a new TDR program in 1998 designed to prevent the demolition or conversion of live-performance theaters in the Broadway theater district.

Montgomery County, MD has the most successful TDR program in the country. County had permanently preserved over 38,000 acres of farmland using TDRs.

New Jersey Pinelands, NJ, adopted in 1980, is the most ambitious TDR program in the country, encompassing one million acres of land and allowing transfers between 60 different municipalities. The total area preserved through severance increased to 15,768 acres as of the end of 1997.

source: (Source. Bredin,2000)



Local Precedents

Seattle (4/19/2004) City Council approved the sale of TDR's at $1.6 million for low-income housing and to pay off $147,630 worth of exisitng debt for Benaroya Hall. In exchange The Washington Mutal Bank and the Seattle Art Museum are allowed increased density in the new office tower and an expansion to the Seattle Art Museum at 2nd and Union. Washington Mutual Tower will achieve 420,000 square feet of additional density.
Source:Seattle.gov website http://www.seattle.gov/news/detail.asp?ID=4264&Dept=28

King County-The County currently uses two different transfer of residential density credit ordinances to encourage private property owners to preserve open space, wildlife habitat, woodlands, shoreline access, community separators, trails, historic landmarks, agricultural land and park sites.

Redmond -located just outside of Seattle, has a TDR program in which the sending areas are lands zoned Agriculture or Urban Recreation or lands classified as critical wildlife habitat. When a sending site is not classified as critical habitat, the transferable development is simply the amount of development allowed by the site's zoning once wetlands and other unbuild able areas have been excluded from the calculation.
Source:Pruetz

BASIC ELEMENTS OF SUCCESSFUL TDR PROGRAMS

A clear and valid public purpose for applying a TDR program, such as open space preservation, agricultural or forest preservation, or the protection of historic landmarks.

Clear designation of the sending areas and the receiving areas, preferably on the zoning map.

Consistency between the location of sending and receiving areas and the policies of the local comprehensive plan, including the future land-use plan map.

Recording of the development rights as a conservation easement, which will inform future owners of the restrictions and make them enforceable by civil action.

Uniform standards for what constitutes a development right, preferably based on quantifiable measures like density, area, floor-area-ratio, and height, should be used to determine what development right is being transferred.
Sufficient pre-planning in the receiving area, including provisions for adequate public facilities.

Source:BREDIN

SOURCES

Rick Pruetz, AICP, 1999, APA National Planning Conference,
Chief Assistant Community Development Director/City Planner
City of Burbank, California
http://www.asu.edu/caed/proceedings99/PRUETZ/PRUETZ.HTM

Tools for quality growth_Transfer Developemnet rights
http://outreach.ecology.uga.edu/tools/tdr.html

Cases, Statutes, Examples, and a Model
John B. Bredin, Esq.
Session: April 18, 2000, 2:30-3:45 p.m.
http://www.asu.edu/caed/proceedings00/BREDIN/bredin.htm, John B. Bredin, Esq. 2000, APA National Planning Conference, Transfer of Development Rights:

King County:Website, Definitions -Transfer of Developemnt Rights
http://dnr.metrokc.gov/wlr/tdr/definitions.htm

Seattle.gov website, City of Seattle News Advisory, 4/19/2004
CITY GAINS HOUSING, DEBT FUNDING THROUGH SALE OF TRANSFERABLE DEVELOPMENT RIGHTS, http://www.seattle.gov/news/detail.asp?ID=4264&Dept=28

http://www.rivercenter.uga.edu/education/etowah/documents/pdf/tdr.pdf

Seattle, Office of Housing, Transferable Development Rights (TDR)
& Bonus Programs, Seattle.gov, website, http://www.seattle.gov/housing/2001/TDR-BonusPrograms-2001.htm

Mitigation Funds/ Brownfield Clean-up

Public Financing

Jocelyn Liang Freilinger

Superfund is probably the best-known federal program in the business of brownfield cleanup. When a site is sufficiently hazardous to be placed on the National Priorities List (NPL), it becomes eligible for cleanup through the Superfund program. The cost of cleanup is the responsibility of the "Potentially Responsible Party" (PRP) that caused the pollution, and the agency can take legal action to recover funds if a PRP refuses to cooperate. Occasionally it is determined that the PRP no longer exists or does not have viable funds to pay for the cleanup. In these cases, the cleanup is paid for out of the trust fund that was established in 1980 through the Comprehensive Environmental Response, Compensation and Liability Act for this express purpose. Seed money for the trust fund comes from a tax on the chemical and petroleum industries. As a federal program, however, Superfund is not free from the classic tension between federal authority and states' rights. The National Congress of State Legislatures states in a recent position paper that states maintain jurisdiction over their own existing brownfields programs, and should have the authority to "immunize" businesses from financial liability.

Remedial work at the Pacific Sound Resources Superfund Site (Terminal 5 in the Port of Seattle) is ongoing, at an estimated total cost of $45 million.

In addition to Superfund, a number of other federal agencies also administer grant programs to aid communities and small businesses in brownfield cleanup. These include: NOAA, HUD, the Department of Commerce, the Department of Defense, the Department of Treasury, and the Small Business Administration.

Mitigation funding is another option for either cleaning up brownfields or reducing the environmental impacts of new development. The Council on Environmental Quality, which coordinates federal environmenal efforts under the authority of the National Environmental Policy Act of 1969 (NEPA), considers several acceptable mitigation strategies. For example, doing nothing or lessening the size of a proposed project might be an acceptable solution. In other cases, the appropriate mitigation solution might be to repair, rehabilitate or restore the environment that is affected by a specific action. Or, it may be possible to reduce or eliminate the impact over time through a preservation and maintenance plan. Another approach might be to compensate for the impact by replacing or providing substitute resources or environments.

Resources

Brownfields. National Congress of State Legislatures.
http://www.ncsl.org/statefed/brwnfdIB.htm

Council on Environmental Quality. The White House.
http://www.whitehouse.gov/ceq/aboutceq.html

Pacific Sound Resources, Seattle, Washington. U.S, Environmental Protection Agency.
http://www.epa.gov/superfund/accomp/funded/pacsnd.htm

Regulation 1508. Council on Environmental Quality.
http://ceq.eh.doe.gov/nepa/regs/ceq/1508.htm

Smart Growth: Brownfields Funding. U.S. Environmental Protection Agency.
http://www.epa.gov/smartgrowth/topics/brownfield_economic_funding.htm

Superfund: Frequently Asked Questions. U.S. Environmental Protection Agency.
http://epa.custhelp.com/cgi-bin/epa.cfg/php/enduser/std_alp.php

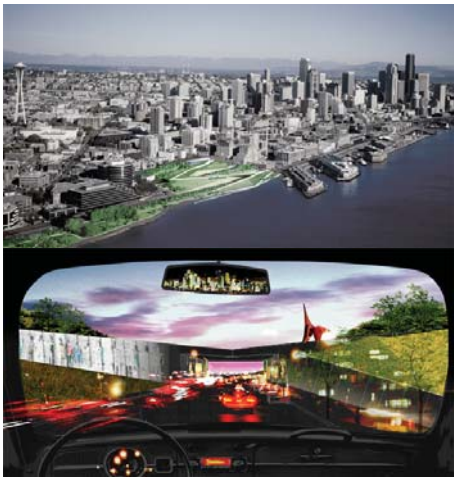
Capital Campaigns for Open Space: Two Case Studies

Elizabeth Umbanhowar

Strategies to support open space initiatives include private capital campaigns initiated and managed by nonprofit agency staff, trustees and other volunteers. Through this process of fundraising, agencies focus on specific projects with limited time frames and defined and normally larger-scale financial goals. Organizational staff and board members solicit funds from individuals, corporate and private foundations, and government agencies to support: construction; maintenance of extant and proposed properties; endowments; and capital acquisitions, particularly the purchase of land. Requests are made through formal competitive grantmaking processes, individual cultivation and relationship-building, and governmental budget appropriations. Donations are made in the form of cash, property, trusts and other contributions.

Case Study: Peninsula Open Space Trust

A successful example of a multiple-year capital campaign is the Peninsula Open Space Trust (POST) whose mission is "...to give permanent protection to the beauty, character and diversity of the San Francisco Peninsula landscape." Through its efforts, POST has protected 55,000 acres of land in San Mateo and Santa Clara counties. From 1996 to 1999, POST launched the successful *Completing the Vision* campaign and raised $33.4 million. Currently the organization is engaged in a $200 million *Save the Endangered Coast* campaign, to which private funders like the Kresge Foundation have contributed substantive funds.



Case Study: Seattle Art Museum Olympic Sculpture Park

Locally, beginning in the early 1990s, the Seattle Art Museum (SAM) undertook a series of capital campaigns in anticipation of creating the Olympic Sculpture Park. In 1999, the Museum purchased the majority of land needed on a former industrial site owned by Union Oil of California, for $16.5 million. The property was acquired as part of a public/private partnership, which raised $3.56 million, in addition to a $2 million appropriation by the Seattle City Council, $1 million from the King County Council, a $500,000 Federal Economic Development Grant and private contributions from a number of supporters, including Martin Smith Real Estate Services, Inc. and Legacy Partners/Equity Residential Trust. More recently, the Museum has been actively garnering monies through an $85 million capital campaign for the Park, scheduled to open in mid-2006. Designed by Weiss/Manfredi Architects of New York, the Olympic Sculpture Park comprises some of the largest remaining undeveloped waterfront property in downtown Seattle and rehabilitates this former industrial property, offering both significant cultural and ecological open space amenities to the City.

Resources

LandSavers
http://www.greentreks.org/landsavers/webcast-openspacecampaign.htm

Peninsula Open Space Trust
http://www.openspacetrust.org/index.htm

Seattle Art Museum
http://iamsamcampaign.org/index.php?p=Image_Gallery&s=31

The Trust for Public Lands
http://www.tpl.org/index.cfm

Military Decommissioning

Acquisition and Implementation Mechanisms

Public Financing

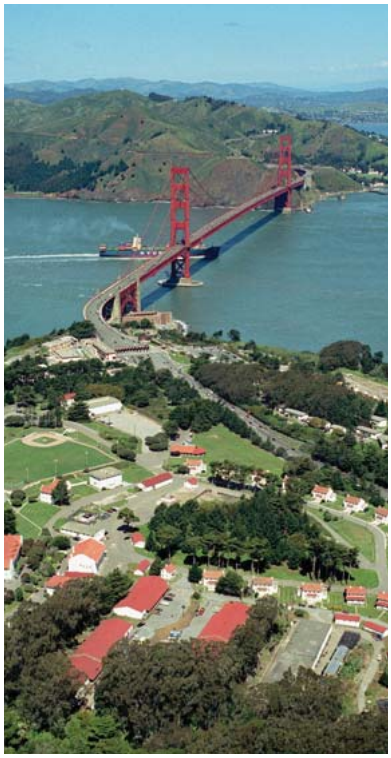
Military posts typically occupy what is considered to be prime real estate: large parcels of relatively-undeveloped land situated in geography that includes protected sites and great vantage points. As the logistics and tactics of the military change, much of this land is being turned over to the public, providing notable opportunity for development and/or preservation. Often these sites contain historic architectural and cultural sites, along with environmental pollution and occasionally unexploded munitions.

Once designated for decommissioning through the US Department of Defense Base Realignment and Closure (BRAC) process, military base land is turned over gratis, or at minimal cost, to the surrounding community. This process is handled via economic development conveyance (EDC) and public benefit conveyance (PBC) components of the BRAC, and the activities of redevelopment are required to be handled by a Local Redevelopment Authority (LRA). Often the land is turned over to civilian use with stipulations for development of housing, public access, and open space preservation.

One of the most well-known base conversions is San Francisco's Presidio. Once a major military outpost for the United States military, this 1480 acre site is now jointly managed by the public-private Presidio Trust and the National Park Service. This park is renowned for its public amenities and its environmental restoration work. Another base conversion project in California is 28,000-acre Fort Ord, along the central coast. Just decommissioned in 1994, this site is currently undergoing normalization (explosive removal and environmental clean-up), and two-thirds of the land is targeted for endangered species land-preservation and recreational use. Locally, Seattle's 534-acre Discovery Park covers most of the former Fort Lawton base on Magnolia Bluff. This large park serves as a semi-natural retreat for city residents, a designated marine reserve, and a wastewater treatment plant. Other local examples include Magnusun Point and South Lake Union.

Fort Ord, California
www.ogrehut.net

Discovery Park, Seattle
monika.sapek.com/



Presidio, San Francisco
www.asla.org

Resources

http://www.nps.gov/prs
http://www.presidio.gov/
http://www.fora.org/index.htm
http://www.fortordcleanup.com/
http://www.buildernewsmag.com/viewnews.pl?id=296
http://www.brac.gov/
http://www.cityofseattle.net/parks/Environment/discovparkindex.htm

Acquistion Mechanisms: Conservation Easements

Kari Stiles

Cascade Land Conservancy
http://www.cascadeland.org/

Cascade Land Conservancy Small-Scale Conservation Easements:

Baker Woods Urban Preserve:
1.5 acres of forested habitat
Chickadee Hill: 1.25 acres in Issaquah
Lake WA Blvd Urban Preserve: .33 acres
Maple Creek Urban Preserve:
15 Easements on over 4 acres
Christiansen Creek: Vashon Island -
maintained as wooded area to protect one of the island's highest quality watersheds
Medina Urban Preserve: 3 easements on 8 acres of adjoining lakefront properties
Mercer Island Urban Preserve:
4.21 acres of forested habitat
Park Hill Issaquah: 13.6 acres of forested habitat
Richmond Beach: 5-acre wooded parcel next to public park
Sammamish Plateau: 21.6 acres of forested habitat

Homewaters Project - Thornton Creek
http://www.homewatersproject.org/

Land Trusts:
The Land Trust
www.lta.org/conserve/options.htm

The Nature Conservancy
http://nature.org/aboutus/howwework/conservationmethods/

The Pacific Forest Trust
http://www.pacificforest.org/

Trust for Public Land
http://www.tpl.org/

Local Players:
Cascade Land Conservancy
http://www.cascadeland.org/

Purchase/Donation of Development Rights Through Conservation Easements

A conservation easement is a legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land in order to protect its conservation values, either natural or man-made. It usually limits commercial or residential development in order to protect native habitat, agricultural landscapes and activity, open space or historic resources. The land is frequently donated by the landowner but can also be sold to a Land Trust or government agency. The land owner maintains all rights assoicated with the parcel of land aside from those stipulated in the agreement.

Restrictions:
The owner gives up some development and land use rights.
Future owners are also bound to the terms of the easement.
It is the responsibility of the land trust or government agency to make sure the easement's terms are followed.

Benefits:
Flexibile Use: Every conservation easement has different terms that relate specifically to each unique piece of property. Easements might range from protecting and preserving critical native habitat to preserving farmland and active farming.
Flexible Scope: Public access is not required.
The entire property does not have to be included. The easement can address portions of the property.
Economic: If the land is donated, easements often qualify as tax-deductible charitable donations. By reducing the land's development potential, easements often reduce property taxes and estate taxes.

Resources:
The Conservation Easement Stewardship Guide: Designing, Monitoring and Enforcing Easements (Brenda Lind)

Protecting the Land: Conservation Easements Past, Present, and Future (Edited by Julie Ann Gustanski and Roderick H. Squires, (2000). Island Press)

Protecting Surface Water Quality with Conservation Easements (Brenda Lind, Yolanka Wulff, J.D. (2004)

The Conservation Easement Handbook (Elizabeth Byers and Karin Marchetti Ponte)

Ohio State University Fact Sheet ohioline.osu.edu/cd-fact/1261.html

Matching Grants

Alison Blake

Public/Private

Matching grants are an effective means of funding small projects, expecially those with active community support. The concept of a matching grant is simple; state or local governments designate funds to go to particular types of projects. Various groups within the community can then develop project proposals and apply for the grant. If accepted, the local government will match the community contribution to the project, generally at a 1:1 or 2:1 match, but it could be set up for any level of match. It is also important to note that community labor and materials, not just financial donations, count towards the matching grant donation. Thus, neighborhood groups that have time, but not money to donate, can still apply for grants, giving them an effective way to fund local improvement projects. Common design-related uses of matching grants include street tree plantings and creating or renovating parks and playgrounds.

Many cities set up matching grants as a way of improving areas while also involving community and neighborhood groups. Some of these cities include Seattle, Washington, Orlando,Florida, and Salt Lake City, Utah. Seattle's Department of Neighborhoods is particularly well known and respected for their success with matching grants. The Dept. of Neighborhoods sponsors four types of matching funds for different types and scales of project. The first of these is the Large Project Fund for projects up to twelve months and costing between $15,000 and $100,000. Second is the Small and Simple Projects Fund for projects seeking awards of $15,000 or less and can be completed in 6 months or less. Third is The Tree Fund where neighborhood groups can apply for 10 to 40 trees for planting along residential planting strips. Lastly, the Neighborhood Outreach and Development Fund funds projects that involve new people in neighborhood organizations or activities. However, Department of Neighborhood funds are not currently available for acquisition in Seattle.

Seattle's Belltown P-Patch is just one of many places to benefit from a matching grant; in 2003 the P-Patch received funds to install a 4-foot 4-ft high steel picket fence with iron finials along Vine St. and alley borders.

Photos: http://www.speakeasy.org/~mykejw/ppatch//whatis.html

Resources

http://www.ci.seattle.wa.us/neighborhoods/nmf/

http://www.cityoforlando.net/executive/nso/mnmg.htm

http://www.raleighnc.gov/portal/server.pt/gateway/PTARGS_0_2_306_202_0_43/http%3B/pt03/DIG_Web_Content/category/Resident/Neighborhoods/Neighborhood_Improvement/Cat-1C-2005216-153146-Neighborhood_Improvement.html

http://www.slcgov.com/CED/hand/Neighborhood%20Matching%20Grant/nbrmatch.htm

Ecological Compensation Measure

Sarah Preisler

Legislative (Germany)

In Germany, all building and land use regulations stem from Federal laws, including the Federal Building Code (Baugesetzbuch) and the Federal Nature Conservation Act (Bundesnaturschutzgesetz) which require municipalities to develop land use plans and regulations which safeguard sustainable development, natural functions and landscapes. Any "intervention" (i.e. development) that impacts nature within urban areas requires compensation.The "Intervention Rule" is the decision making process that municipalities use to apply these principles.

Interventions generally include buildings, paving, changes to an area's drainage pattern, the removal of vegetation and the like. Municipalities create their own classifications for interventions in their land use plans and also define acceptable compensation measures within their localities.

Once it is determine that a proposed project will result in an intervention, the developer and the municipality work through the following series of questions with the goal of limiting or avoiding the intervention if at all possible:

1. Can the intervention be avoided through designing the project in a different way?

2. If not, can the project be designed in a manner that minimizes the intervention?

3. If the intervention cannot be minimized, can it be compensated for on site, such as by adding green space or using a green roof to management stormwater runoff?

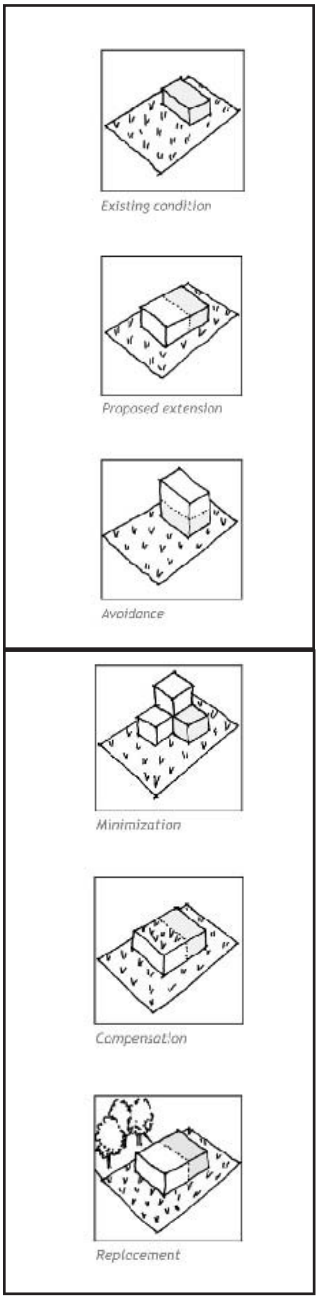
4. If not, can the lost value of the natural system impacted be replaced elsewhere?

5. If not, at the municipality's discretion, the developer must either provide financial compensation equal to the lost value of the natural system or the project cannot be approved. Any financial compensation provided will be used by the municipality for nature conservation.

Resources

Ngan, Goya. "Green Roof Policies: Tools for Encouraging Sustainable Design", Landscape Architecture Canada Foundation, 12/2004.

"The nature, which we have on our roofs, is a piece of earth that we have killed so that we could build a house on the spot"
F. Hundertwasser



Sales Tax - earmarked for Open Space

Arielle R. Farina Clark

Public Financing

Sales tax is the second largest source of income for state and local governments and typically, is the most popular tax among voters. It is imposed on specific items such as alcohol, tobacco, and gasoline, and revenues are often earmarked for specific projects such as the acquisition and maintenance of open space. The success of programs that earmark sales tax for parks and open space reflect its popularity. Communities from Colorado to Pennsylvania have all taken advantage of state sales tax and raised millions of dollars for parks, open space, and recreational facilities.

In Arnold, Montana voters approved legislation that would increase sales tax by $0.25 for seven years to pay for land conservation. The city bought Colins Tract, a 119-acre parcel, to preserve open space and halt increasing suburban subdivision development.

In Boulder, Colorado 25 percent of the city's sales tax is dedicated to open space and mountain parks. Out of the 3.26-percent sales tax paid to the city, 0.73 percent goes to open space.

The people of Arapahoe County, Colorado voted to impose a 0.25% County Open Space sales and use tax. The tax will help acquire and preserve open space in the county until Dec. 31, 2013.

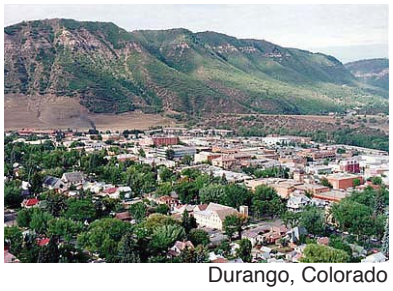
In Durango, Colorado voters passed a half-cent sales tax, where 50 percent of which is slated for open space, parks and trails. The tax was approved by voters in April, 2005 and is expected to raise about $6.25 million annually.

In Lake County, Florida an open space measure was instituted to procure $30 million for parks and open space through sales tax.

Montana

Boulder, Colorado

Arapahoe County, Colorado



Durango, Colorado

Lake County, Florida

Resources

The Trust for Public Land - a national, nonprofit, land conservation organization
http://www.tpl.org/index.cfm?folder_id=2105

Arapahoe County, Colorado website
http://www.co.arapahoe.co.us/default.asp

Rodebaugh, Dale. Article: *Open Space funding Scarce*. Durango Herald. Nov. 26, 2005.
http://www.durangoherald.com/asp-bin/article_generation.asp?article_type=news&article_path=/news/05/news050919_2.htm

Newsletter *Common Ground: Conservation News from the Conservation Fund*. Vol. 13, No. 1 January–March 2002.
http://www.conservationfund.org/pdf/ground3_02.pdf

Caldara, Jon. Opinion Editorial *We've Got Those Wide Open Spaces*. October 12, 2003 Independence Institute
http://i2i.org/article.aspx?ID=899

Fee Waivers

Melissa Martin

Economic Incentives

Fee waiving is a form of economic incentive that is used to promote sustainable development and open space implementation. Government agencies from the local to federal scale have implemented programs in which fees, or sometimes taxes, are reduced or cancelled if particular sustainable practices are used. For example, the state of Illinois offers a property tax exemption for commercial, residential, and industrial development that uses solar, geothermal, or wind energy. A federal program allows a tax reduction of up to 10% for similar energy efficient decisions (City of Chicago 2004). Similarly, some municipalities offer exemption from a "rain tax" (taxes collected for impervious surface cover on a property that generates runoff and contributes to the local storm sewer) for commercial buildings that have a green roof (Scholz-Barth 2001).

One particular use of this strategy is in the acquisition or preservation of open space. A small-scale example is a program implemented by the Illinois Department of Agriculture, Office of Soil and Water Conservation. This program provides a property tax reduction of up to five-sixth of the land value for the development of vegetated filter strips, which can aid in reducing soil erosion, improve water quality, and provide significant wildlife habitat. Thus, when considered cumulatively, these strips constitute a form of open space preservation.

The Smart Growth Matrix Incentives program in Austin, Texas, is a larger-scale example of how fee waivers can be used to plan for open space. In this program, development projects are measured against city goals for sustainable growth, such as location within a Desired Development Zone and pedestrian-friendly urban design. If a given project significantly advances the city's goals, development or water/wastewater capital recovery fees may be waived (City of Austin 2005). This incentive encourages denser development that is limited to designated growth areas, thereby preserving open space in other areas of the city.

A provision in the income tax act of Canada promoting donation of ecologically sensitive land provides a final example of fee waiver incentives. The Ecological Gifts Program was formed in February 1995. Through this program, donors can contribute ecologically sensitive lands, easements, covenants, or servitudes to any level of government or to an approved environmental charity. In exchange, donors gain a tax credit for the fair market value of their gift that can be applied against net annual income (Canadian Ecological Gifts Program 2005).

"A legacy for tomorrow...a tax break today"
(Ecological Gifts Program)

Photo © Parks Canada

Resources

The Canadian Ecological Gifts Program. 2005. www.cws-scf.ec.gc.ca/ecogifts.

City of Austin. 2005. Smart Growth Incentives webpage. www.ci.austin.tx.us/smart-growth/incentives.htm.

City of Chicago. April 2004. "Financial Incentives for Building Green." www.cityofchicago.org/Environment/GreenTech/pdf/FinancialIncentivesforGB.pdf.

Scholz-Barth, Katrin. 2001. "Green Roofs: Stormwater Management From the Top Down." Environmental Design and Construction. BNA media.

Municipal/State/Federal Grants

Public Financing

Vanessa Lee

Grants are funds given to states and municipalities by the federal government to run programs within defined guidelines.

Land and Water Conservation Fund (est. 1964)
One of the biggest impacting funds of muncipal, state and federal open space grants is the National Park Service's Land and Water Conservation Funds (LWCF) program. It uses offshore oil leasing revenues to provide matching grants to state and local governments for the acquisition and development of outdoor recreation areas and facilities. It also pays for additions to the federal recreation estate legacy. 60% is used for the state grant program, while 40% is used for federal land acquisition. Additionally, it stimulates non-federal investments in the protection and maintenance of recreation resources. All grants require a minimum percent match by a non-federal partner. An example is the $500,000 LWCF grant for the Libby Farm project in Massachusetts, matched by more than $1 million from the William P. Wharton Trust, Fields Pond Foundation, and the Town of Stoughton. This successfully acquired the 81-acre farm, a high priority location within 630 acres of existing conservation land.

LWCF State Grant funds peaked in 1979 at $370 million. Under Reagan, all state LWCF grants were cut to $167 million (from $490 million), and subsequently funding was cut from 1996 through 1999. Congress revived it in 2000 w/ 41 million; 2001 w/ 90 million; and 2002 w/ 144 million. Ultimately, this dry period revealed the "failure to develop a constituency", as governors, mayors, and environmental groups did not actively oppose the cuts.

Grant types include: **Planning** grants to States to develop the Statewide Comprehensive Outdoor Recreation Plan (SCORP); **Acquisition** grants for the acquisition of lands or interests in land; **Development or Redevelopment** grants to enhance projects with new or rebuilt recreation facilities; or **Combination** which includes both acquisition and site development. To apply, every State must prepare a regularly updated SCORP that includes a set of project-ranking selection criteria. States receive allocations of grant funds based on a national formula (i.e.: determining factors such as state population). Potential applicants contact their state agency office to find out about local application deadlines, state priorities, selection critieria, and required documentation.

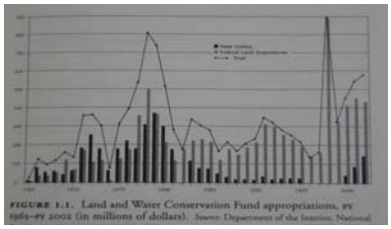
Today, LWCF funds are appropriated through the **Land Conservation, Preservation, and Infrastructure Improvement (LCPII) Fund** (est. 2000). This fund provides monies for LWCF and other conservation spending, but requires yearly appropriations from Congress and expires after FY2006. The legislation set aside $12 billion from FY01 through FY06 in a special "conservation spending" budget category. LCPII funding is still subject to annual appropriations, but unlike LWCF, the funds cannot be diverted.

The LCPII also provides funds for:
State Wildlife Grants
Matching grants for design and implementation of habitat and wildlife conservation plans to help states conserve and restore decline native species before listing under the Endangered Species Act is required.

Cooperative Endangered Species Fund
Grants to state for species and habitat conservation on non-federal lands for species listed or proposed under the Endangered Species Act.

"Parks and recreation in America depend on LWCF. Without it, many of our nation's parks would simply not exist. Coast to coast and border to border, the Fund is accomplishing exactly what it was established for in 1964 – $3.6 billion for park and recreation projects in 98% of our nation's counties."

~ Fran Mainella, Director, National Park Service



source:
McQueen + McMahon, 2003.

Land and Water Conservation Fund 2004 Achievements

Grant Dollars
$97,038,581

Matching Dollars Leveraged
$125,638,600

Recreation Areas Funded
645

New Acres Permanently Protected
40,881

Previously Protected Acres with New Recreation Improvements
306,206

"The Land and Water Conservation Fund has long supported public health through the development of active recreation facilities and resource conservation. Local LWCF-aided investments– parks, trails for walking and cycling, recreation fields – are the backbone of livable communities. These projects also help create jobs through appropriate development for public access and use, and recreation and park management."

~ John Thorner, Executive Director, National Recreation and Park Association

Forest Legacy
Grants to state to help private landowners preserve working forest lands that might otherwise be lost to development.

North American Wetlands Conservation Fund
Acquisition, restoration, and enhancement of fragile wetlands that promote flood control, increase water quality, improve wildlife habitat, provide public recreation, sustain our cultural heritage, among others.

Historic Preservation Fund
Matching grants to the National Trust for Historic Preservation and to all 50 states and U.S. territories.

Urban Park and Recreation Recovery Program (UPARR)
Provides matching grants and technical assistance to economically distressed urban communities to develop close-to-home recreational opportunities.

Urban and Community Forestry
Matching grants and technical assistance to communities to protect and maintain natural landscapes, with an emphasis on the urban forest canopy.

Other grants include:
Community Development Block Grants
The Community Development Block Grant (CDBG) Program (est.1974), is a federal grant under HUD that can be used to assist non-entitlement local governments with open space land acquisition projects. In order to be eligible a project must meet all applicable CDBG regulations and result in significant employment and/or benefit for low and moderate-income persons.

Indirectly Related Federal/State Funds
Another mechanism is joining with other Federal initiatives and extracting grant money available in other programs. *North Carolina's Clean Water Management Trust Fund* allows local governments, state agencies and conservation nonprofits to apply for grants for projects aimed at the protection, clean up and conservancy of the state's natural waters. The acquisition of riparian buffers (or easements of these properties) and the establishment of greenways have qualified for this program. *Historic preservation grants* may also be utilized for acquisition of historic sites or corridors. *Air quality grants* from DOT may be used to create bike or walking opportunities that are also part of a commuter transportation system.

RESOURCES

McQueen, Mike and Edward McMahon. Land Conservation Financing. Washington: Island Press, 2003.

Whiddon, Alycen, et. al. Open Space Acquisitions and Management Opportunities in the City of Atlanta and Adjacent Jurisdictions. Georgia State University, 2003. http://www.researchatlanta.org/FullReports/03_OpenSpace.pdf

Land and Water Conservation Fund - State Assistance Program, 2004 Annunal Report. National Park Service. http://www.nps.gov/ncrc/programs/lwcf/LWCF 04 rev.pdf

Tax Increment Financing

Nathan Brightbill

Public Financing

Tax Increment Financing (TIF) is used to incentivize development in certain areas desired by a city. Tax Increment Districts are designated by a municipality.

Typically, development projects increase taxes to be paid. Through TIF, the difference between the original tax before development and the resulting tax after development can be reapplied to help pay for that development or for other public improvements. This increase in taxes is called the increment and can be applied to affordable housing, public infrastructure, including parks, or to clean up brownfields among other possibilities. These funds can only be used within the designated Tax Increment District.

In Washington TIF is officially called Community Revitalization Financing. The law was enacted in 2001 and would sunset in 2010 though the sunset provision was removed in 2002 and the law made permanent. Through this law the sponsoring government can now capture a portion of the regular property taxes for public improvement projects. Washington voters had previously rejected this provision in 1973, 1982 and 1985. Until recently Washington did not benefit from TIF laws like many other western states and was subsequently at a disadvantage.

TIF in Washington has not been as effective as hoped, for a variety of reasons, one of which is that funds cannot be used to address future needs of the project, but only those identified at the time of inception. Jeff Nave points out, “TIF has a place in our economic development tool chest. However, it may be a three-penny nail, rather than the powerful hammer many had desired” (2003).

When seeking Community Revitalization projects issues to keep in mind include: the sponsoring government will not receive revenue if the assessed value drops below the original amount, because significant increases in assessed value are needed to finance significant public improvements. Undeveloped and under-developed properties are the most favorable candidates.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON: Sec. 1. (1) It is declared to be the public policy of the state of Washington to promote and facilitate the orderly development and economic stability of its communities. Local governments need the ability to raise revenue to finance public improvements that are designed to encourage economic growth and development in geographic areas characterized by high levels of unemployment and stagnate employment and income growth. The construction of necessary public improvements in accordance with local economic development plans will encourage investment in job-producing private development and expand the public tax base.

-Engrossed Substitute House Bill 1418, Chapter 212, Sec. 1

RESOURCES

Municipal Services and Research Center of Washington: http://www.mrsc.org/Subjects/Econ/ed-revitalization.aspx (Contains several additional sources)

Ch. 212 Laws 2001 (ESHB 1418): http://www.leg.wa.gov/sl/2001-02/1418-s_sl.pdf

Minnesota Legislature FAQ’s on TIF: http://www.house.leg.state.mn.us/hrd/issinfo/tifmech.htm

Nave, Jeff. 2003. Tax Increment Financing: Why it isn’t Working Here: http://www.djc.com/news/co/11149492.html

The Effects of Tax Increment Financing on Economic Development: http://www.igpa.uiuc.edu/publications/workingPapers/WP75-TIF.pdf

Tax Increment Financing Best Practices Study, El Paso: http://iped.utep.edu/IPED%20Reports/tr2002-10/tr2002-10.pdf

Land Banking

Elizabeth Powers

Public Financing

Land banking involves the purchase of land now for future uses. In the case of open space planning, land banking involves acquisition of land prior to development of an area, or in preparation for needing to mitigate future development impacts. For example land banking can be used to develop a greenbelt, to preserve areas of shoreline, or to protect ecologically valuable land such as wetland.

Pre buying open space parcels in rural areas can provide considerable savings to a jurisdiction over trying to purchase land when an area in already being developed. In some cases, income can be earned from the land until it is developed as open space by leasing it, such as to a farmer.

A particular kind of land banking is wetland banking for mitigation purposes. Either private or public entities purchase existing wetlands or site for a wetland and do a large scale restoration project. When other sites in the area are developed that have small wetlands, the developer can purchase credits from the bank to compensate for impacting the wetland on their site. Federal guidelines were established for this kind of program in 1995 and the Washington State Department of Ecology has a developed a local program with one pilot in Snohomish County.

The advantages of this approach is that a mitigation is already up and running prior to a developer affecting a wetland on thier site and the banks are usually ecologically more successful than lots of small wetland projects on the sites being developed. Wetland banking provides some regulatory flexibility that could increase compliance. Because private investors can set up wetland banks and sell credits, wetland banking can be an entreprenurial way to satisfy local regulations.

Critics of wetland banking are concerned that it is difficult to determine what lands are of equal ecological value to the site being developed and it continues to allow for destruction of existing biologically functional sites. If a land bank should fail, or just be poorly designed, it could have significantly more impact than if on-site mitigation were always required.

The Seattle Shoreline Alternative Mitigation Plan is a type of land banking that will change the way that the city implements its Shoreline Master Program for the shoreline between the Hiram Chittenden Locks and the Montlake Cut. Currently, shorline sites must provide on-site shoreline mitigation and public access and there is concern that this limit commercial opportunities along a waterfront area where the city wants that kind of development. It could also be more ecologically functionial to purchase and restore selected areas of the shorline and sell credits to other sites to compensate for development.

References

www. investorwords.com

Washington State Department of Ecology Wetland Mitigation Banking Program
http://www.ecy.wa.gov/programs/sea/wetmitig/index.html

Seattle Shoreline Alternative Master Plan
http://www.seattle.gov/dpd/Planning/Shoreline_Alternative_Mitigation_Plan/

Michniewicz, Claudia M. *Urban land banking.* Chicago, 1979

Alison Blake, Tauschia Copeland, Noelle Higgins, Vanessa Lee, Elizabeth Umbanhowar

> *"Good design for inclusive access is central to …health and quality of life; social inclusion; tourism; countryside access; urban renaissance; safety and crime; and the implementation of …legislation."*
>
> - From *OPENspace: the research centre for inclusive access to the outdoors*
> http://www.openspace.eca.ac.uk/2005

Introduction

In planning for open space in Seattle for the next 100 years, the needs of diverse communities must be taken into consideration in order to create and preserve attractive, accessible, functional and ultimately livable places in which people can feel comfortable, interact safely and productively with others, and become active participants in the shaping of their own neighborhoods and city.

On December 3, 2005, Seattle Department of Parks and Recreation convened a community workshop with representatives from various neighborhoods and backgrounds. The objectives of the workshop were to provide a forum for individuals and groups that are not normally invited to sit at the table. Participants were asked to discuss their experiences and needs with respect to open space. What ensued was a remarkable series of open and thoughtful conversations about definitions of, barriers to and visions for open space in Seattle. Their observations and experiences, which are summarized here, will provide the basis for planning into the future for robust open spaces that serve multigenerational and multicultural citizens of Seattle.

Definitions of Open Space

Participants expressed preferences for both large pastoral spaces with views to water and mountains, as well as small intimate spaces with benches and lawn. The importance of **large gathering spaces for family** and community events was stressed. There was a broad range of definitions of open space, including: a place to encounter nature; a gathering space for people to meet and discuss ideas with people from their own language, ethnic, religious, or age groups, as well as meeting with new groups. Importantly, many observed that open space comprised more than traditional parks, including plazas, traffic circles, street ends, sidewalks, green roofs, rooftop gardens, pocket parks, remnant spaces, and other hybrid and multi-use spaces.

Barriers to Participation

Physical, financial and cultural access were major concerns, with multiple suggestions for improving transportation to and from open spaces by using free inter-park bus or shuttle services, such as in downtown Kent, or offering "green pass" days to parks. Financial barriers prevent low income residents from experiencing learning centers such as the zoo and the science center. Further lack of information in non-English speaking communities limits knowledge of and access to parks. Lack of sensitivity to cultural and physical needs also inhibit use. Safety, and the perception parks attract criminal activity, prevent many people from utilizing parks.

Future Open Space Needs

Community representatives emphasized the need to establish **strong connections between school and open spaces**, including supplying information about park opportunities to families in school information packets. Further, participants underscored the importance of **cultivating appreciation**

and stewardship of open spaces in school children in order to ensure the longevity and vitality of an open space system.

Many voiced the need to create **welcoming environments** that embrace **multicultural and intergenerational users** and in which diverse individuals and groups feel safe. One participant observed that often parks are a sanctuary, the only venue in which he as an African American male can enjoy without being harassed for "loitering".

Zoning of activities was deemed important, creating opportunities for multiple planes of activities, in which people can enjoy natural beauty, into which habitat for wildlife can be incorporated, in which visitors and residents can participate in a variety of active and passive pursuits, and in which technologies can be accessed. At the same time, participants stressed the need for **connectivity of open spaces** to different use spaces in their neighborhoods and across the city. Wayfinding to and through open spaces was also identified as critical. Others indicated the need to provide **access to active exercise** and recreation opportunities, such as biking, skating, hiking, canoeing, soccer, basketball, as well as **meditative or restive places for contemplation**, yoga, tai chi and spiritual practice.

Several participants suggested the need for **access to fresh fruit and vegetables** to ensure proper nutrition for residents in surrounding neighborhoods. Activities for youth, such as wireless and open microphones, as well as midnight basketball and concerts, were deemed important, including efforts to keep the design and programming positive.

Finally, many voiced the need to **respect history of neighborhoods** as well as acknowledging the need to provide **opportunities to incorporate new voices**, through education about different cultural practices. Art as a means of recording history, inspiring participation and engaging young people who might not otherwise be interested or involved in sports or nature was also emphasized.

To summarize, several key points were distilled from the many rich and varied conversations. Open spaces are:

- changing
- safe spaces that are welcoming to diverse communities
- educational spaces that are fun
- linear spaces that address multiple uses for exercise and connect open spaces to each other
- family and community spaces
- spaces for privacy, solitude, spiritual and religious practice
- venues for environmental education
- financially supported spaces to ensure access
- system-based spaces
- roof-top spaces
- new types of spaces
- integrated, accessible, pedestrian-friendly spaces
- non-traditional open spaces

Extremes of Age: Children and Adolescents / Alison Blake

Meeting the needs of children and teens within the urban environment is a critical task. Many parents, both currently and historically, choose to move from cities to suburbs and outlying areas because they believe these areas will be better for their children. A variety of factors, such as educational opportunities, tend to weigh into this decision, but key among them are perceptions that cities are both more dangerous and offer fewer opportunities to connect with nature. In order for cities to densify, they must be desirable places to live; in order for families to want to live in cities, the needs of their children must be met.

The challenges and opportunities for open space to meet kids' needs within the urban environment are substantial. As children age, they pass through many stages of development. Interests change with age, territories often expand, new skills and abilities are developed. It is important to recognize, account and design for children at all stages of development within a city's open space system because individual open spaces may not be able to accommodate the needs of all children at many different stages of development and they certainly can't with a single traditional playground.

Open spaces should provide areas for play, both for groups and individuals, both undirected as well as for organized sports. Play is a mode of learning and the activity of exploring one's environment is a type of play. Connections to nature and environmental learning can and should occur within open spaces. Open spaces can also serve an important role for children as places for family-time and for community gathering and socializing with a more diverse population than they are typically exposed to.

Access to open space is a major issue for children that must be addressed. Younger children require spaces much closer (they must be within eye and earshot of parents) to the home, before parents will allow their children to play there. Older children may often travel farther, but might not be allowed to cross major thoroughfares. Thus, appropriate placement and frequency of open space is important. Perceived safety is also a major criterion as parents will generally not take, or allow their children to go to unsafe areas.

Elderly

The elderly have their own issues and needs relating to open space. Access to open space as well as comfort and safety within open space are key issues for the elderly population. As people age, they tend to be less mobile, both physically and because they may lose the privilege of driving. Thus, open spaces should be accessible by foot from homes, or should be easily accessible via public transportation. Inside of open spaces, it is important that paths are accessible and that sufficient seating be provided for those who either need or want to sit and rest.

Open spaces serve a variety of functions for the elderly; they are places for meeting friends, for conversation, and being part of a community; they are places for both exercise and relaxation, and places to appreciate and connect with nature or natural elements. Studies show that the elderly tend to be comfortable directly adjacent to children's play areas, but not next to those of adolescents and young adults, who may be perceived as noisy, less fun to watch, or even as threats. These preferences should be addressed within open space designs and care should also be taken to site seating in climatically comfortable areas where other activities or pleasing views can be observed.

Resources

Mayor Royer - document re: design w/ children
Altman, Irwin and J. Wohlwill, eds. 1978. *Children and the Environment.* New York: Plenum Press.
Blakely, Kim Susan. 1994. "Parents' conceptions of social dangers to children in the urban environment." *Children's Environments* 11(1): 16-25.
Christoffel, Katherine K. 1995. "Handguns and the environments of children." *Children's Environments* 12(1): 39-49.
deConinck-Smith, Ning. 1990. "Where should children play? City planning seen from knee-height: Copenhagen 1870-1920" *Children's Environments Quarterly* 7(4): 54-61.
Eriksen, A. 1985. *Playground Design.* New York: Van Nostrand Reinhold.
Goltsman, S., D. Iacofano, and R. Moore. 1987. *The Play for All Guidelines: Planning, Design and Management of Outdoor Settings for All Children.* Berkeley: MIG Communications.
Hart, R.A. 1978 *Children's Experience of Place.* New York: Irvington.
_____. 1997. *Children's Participation*. New York: UNICEF.
Heseltine, Peter, and John Holborn. 1987. *Playgrounds*. New York: Nichols Publishing.
Holloway, S. and G. Valentine, eds. 2000. *Children's Geographies: Living, Playing, Learning and Transforming Everyday Worlds.* London: Routledge.
Huttenmoser, Marco. 1995. "Children and their living surroundings: Empirical investigations into the significance of living surroundings for the everyday life and development of children." *Children's Environments* 12(4): 403-413.
Johnson, J. *Design for Learning: Values, Qualities and Processes of Enriching School Landscapes*. LATIS Document. Washington, DC: American Society of Landscape Architects.
Jones, S. and A. Graves. 2000. “Power Plays in Public Space: Skateboards as Battle Grounds, Gifts and Expressions of Self.” *Landscape Journal* 19, 1, 2: 136-148.
Moore, R.C. 1993. *Plants for Play: A Plant Selection Guide for Children's Outdoor Environments*: Berkeley: MIG Communications.
Moore, R.C. 1993. *Play and Place in Child Development.* London: Croom-Helm.
Nabhan, Gary P. and Stephen Trimble. 1994. *The Geography of Childhood: Why Children Need Natural Places.* Boston, MA: Beacon Press.
Nicholson, S. 1971. “Theory of Loose Parts: How Not to Cheat Children.” *Landscape Architecture* 62:30-34.
Owens, P.E 1998. Natural Landscapes, Gathering Places, and Prospect Refuges: Characteristics of Outdoor Places Valued by Teens. *Children's Environments Quarterly* 5, 2: 17-24.
Sandels, S. 1975 *Children in Traffic*. London: Paul Elek.
Stine, S. 1997. *Landscapes for Learning*. New York: Wiley.
Sutton-Smith, Brian. 1985. *Learning Through the Built Environment: An Ecological Approach to Child Development*. New York: Irvington.
Wals, Arjen E. 1994. "Nobody Planted it, it just grew! Young adolescents' perceptions and experiences of nature in the context of urban environmental education." *Children's Environments* 11(3): 177-193.
Weinstein, Carol, and Thomas David. 1987. *Spaces for Children: The Built Environment and Child Development.* New York: Plenum Press.
RWJ or CDC on community health/ environment
ADA Information- ADA Technical Assistance CD-Rom US Dept. of Justice Civil Rights Division - PH 800 514-0301 - updates www.ada.gov
Sommer, R. and F. Becker. 1969. The Old Men in Plaza Park. *Landscape Architecture* 59: 111-113
http://www.cala.umn.edu/design_center/reference_ctr/publications/designbriefs/pdfs/db4.pdf

Disability / Noelle Higgins

What are the reasons to create inclusive design in public open space?
The issues associated with disability affect all cultures, colors, age-groups, sexes. In this country, there are millions of citizens with disabilities, as well as foreign visitors with disabilities whose needs also need to be addressed. Adopting inclusive design strategies discourages discrimination and promotes equality. Inclusive design "acknowledges that everyone has the right to participate in community and public life." Inclusive design sustains self-determination and minimizes physical and/or psychological dependence on others. Disability access is also regulated by the following laws here in the united states.

- Americans with disabilities Act
- Telecommunications Act
- Fair housing Act
- Air carrier access Act
- Voting accessibility for the Elderly and Handicapped Act
- Individuals with Disabilities Act
- Rehabilitation Act
- Architectural Barriers Act

Who are we designing for?
- Physically challenged or disabled adults and children.
    - Visual
    - Hearing
    - Walking and motor control
- Mentally ill or challenged, adults and children.
    - spatial cognition
    - wayfinding
    - language comprehension
    - written word comprehension
- All ages, all colors, both sex, everyone.

What elements are available to address these users' needs?
- *Wayfinding Tools* Not language-based, but technology based, using Braille, material change cues, sensory cues, hearing or visually impaired.
- *Accessibility* Properly lit, accessible grade or stairs.
- *Safety* Create accessible spaces incorporated into design.
- *Inclusive and welcoming* Design these issues into the design not add as an afterthought.

Resources
http://www.gag.org/resources/das.php

American Society of Landscape Architects Foundation, Office of Policy Development and Research, Department of Housing and Urban Development, "Access to the Environment, Volume 2" ,HUD-PDR ,1976.

Covington George A. and Hannah Bruce. *Access By Design*. Van Nostrand Publishing: New York, 1996.

OPENspace: the research centre for inclusive access to the outdoors Edinburgh College of Art environmentshttp://www.openspace.eca.ac.uk/

Steinfield, Edward and Danford, G.Scott. "Measuring the Impact of Environment on Disability and Rehabilitation." In *Enabling Environments* Kluwer Academic/Plenum Publishers: New York, 1999.

Homeless / Tauschia Copeland

Homeless in Seattle could be the group of people most affected by open space and the changes made to open space for it is in fact their home. In 2005, 4,355 individual homeless were counted in the Seattle area breaking into 1,870 emergency sheltered homeless, 1,155 transitional and 1,330 unsheltered. (City of Seattle) Understanding and accepting that this is a group of people who need be considered is the first step for there have been designs specifically created to exclude the homeless, but the homeless population has adapted and therefore, perhaps the approach of considering their needs in open space design rather than finding ways of excluding homeless is could be a new was of looking toward a brighter, more infused future. The homeless needs are different from any other group because space is their home, but also open space serves the same function as it does for others, a place to read, meditate, gather, etc.

One of the main issues that city dwelling homeless face is safety. Those that sleep out on the streets rather than in shelters sleep out in the open or under lights in order to feel safe and protected from and by city activities (George). The other most important aspect of open space for the homeless is protection from the elements. If these two things can be organized into open space in a safe manor where others can coexists, then, people forced into homelessness will not be forces to freeze to death or put themselves into immediate danger. For whatever reason any individual is marginalized into homelessness, there are those who cannot find shelter and those who wish to remain anonymous, and choose not to use the available resources for homeless that Seattle offers (Freeman), and safe open space is their answer to remain nameless and protected.

Resources

City of Seattle. “Homeless Population and Subpopulation Chart.” 2005:
http://www.ci.seattle.wa.us/humanservices/csd/docs/HomelessPopulationSubpopulationChart2005.pdf

Freeman, Anitra. 1999: http://aspin.asu.edu/hpn/archives/Oct99/0147.html

George, Kathy. “Homeless Face Violent life on Streets.” Seattle P.I., 2003:
http://seattlepi.nwsource.com/local/125753_homeless09.html

Ethnic Groups and Immigrants / Vanessa Lee

Introduction
In general there are differences in use and perception between ethnic groups, center city versus suburban residents, women versus men, people with different educational backgrounds, those with environmental training and those without, and people doing different activities in open space (e.g. dog walking versus jogging).

The following is merely a summary of past research and by no means indicative of all members of the following ethnicities.

According to Schroeder, African Americans are more inclined to use urban environments for recreation than Anglo Americans. They are also less interested in nature, the outdoors, and environmental concerns (Schroeder 1989, 103-104). This is also a pattern similar to center city residents in general, so these observations could be due to both ethnicity and location. More recent work by Gobster and Delgado (1993, 78) in Chicago has shown variation among African Americans depending on their history. Although their sample size was small, those with southern roots visited parks more than those from the North. They also did so more frequently on foot. This demonstrates some of the differences between people in one ethnic group.

Mexican Americans may have a pattern of park use revolving around large multifamily groups. They partake in more stationary and group sports activities than Anglo-Americans (Schroeder 1989, 104; Loukaitou-Sideris 1995). In urban parks Puerto Ricans have preferences for certain activities such as dominoes, and for a design palette that includes paving, shrubs, and bright colors rather than grass (Forsyth et al. 2001, 75).

Studies in the US have found that groups of Asian descent are very varied in their use of open space, partly because the population comes from so many different backgrounds. However, there may also be large multifamily groups that require spaces for picnicking and gathering together, family walks, or group exercises (i.e.: tai-chi). This requires a mix of both lawn and paving areas. Other recreational opportunities could also be derived from native countries (such as cricket or badminton).

As food is an important component to many ethnicities, places for food preparation or accessibility to vendors should also be provided. Community gardens can provide places for groups to come together, share traditional farming practices, and grow ethnically-appropriate food at an affordable cost.

Immigrant groups may also require signage in their own language.

The correlation between ethnic groups and low economic status is also an explanation for inaccessibility to open space. The large open spaces of Seattle are most accessible to the wealthier neighborhoods. That is, housing is so much more expensive near Sand Point Magnuson, Discovery Park, Greenlake, Seward Park, Gasworks Park, etc. These great parks are not within walking distance for many ethnic groups, and may also be difficult to reach through transit. If it is connected via an urban trail, such as the Burke-Gilman, residents may not have bikes, roller blades, or the resources to rent them.

Women
In urban areas women use parks more in the middle of the day, and for activities such as sitting and reading rather than sports. Women fear crime in parks more than men (Schroeder 1989, 105). Many ethnic groups have gender segregated patterns of open space use.

Resources

Forsyth, Ann. People and Urban Green Areas: Perception and Use. University of Minnesota -- Center for American Urban Landscape. Design Brief, Number 4/ June 2003.
http://www.cala.umn.edu/design_center/reference_ctr/publications/designbriefs/pdfs/db4.pdf

Gobster, Paul H. and Antonio Delgado. 1993. "Ethnicity and Recreation Use in Chicago's Lincoln Park: In-park User Survey Findings." In Managing Urban and High-Use Recreation Settings, ed. Paul H. Gobster. St. Paul: United States Department of Agriculture, North Central Forest Experiment Station.

Loukaitou-Sideris, Anastasia. (1995). Urban Form and Social Context: Cultural Differentiation in the Uses of Urban Parks. Journal of Planning Education and Research, 14:89-102.

Schroeder, Herbert W. 1989. "Environment, Behavior, and Design Research on Urban Forests." In *Advances in Environment, Behavior, and Design, Vol.2*, eds. Ervin H. Zube and Gary T. Moore. New York: Plenum Publishing Corporation.

San Francisco Foundation Diversity Network Project Diversity Network Project
http://www.sff.org/initiatives/dnpgrantees.html

Open Space Barriers and Needs in Low-Income Communities / Elizabeth Umbanhowar

Introduction

Historically, low-income communities have faced a tremendous dearth of available and safe open space in densely populated and/or economically desolated urban cores. As a result, low-income residents, particularly children, are prevented from participating in recreational, restorative and educational activities.

Obstacles

Low income communities face a number of significant issues regarding accessing and utilizing open space, particularly in urban areas. While brownfields have been touted as the solution to addressing the critical lack of parks in dense urban cores, historic and contemporary economic discrimination, or "brownlining" persist. Despite the efforts of administrators at a number of agencies to promote environmental cleanup and economic redevelopment, brownfield redevelopment, launched in 1995 under the Clinton administration, has not significantly impacted low-income neighborhoods. Funding has been concentrated in more affluent communities, particularly through "Greenfield" development at suburban peripheries and as a result polluted and abandoned sites pose a health and safety threat to community members.

The New York City Environmental Justice Association, a city-wide network that links grass roots organizations, low-income neighborhoods and communities of color in their struggle for environmental justice, reports that the city has one of the lowest standards of open space access (acres per 1000 residents) in the United States. These neighborhoods, too, are characterized by substantial numbers of brownfields, left from past industrial endeavors, as well as lead-contaminated buildings, bus depots and major highway corridors, all of which plague the community members and landscape and limit the number of healthy green open spaces and access to waterfronts.[1]

On a different, but related note, recent health studies also reveal that a disproportionate number of low-income youth suffer from chronic and often debilitating illnesses as a result of lack of exercise. These includes: Type 2 diabetes, coronary heart disease, hypertension, colon cancer and osteoporosis. It is also associated with decreased mental alertness, lower academic achievement, higher levels of stress, higher rates of disability, depression and diminished quality of life.[2]

Needs and Solutions

As has been suggested by the researchers of health and open space, there is a significant correlation to increasing available park space, and community well being. The example of the Fruitvale community in Oakland, California provides an understanding of the way in which community-based activism and planning can positively impact the way people both shape and use open space (see case study).

---

[1] http://www.nyceja.org/campaigns.html

[2] "Teens from low-income families are less active than more affluent teens (Exhibit 3). The rate of physical inactivity is nearly twice as high among teens with family incomes below 200% of the federal poverty level (FPL) as among teens with family incomes at or above 300% FPL. The proportion of teens getting no physical activity tended to increase slightly from 2001, however the increase is significant only for teens with family incomes at or above 300% FPL." (3)

CASE STUDY: Union Point Park, Fruitvale Community, Oakland CA
The Fruitvale district is the most densely populated district in the City of Oakland, with one of the highest concentrations of children, but with the least amount of parks and open space. The Fruitvale Recreation and Open Space Initiative (FROSI) was established to address the lack of park and recreational assets, and to develop a community stewardship model to sustain new and improved assets for the future. Development has been completed at the premier 9-acre waterfront park at Union Point on the Oakland estuary, and plans for improvements to Foothill Meadows Park, recently renamed in honor of César E. Chávez through a community youth-driven effort, are currently underway.

Other studies indicate the critical need for active-friendly recreational spaces, as well as safe places for low-income youth and suggest this is not only a matter of community organizing, but broader policy implementation.[3]

Finally, organizations like the Corporation for National and Community Service observe the need to provide garden open space in order to ensure low-income families are able to access nutritional food sources and opportunities to interact with other families and children.[4]

[3] Susan H. Babey, Allison L. Diamant, E. Richard Brown and Theresa Hastert. "California Adolescents Increasingly Inactive." *UCLA Health Policy Research Brief*. April 2005.
[4] Greg Donovan *Effective Practice: Developing community gardening spaces for low-income families* AmeriCorps Child and Family Support Team. http://epicenter.nationalserviceresources.org/index.taf?_function=practice&show=summary&Layout_0_uid1=33338

Resources

Bronx River Alliance http://www.bronxriver.org/whoWeAre.cfm

Bullard, R.D., G.S. Johnson, and A.O. Torres, *Sprawl City: Race, Politics, and Planning in Atlanta*. Island Press, 2000.

Crompton, John L. 2001. "The Impact of Parks on Property Values: A Review of the Empirical Evidence." Journal of Leisure Research 33(1): 1-31.

Donovan, Greg. *Effective Practice: Developing community gardening spaces for low-income families* AmeriCorps Child and Family Support Team.
http://epicenter.nationalserviceresources.org/index.taf?_function=practice&show=summary&Layout_0_uid1=33338

The Ecological Cities Project University of Massachusetts Amherst
http://www.umass.edu/ecologicalcities/about/index.htm

Loukaitou-Sideris, Anastasia. (1995). "Urban Form and Social Context: Cultural Differentiation in the Uses of Urban Parks." *Journal of Planning Education and Research*, 14:89-102.

Russouw, Sherre. "Plan to protect the city's open spaces." City of Johannesburg *January 20, 2003*
http://www.joburg.org.za/2003/jan/jan20_moss.stm

San Francisco Foundation--Diversity Network Project http://www.sff.org/initiatives/dnpgrantees.html

Urban Habitat. *Cracking the Code, A Handbook for Community Participation in Land Use Planning in the San Francisco Bay Area* (Pub-C001)
UHP has published this report in support of communities as they engage in the regional planning processes. This handbook provides a user-friendly introduction to community participation in land use planning, and as such is a new tool in the region.

Urban Habitat. *Building Upon Our Strengths: A Community Guide to Brownfields Redevelopment in the San Francisco Bay Area* (Pub-B001)
A working handbook on community based brownfields redevelopment from initial site selection through project implementations. With general overview articles on urban planning, transportation and toxics as well as hands-on advice on legal, scientific, and policy issues, including directories of Bay Area stakeholders, and other useful tools.

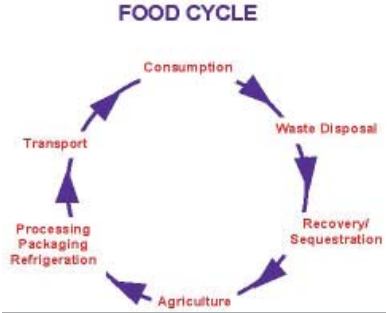
Urban Habitat. *Mapping for Social Change* (Pub-M001)
A 20-minute video on computer generated mapping as a tool for environmental justice analysis. With maps from community groups in Los Angeles, Minneapolis, and San Francisco.

Urban Habitat. *Brownfields Policy Paper* Second People of Color Environment Summit
October 23-27, 2002

Van Gelder, Sarah. "Cities For All: An Interview with Angela Glover Blackwell." *Yes! Magazine* Summer 2005.

Urban Agriculture

Vanessa N Lee



Kensington's mystery machine

What are the potentials and implications of urban agriculture, and its relationship to food access?

With impending factors including rising oil cost, natural disasters, and bioterrorism threats, the need for locally grown food also increases. As one SF Chronicle writer expresses "the post-oil era will see our transformation from a transient society to one that focuses on home and neighborhood. Sprawl development will give way to compact, walkable environments. Suburbs will disappear altogether. Those in direct proximity to cities will be replaced by farms; those farther out will gradually be reclaimed by nature."

The potential for urban food production is great, and demonstration projects are exhibiting its viability. The United Nations Development Program estimates that fifteen percent of food worldwide is grown in cities and this figure could be significantly expanded. Envision urban fish farms, farm animals at public housing sites, municipal compost facilities, schoolyard greenhouses, restaurant-supported salad gardens, backyard orchards, rooftop gardens and beehives, window box gardens, and much more.

Definitions: Urban Agriculture + Food (In)security

Urban Agriculture:

"the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities."

In addition, "a complex system encompassing a spectrum of interests, from a traditional core of activities associated with the production, processing, marketing, distribution, and consumption…These include recreation and leisure; economic vitality and business entrepreneurship, individual health and well-being; community health and well-being; landscape beautification; and environmental restoration and remediation."

Food Security/Access

Food security is all persons in a community having access to culturally acceptable, nutritionally adequate food through local, non-emergency sources at all times.
-provisions for a safe, regional food supply that is less vulnerable to the uncertainties of economies and the choices of government leaders and individuals.
-Natural disasters such as floods, droughts, or hurricanes can also cause temporary and long term effects on the food supply.

Varying Scales

Urban Commercial Farms, Market Gardens, Community Gardens, Private Gardens

History + Cases

- WWI + WWII (Victory Gardens)…
- Ebenezer Howard's Garden Cities
- Russia, Cuba, San Francisco, Seattle

City Resources / Land Use

- Leftover Spaces (Vacant Lots, Rooftops, Utility Right of Ways)
- Multifunctional Land Use (Farms + Gardens as part of Greenbelts/Habitat)
- Regional Food Connections
- Reuse of Waste Streams (Composting)
- Entrepreneurship Opportunities (Community Supported Agriculture – CSAs)

Communities (Primary potential users, but not exclusive to)
Immigrant Populations, Elderly, Low-Income /Public Housing, and more…

Challenges
Land tenure, Start-up costs, Access to markets, Knowledge and skills
Seasonal limits, Health, Vandalism + Crime

Implementation (Policy)
- Support infrastructures for increased urban food production, processing and marketing
- Extend to urban growers appropriate farm-related services and opportunities
- Preserve farms on the urban fringe and support initiatives that convert idle underused urban lands and resources to food production
- Promote and develop training in food production
- Sponsor and publicize research which integrates health, nutrition, food production, access, and economics together to solve city issues
- Educate professionals so that urban agriculture is automatically considered a part of urban planning

As a System
Urban agriculture incorporates production, transportation, processing, distribution, preparation, waste management, and resource inputs. Resource inputs occur at all levels of the food system. In addition, a sustainable food system would:
- Incorporate social-justice issues into a more localized system;
- Alleviate constraints on people's access to adequate, nutritious food;
- Develop the economic capacity of local people to purchase food;
- Train people to grow, process, and distribute this food;
- Maintain adequate land to produce a high proportion of locally required food;
- Educate people, who have been increasingly removed from food production, to participate in, and respect, its generation; and
- Integrate environmental stewardship into the process.

Resource outputs such as compostable food waste (which can comprise up to 1/3 of landfills), would go back into the system.

Linked to many other community systems such as jobs, waste, transportation, water pollution, health care….

Resources

Bonham, J. Blaine; Gerry Silka, and D. Rastorfer. Old Cities / Green Cities: Communities Transform Unmanaged Land. Chicago: American Planning Association, 2002.

Koc, M. et al. For hunger proof cities. Sustainable urban food systems. Ottawa, Canada: International Development Research Center, 1999.

Gottlieb, Robert. "Community Food Security: A Basic Strategy for Community Health," University of California Wellness Lecture Series, 1996.

Pothukuchi, Kameshwari. "The Food System: A Stranger to the Planning Field," Journal of the American Planning Association 66,3 (Spring 2000): 342-346.

Community Food Security Coalition. "Urban Agriculture and Community Food Security in the United States: Farming from the City Center to the Urban Fringe." Oct 2003.

Community Food Security Coalition:
http://www.foodsecurity.org/

Pacific NW Climate Change

Alison Blake

The past hundred years has revealed disturbing shifts in global temperatures and these trends ar projected to continue.The average surface temperature in the Puget Sound Region is supposed to rise between 0.5°F/decade and 0.9°F/decade through 2040, rising at currently unpredictable rates thereafter. This rise in temperature has potentially major impacts on the region, especially in regards to annual snowpack and the seasonal availability of water. The region might also experience changes in precipitation patterns over the next hundred years. Possible spheres of impact include plants, fish and wildlife (overall ecosystem function), hydropower, air and water quality, recreational opportunities, and water levels. It is believed that at least half of the predicted climate change can be directly attributed to human causes. In the future there will be a need to adapt to changing conditions, while at the same time changing practices so that those changes will hopefully be minimized. There are numerous design and planning strategies that can help sustain and potentially improve environmental function throughout a changing climate. With thoughtful design, it is also feasible that the built environment can facilitate a regional culture and lifestyle that mitigates against the more dramatic climate change predictions.

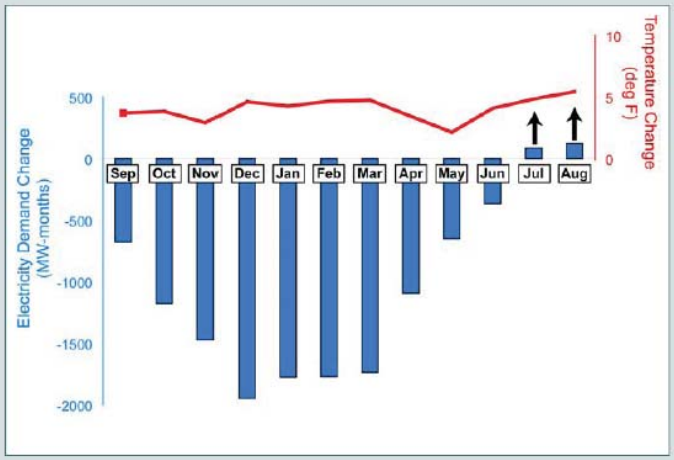
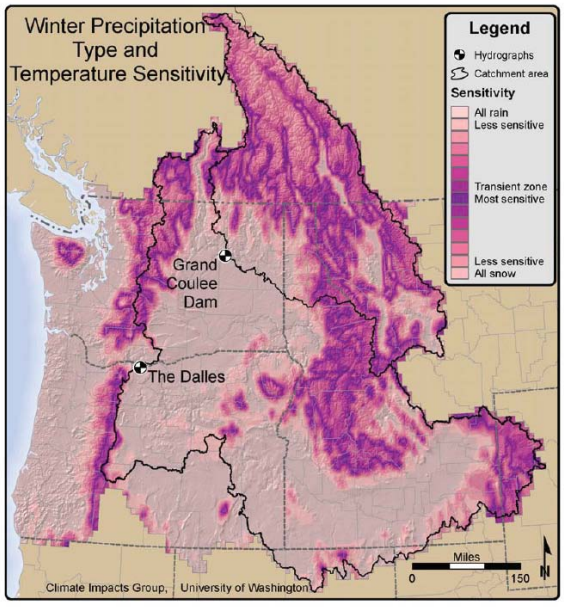


Figure 14. Projected 2040 monthly temperature increases (degrees F) and the estimated impact on electricity demand (megawatt-months). The red line shows the projected average temperature increase from four climate models for the PNW. Blue bars indicate the corresponding changes in electricity demand. For most months, the increase in temperature will likely reduce the need for space heating and electricity demand. Small increases in demand are projected for June and July; however, the arrows indicate that these are considered underestimates by the study's authors. The analysis does not account for increases in the availability of air conditioning, which will likely increase summer demands. Reproduced with permission from NWPCC (2005).[4]



Potentially impacted areas

Seasonal Water Supply
Hydroelectricity
Energy Consumption
Winter Sports
Flooding
Fish & Wildlife
Pests & Insects
Agriculture
Forestry
Air & Water Quality
Human Health
Stream Temperatures
Sea Levels

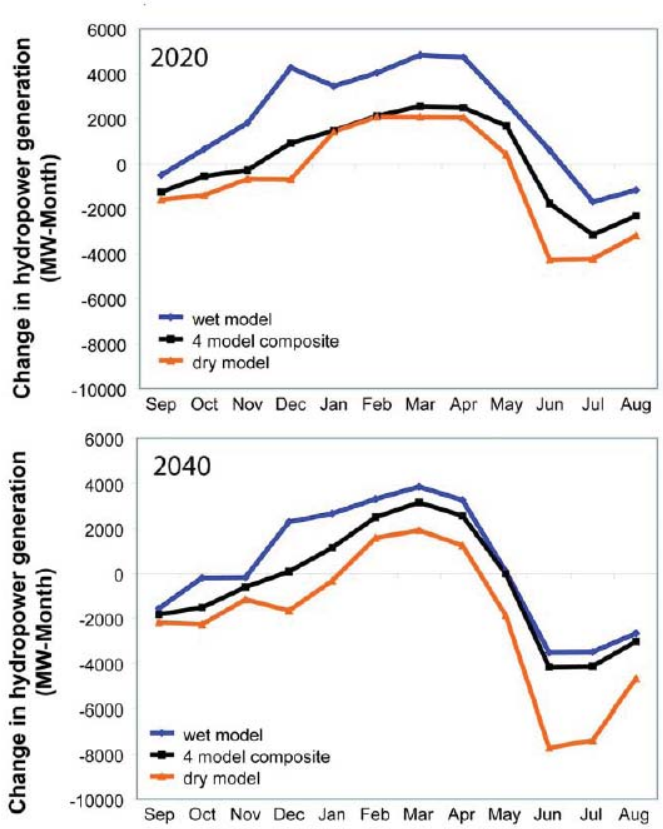


Figure 15. Projected climate impacts on hydroelectricity generation for the 2020s and the 2040s. The graphs show estimated changes in hydropower generation for three sets of climate models. The blue line corresponds to a relatively wet climate model; the orange line represents a relatively dry climate model; the black line represents the average of four climate models (one wet, one dry, one cool, and one warm) and represents a "middle of the road" projection. Increased generation will likely be possible during the winters; while the summers may experience reduced generation. The magnitude of the increases are contingent on the direction of the precipitation change. All models show especially large reductions in generation for the summer by the 2040s. Figure adapted from NWPCC (2005).[5]

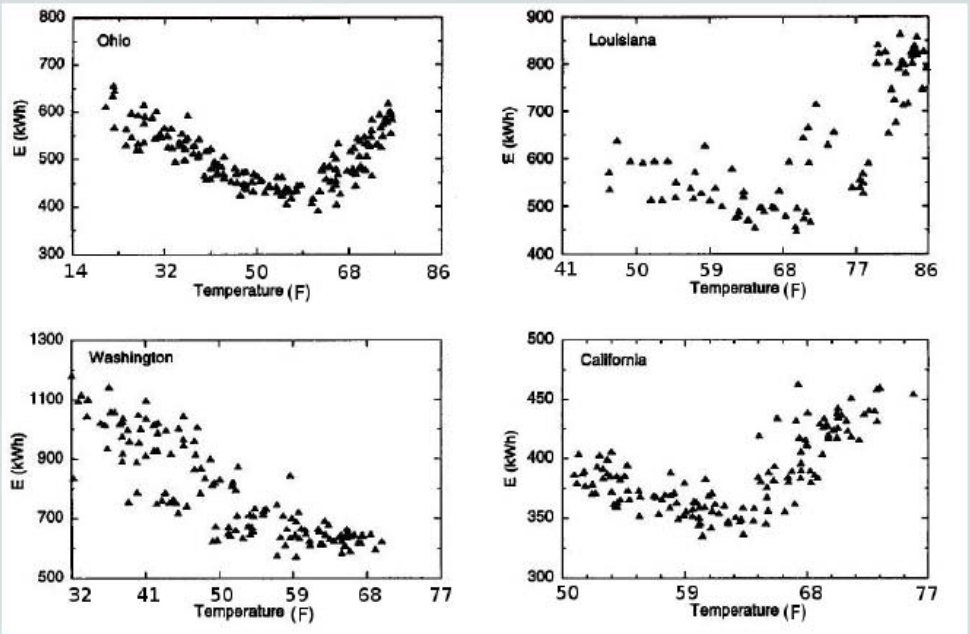


Figure 13. Residential and commercial per capita electricity consumption (kWh) and monthly average air temperature. Based on data for 1984-1994, most states show an increase in electricity consumption once monthly average temperatures surpass 68°F (20°C), most likely because of air conditioning. However, Washington's average monthly temperatures generally stay below this threshold, indicating that climate change could increase air conditioning and summer electricity demand. Reproduced with permission from Sailor et al. (1997).[3] Temperature values converted to degrees F.

Bibliography

Casola, Joeseph, Jennifer Kay, Amy Snover, Robert A Norheim, Lara C. Whitely Binder & the Climate Impacts Group "Climate Impacts on Washington's Hydropower, Water Supply, Forests, Fish, and Agriculture" Center for Schience in the Earth System Joint Institute for the Sutdy of the Atmosphere and Ocean, University of Washington, October 2005
http://www.cses.washington.edu/cig/

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Agriculture Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Climate Change Policy Questions: International Summary" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Coasts Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Fish & Shellfish Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Forestry Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Global Climate Change Primer" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Hydropower Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Municipal/Industrial Water Breakout Session" King County's Climate Change Conference, October 27, 2005.
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Kay, Jennifer, Joe Casola, Amy Snover & the Climate Impacts Group "Stormwater/Floods Breakout Session" October 2005
http://www.cses.washington.edu/cig/outreach/workshops/kc2005.shtml

Mote, Philip, Eric Salathé and Cynthia Peacock "Scenarios of Future Climate for the Pacific Northwest" Climate Impacts Group, University of Washington, October 2005

Mote, P.W., A.K. Snover, L. Whitely Binder, A.F. Hamlet, and N.J. Mantua, "Uncertain Future: Climate change and its effects on Puget Sound - Foundation Document." Climate Impacts Group, Center for Science in the Earth System, Joint Institute for the Study of the Atmosphere and Oceans, University of Washington, October 2005

How can schools become an integral link in the open space network?

Noelle Higgins

Concept : Traditionally school grounds have been largely paved impervious surfaces with playgrounds, parking and playfields and education has taken place in the classroom. Integrating neighborhood school properties into an open space network is a solution that many cities have looked at. Chicago (see precedents) is a sucessful example of this.

This type of program creates opportunity to enhance and educate children (and adults) about the possibilities for developing neighborhood sites into functioning ecological, habitat and learning recreational spaces. Since these sites are currently part of the city's owned real estate, the capital investment needed for improvement, though substantial is minimized.

If these green spaces can be integrated into larger parks system that recognizes ecological function in an urban setting, as a necessary design component. They can contribute to the restoration of native animal and plant communities and urban streams and river systems. In turn they become part of an open space corridors throughout the city.

Functions

Outdoor classrooms- To make learning fun and help children to feel comfortable in the outdoors. This is important to address now because sedentary play appears to contribute to obesity among children.

Edible landscapes- Particularly important because they contribute to food security, especially in lower- income neighborhoods. Helps teaches children about self sufficiency.

Sensory spaces- These are especially useful when working with physical, mental and emotional issues. With all children it addresses sensory lessons that cannot be easily conveyed in classrooms.

Habitat spaces- Important contributor to restoration of local urban ecosystem and stewardship among urban children and adults.

Environmental Learning- especially successful if partnered with local environmental groups who have particular expertise in native species and local resources such as Audubon, Starflower Foundation.

Community & cultural place making- Creates open space in neighborhoods that are established, creates outdoor gathering places, help creates stronger links with community, contributes to property value of adjacent neighborhood.

Stormwater management- creating sites that contribute to the ecological functions, takes pressure off aging infrastructure.

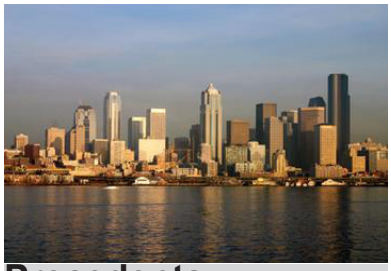
Makes learning Fun.

How? (My 3-legged stool theory)

Vision- Strong leadership at the regional or local level is needed to promote this idea, it makes sense to invest in youth, existing infrastructure and neighborhoods, why not do it all at the same time?

Policy-Develop partnerships between public agencies, non-profits and private agencies so that resources (knowledge, tools, equipment & skills) can be shared. Example- parks department & public schools agencies, Public schools and environmental advocacy groups)

Grassroots Efforts- Investing time and energy in very local improvements helps to improve neighborhood environments and increase property values. This also helps schools to become better neighbors, not just a contributor to ncreased traffic, noise and sometimes crime.



Precedents

Chicago Public Schools & Chicago Parks District

Campus Park Program -In 1994 Major Daley took control of the School system and began using the schools capital funding to replace pavement with grass and trees in school grounds. This linked adjacent lands with school grounds to create campus like settings.

The Campus Park Program addresses the shortage of parkland in Chicago's neighborhoods by targeting public school grounds for parkland improvements. 100 campus Parks had been built by the end of 2002. Improvemnts continue to existing schools but now the focus seesm to be on new construction. This $2.6 billion Chicago Public Schools Capital Improvement Program was funded through local taxpayers and businesses sand has funded school repair and construction since 1996.

"Thanks to our campus park program, we are tearing up the asphalt and replacing it with grass, trees and shrubbery. We're adding benches and playground equipment. We're turning these spaces into campus parks," said Mayor Daley. "We are creating a mixed-community use, where school children use the parks on weekdays and neighborhood residents use them in the evenings and on weekends."

Major Daly

source: http://www.cps.k12.il.us/default.htm

Image source http://www.glenwoodschool.org/summer.htm

Precedents

source: http://www.seattle-schools.org/schools/dearborn/

source: http://www.seattle-schools.org/schools/dearborn/

Bibliography

Francis, Mark, 'Urban Open Space', Landscape Architecture Foundation, Island Press, Washington

Garvin, Alexander & Berens, Gayle, Urban Parks and Open Space, Urban Land Institute 1997, Washington.

Guggenheimer, Elinor C., Planning for Parks and Recreation Needs in Urban Areas. Twayne Publishers, 1969, New York.

Harnik, Peter, Inside City Parks, Urban Land Institute, 1997, Washington.

Spirn, Ann Winston. 1984 The Granite Garden: urban Nature and Human Design, Chapter 1, 9-37.New York: Basic Books, Inc., Publishers

Johnson, Bart, R. & Hill Kristina, Ecology & Design, Frameworks for Learning, Island Press, 1998, Washington.

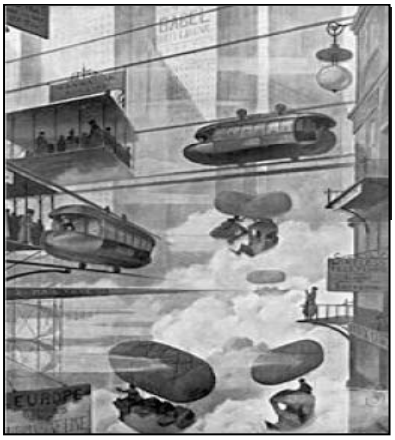
Papers
Martin, Melissa A., Larc 590, 2004, Sustainable Schoolyards: Urban Nature in an Educational Context.

Websites

'Green groups set sights on sustainable schools'
KATHLEEN O'BRIEN
The Seattle Daily Journal of Commerce, May 11, 2004.
http://www.djc.com/news/en/11154642.html
http://www.obrienandco.com/projectnewsindex.htm
The Edible Schoolyard: Martin Luther King Jr. Middle School website
http://www.edibleschoolyard.org/homepage.html
Seattle Public Schools
http://www.seattleschools.org/area/main/index.dxml
Boston Schoolyards Initiative website
http://www.schoolyards.org/
Chicago Green Campus Initiative
http://envirocenter.uchicago.edu/gci/
Dearborn Park Elementary:
http://www.seattleschools.org/schools/dearborn/
Islandwood:
http://www.islandwood.org/programs/school/default.php

Transportation and Open Space

Sara Robertson



Future transportation imagined by Fred Strothman in 1900

What mass and personal modes of transportation might we be using in 20 and 100 years and what effects might this have on our public rights-of-ways and open space opportunities?

Two topics were studied in order to provide a response to the research question: the past and current trends in the transportation profession and the possible future modes of transportation.

The primary objectives of transportation planning are to facilitate access to and participation in activities, but the means to achieve these objectives has begun to radically change. A more holistic approach has now been undertaken to incorporate more than just the movement of people. Transportation planners will have to avoid exclusivity by ensuring that all social groups benefit from decisions, will allow for broader objectives to be met (environmental issues), the quality of life will be maintained and enhanced, and the project will introduce greater livability.

In the 20th century, transportation professionals were mainly concerned with moving people and goods in the most efficient manner. Transportation was strictly about increasing road capacity in order to fight congestion and followed the belief "transportation as it nothing else mattered." In the 21st century, there is evidence that the culture of transportation planning and engineering is evolving to focus on integrating transportation solutions with land use policies. Thus, shifting the behavior and changing the culture of the profession to create streets and roadways that help improve the quality of life for all users of the right-of-way and "understanding what is important about the land."

Transportation eras usually last between 50-100 years (example: canals to railroads) and then something new would come along and create a dominant transportation system. Ever since the Wright Brothers and the combustion engine 100 years ago, nothing evolutionary has occurred in the transportation field. The longevity of the automobile and air travel has dominated transportation modes, and there is question as to what will become the next revolutionary trend for transportation in the 21st century.

Quotations reflecting the changing culture of the transportation profession:

"Invest in transportation systems that promote high-density, compact living while preserving open space in order to improve the quality of life"

"Sense of place comes from the design of the public realm: streets and sidewalks belong to the entire community, not just automobiles"

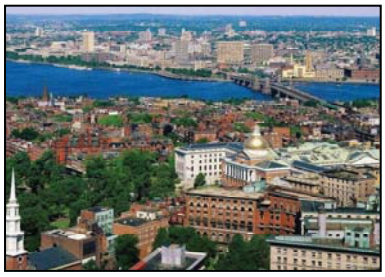
Shifting the Culture – Approaches and Case Studies:

Transportation Demand Management (Education)
Transportation Systems Management
Intelligent Transportation Systems
Integration of multi-modal transportation strategies
Placemaking (PPS)
Context Sensitive Solutions (PPS)
Integration of land use and transportation planning (Smart Growth)
"Road Diets"

Future Land Use Decisions:

Sprawl?

OR



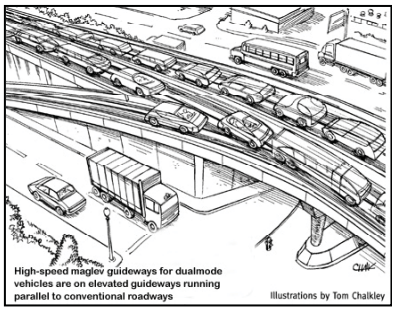
High density, compact communities?

Possible Future Modes of Transportation

SoloTrek TM Exo-Skeletor Flying Vehicle

"SUV with Wings" – inside of the Adam Aircraft's A500 Microjet

Japan's MLX01 MagLev Train



Dualmode Transportation System

Possible Future Modes of Transportation and their Implications on Open Space:

Personal Modes – hybrid automobiles (promotion of low density development in an environmentally-friendly way), dualmode transportation systems (creation of guideways – less open space), flying vehicles (air taxis and/or individual vessels) (promotion of low density development – less open space)
Mass Modes – high-speed trains and magnetic levitation trains (possible TOD development – open space)

Challenges:

Behavior change, a shift away from auto dependency, is necessary - how to argue convincingly for cars to not be used and to have people actually accept this plea
Land Use policies that allow for low density development
Public Transportation Investments/Funding

Implementation (Policy):

Integrated land use and development decisions with transportation solutions
Creation of pedestrian only streets (open space)
Street Design Guidelines to promote different forms of open space dependent upon street type
Coordination between all forms of transportation to promote transportation choices

Resources:

Banister, David. Transport Planning: Second Edition. Spon Press: New York. 2002.

Clement, Whittington. "VDOT Plans for Unified Travel Systems of Future." Richmond Times – Dispatch. July 25, 2004.

Litman, Todd. "The Future Isn't What It Used To Be: Changing Trends And Their Implications For Transport Planning." Victoria Transport Policy Institute. December 12, 2005.

Marshall, Alex. "The Future of Transportation and Thus Our Cities." Planning Magazine. 2003. http://www.alexmarshall.org/index.php?pageId=159

Project for Public Spaces. "The Future of Transportation is Now." Making Places. June 2005. http://www.pps.org/info/newsletter/june2005/future_of_trans?referrer=newsletter_contents

Puget Sound Regional Council. "Destination 2030: 2004 Review and Progress Report." April 22, 2004. http://www.psrc.org/projects/mtp/2004progress/2004progrep.pdf

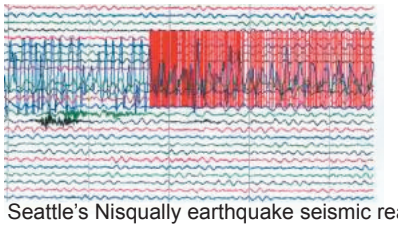
Reynolds, Francis. "The Transportation System of the Future." The Futurist. Vol. 35, Iss. 5, September/October 2001.

http://www.contextsensitivesolutions.org/
http://faculty.washington.edu/~jbs/itrans/dualmode.htm
http://www.sierraclub.org/sprawl/report99
http://www.djc.com/news/bu/11175155.html?query=airplanes&searchtype=all
http://departments.oxy.edu/uepi/planning_director/open_letter.htm
http://www.toyota.co.jp/en/tech/its/program/system/imts.html

Earthquakes

How will Seattle's landscape be affected by the next big earthquake?

Lauren Acheson



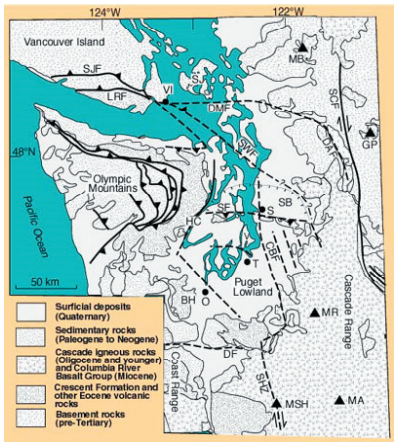
Seattle's Nisqually earthquake seismic readings
http://www.glaciercaves.com

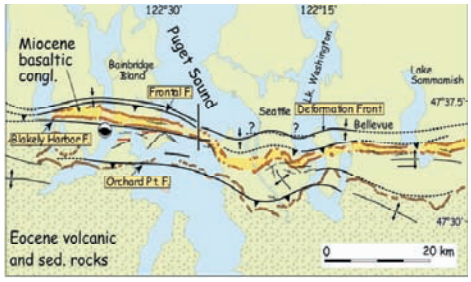
Seattle's dramatic and breathtaking landscapes, from the mudflats and marshlands, to the shoreline bluffs, to the surrounding majestic mountain ranges, are in large part a result of our dynamic underpinnings. Seattle is located at one of the earthquake-hotspots in the already seismically-active Cascade region.

GEOGRAPHY and GEOLOGY

Earthquakes and seismic events in the greater-Seattle region are a result of several separate local processes. These tectonic arrangements cause earthquakes in the Puget Sound region from three primary sources. First, the subducting process at the Cascadia Subduction Zone creates subduction zone quakes. Second, within the subducting Juan de Fuca plate, intraplate quakes may arise. Finally, and perhaps most relevant to the greater-Seattle region, the overriding North American plate is prone to shallow crustal earthquakes. Shallow crustal earthquakes are the most disturbing and dramatic for surface-inhabiting systems and members, as these originate with 20 miles of the surface.

Only recently (summer 2004), it has been found that six separate and parallel shallow fault zones run directly through the heavily urbanized and densifying Seattle region; this is know as the Seattle Fault Zone (SFZ). The last detected major event on the SFZ occurred 1,100 years ago, producing enough surface displacement to generate a tsunami, cause notable landslides, and uplift the southeastern coast of Bainbridge Island by 22 feet. This means that Seattle has the second highest risk of a major earthquake in the United States (behind California), and the question is not IF a major event will occur in the foreseeable future, but rather, WHEN.





Regional map of Cascadia faultlines (above); Seattle Fault Zone (below)
http://seattlescenario.eeri.org/documents.php

KOBE

The M6.9 earthquake to strike Kobe, Japan in 1995 was the first rigorous earthquake to hit the heart of a major city in a highly industrialized country. $200 billion in damage occured; 6,230 deaths; 40,000 injured; 102,000 buildings destroyed; 300 fires destroyed another 7,000 buildings, 300,000 homeless created; 85% of schools (centers for emergency service shelter and service distribution) were severely damaged or collapsed; widespread utility outages; transportation networks severely damaged.

The economic impacts of the disaster in Kobe reach far beyond the date of the disaster. Because of aging infrastructure and standing as a medium sized city, Kobe is still suffering. Before the earthquake, Kobe was the world's 6th largest port; damage to the port and transportation took nearly two years to complete, during which time many small or struggling businesses went under, and those who could afford to move their operations elsewhere did so. As a result Kobe is now the 17th largest port. Also, of the $100 billion in damage to business infrastructure, insurance only covered $1 billion.

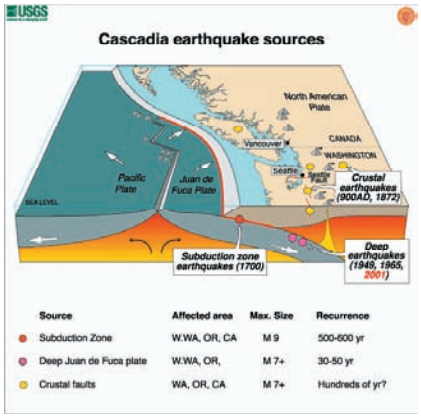
PHYSICAL FOUNDATION

The physical foundation of the city will experience ground failure by the expected earthquake in three primary manners: surface rupture, liquefaction, and landslide.

Surface rupture refers to the displacement of the ground surface when seismic energy is released. Such events cause major surface rupture, possible tsunami (if occurring on the seafloor), and seiching (smaller than a tsunami, refers to rocking of water in a small basin, leading to localized flooding).

Liquefaction occurs in soils and earth strata that are not dense or compacted. Upon large-scale seismic shaking, the particles in the earth quickly settle and densify, causing the ground surface to loose structural integrity, and even migrate laterally. Regions in Seattle most prone to liquefaction are those with a history of fill: the Duamish riverbasin, the waterfront, Union Bay Natural Area, and the Stadium District/International District/Pioneer Square area.

Landslides occur when sheets of earth break with their structural connection to surrounding parcels. There were 100s of detected earthquakes resulting from the Nisqually earthquake; however, as it had been fairly dry in the weeks preceeding Nisqually, the situation would have been much amplified in both magnitude and frequency of events had the ground been heavy and saturated from recent precipitation.



http://geology.wr.usgs.gov

BUILT STRUCTURES: SYSTEMS AND STRUCTURES

ROADWAYS

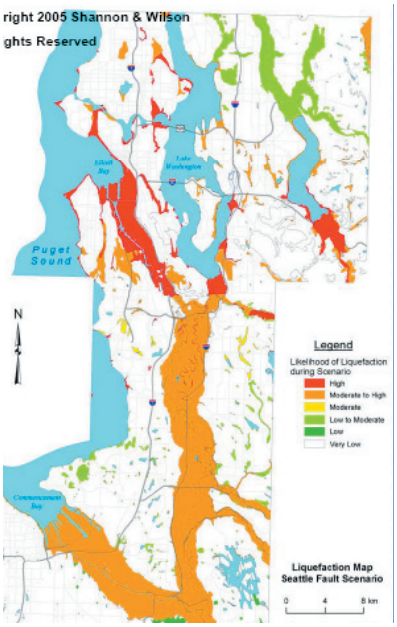
Due to Seattle's geography and topography, most major transportation corridors run in a north-south direction, and all have heavy and aging infrastructural components (including trenched sections, elevated portions, bridges over waterways, etc). All six major roadways (Interstates 5, 405, and 90; state routes 99, 167, 520) will experience damage and partial closures from structural failure of both the built forms and underlying earth, lasting a few weeks to a few years.

The Alaska Way Viaduct is a particularly sensitive component. Constructed in 1953 and currently carrying twice its designed capacity, it nearly collapsed in Nisqually. Additionally, the Viaduct is structurally dependant on the aging seawall and sits on liquefiable soils. As major roadways will be at least partially impassable, smaller roadways will be forced to take on an increased load, and are expected to rapidly deteriorate under heightened intensity of use.

The Seattle Fault and Bainbridge Island uplift
http://seattlescenario.eeri.org/documents.php

The M6.9 earthquake to strike Kobe, Japan in 1995 was the first major earthquake to hit the heart of a major city in a highly industrialized country.

Damage from Kobe earthquake
http://



Map of Seattle's Liquifaction Zones
http://seattlescenario.eeri.org

Comparison of Alaska Way Viaduct consntruction and collapsed Cypress Viaduct in Northridge, California
http://seattlescenario.eeri.org

LIFELINES

The so-called 'life-lines' of Seattle are expected to suffer certain and possibly lasting damage. Life-lines include electricity, drinking water, wastewater, fuel transmission, and communications networks. Though with utilities generation and sources are generally located outside our immediate region, it is transmission of all life-lines that will be disrupted by the expected earthquake event. Many life-lines are dependant upon electricity (water pumping systems, mobile-phone towers, etc), and though the transmission network is described as robust, damage to sub-stations and transmission lines could prove significant. Of particular note is, again, the Alaska Way Viaduct. Much of the electricity for downtown Seattle is transmitted by infrastructure embedded in the Viaduct; the collapse of the Viaduct will disrupt transmission of electricity to one of the most densely populated portions of the city for up to several weeks.

BUILDINGS

In a projection of a M6.7 shallow surface crustal earthquake running through the heart of Seattle, conducted by Earthquake Engineering Research Institute and the Washington Military Department Emergency Management Division, it was found that half or more businesses in SODO, the International District, Pioneer Square, and the Elliot Bay Waterfront would be rendered uninhabitable, 20 percent of single and multi-family housing would experience moderate to extensive damage, 46,000 households will be displaced, and the Duamish Industrial region would experience devastating damage.

These figures are a result of both the structure of the underlying soils, and also the building stock. Unreinforced masonry (i.e. brick) structures are vulnerable due to lack of reinforcement and lack of adequate connections; this building form defined much of the historic Pioneer Square and International District neighborhoods. Reinforced concrete tilt-up structures, prevalent in the industrial Duamish region, often have missing or inadequate roof-wall ties, thus are quite prone to roof failure.

EMERGENCY RESPONSE

Emergency services following the next earthquake will be dependant on those structures that are likely the most damaged by the quake: transportation and lifelines. First responders must be able to organize, communicate, and move around the city to respond to the crisis. Communication, electricity, and structurally sound buildings will be important to dispense emergency services and shelter displaced and injured people. Harborview is the Seattle region's only level one trauma center; the southern gulf region's only one level-one trauma center is unable to reopen due to damage, and with half of the other medical facilities in operation, the dire medical situation is being exacerbated by decreased capacity for care.

HUMAN LAYER

The impact of this event will be enormous. The Seattle region is home to half the population of Washington State. Though many people think that Nisqually was "the big one," the risk of an event of much greater magnitude and impact is real. Also, the recent impact of Hurricane Katrina makes real the potential human impact when citizens and emergency responders are crippled.

In summary, this situation, though devastating and frightening, will likely become a reality for Seattle. It will be a disastrous event for the residents, businesses, and networks of this region, the impacts and recovery of which will be lasting. Our outdated networks of transportation and lifelines will cripple the city in function, response, and recovery. However, this leveling-event will also present great opportunities in the rebuilding efforts. Our heightened knowledge of appropriate construction methods and recognized need for more logically designed systems will be more easily implemented when done by necessity and need.

Resources

-Barringer, Felicity. "Patients Needing Care Overwhelm New Orleans's Shrunken Hospital System." The New York Times 23 January 2006.
-Brown, Charles E. "Here and Now: Be Prepared." The Seattle Times 13 September 2005.
-Cascadia Region Earthquake Workgroup website. http://www.crew.org
-A comparison of Northridge and Nisqually. http://www.scec.org/news/01news/feature010313.hmtl
-Doughton, Sandi. "2001 Nisqually quake shook company into being prepared." The Seattle Times 18 September 2005.
-Doughton, Sandi. "Slipping fault may increase quake risk." The Seattle Times 15 September 2005.
-Earthquake Engineering Research Institute website. http://www.eeri.org
-Earthquake Engineering Research Institute and Washington Military Department Emergency Management Division. Scenario for a Magnitude 6.7 Earthquake on the Seattle Fault. June 2005
-Fryer, Alex. "Is Seattle really ready?" The Seattle Times 18 September 2005.
-Gaudette, Karen. "Planners: What if 520 span were lost?" The Seattle Times 10 September 2005.
-Houtz, Jolayne and Emily Heffter. "Could you survive a disaster here?" The Seattle Times 11 September 2005
-King, Marsha. "Preparing for the worst looks good to local nursing homes, residents." The Seattle Times 16 September 2005.
-Kobe City webpage. http://www.city.kobe.jp/index-e.html
-The Nisqually Earthquake Information Clearinghouse. http://maxiumus.ce.washington.edu/~nisqually/
-Pacific Northwest Seismograph Network. http://www.geophys.washington.edu/SEIS/PNSN

Patterns of Urban Land Treatment and Correlations to Temperature in Puget Sound Waters

Elizabeth Umbanhowar

Introduction

Water quality in area lakes, rivers and Puget Sound is influenced by: groundwater inputs and baseflows, stream volume and surface area, riparian vegetation, infiltration rates, climate, seasonal changes, precipitation, snow pack and disturbances. Aquatic life in this region has evolved to respond to specific temperatures, dissolved oxygen levels, nutrient content, and turbidity. In particular, salmon and trout species require a cold water fishery, with low turbidity and high dissolved oxygen levels. Both natural and anthropogenic factors affect the capacity of aquatic systems to maintain these conditions.

Impacts

Natural factors, such as ambient air temperature, stream flow rate, depth and volume of water, solar heating (which itself is a function of latitude, time of year, and time of day), how much shade is available to block the sun, and influence of adjacent groundwater affect temperature. Natural disturbances, such as flooding, landslides, avalanches and earthquakes, can impact also water quality. However, human caused disturbances, ranging from localized activity to broader global trends, play a greater role in changes in water quality, specifically temperature, in the lower reaches of Puget Sound watersheds. Activities that have contributed to elevated water temperatures include:

- removal of vital riparian and lacustrine vegetation
- impervious surfaces affect runoff and peak flows, prevents infiltration and-heats stormwater
- decrease of stream and river flows due to climate change, decreased snow-pack and growing demands on water supplies for drinking water, industry, irrigation, and recreation
- water impoundment and withdrawals
- augmentation of sediment load due to erosion of stream banks from disturbed riparian areas
- input of point and non-point source pollution and nutrients

Global Predictions

Research exploring impacts of climate change predict large-scale changes in precipitation and temperature patterns in the Pacific Northwest. In the next 50 years, models suggest that Puget Sound will see the air temperatures increase 2 to 10 degrees F, ocean levels rise two to three feet, precipitation increase in the form of rain in winter, decrease of precipitation and widespread drought during summers, and dramatic reduction in glaciers and snowpack. Degradation of wildlife populations, decline in human health, economic declines are the consequences of decrease water quality.

Terrestrial Treatments to Address Water Temperature

Traditional methods to address stormwater runoff have entailed: storm water detention ponds, stream bank reinforcement and armoring, and created wetlands. However, some of these methods are less effective than others. Impounded water--such as in detention and retention ponds, as well as reservoirs--is prone to high water temperatures, mosquito populations, and sedimentation. More recent explorations have entailed scientific modeling to understand temperature variations. The Temperature Urban Runoff Model (TURM), developed in Wisconsin to predict the impacts of proposed development sites, draws correlation between parcel size, impervious surface and stream baseflow. Recent engineering solutions in urbanized areas utilize gabion

As the percentage of impervious area of a parcel increases, more of the total runoff from the parcel comes from the heated runoff contributed by the impervious surfaces. Therefore, as percentage impervious area increases, the temperature of the water runoff from the parcel increases and the temperature of the stream that the runoff enters increases as well. (Dorava et al, p. 89)

weirs to capture larger sediment and filter smaller particles and stone channels to direct water underground (Dorava, Joseph M. et al, p. 85)

In addition to preservation and restoration, other alternative methods to increase onsite retention of storm and sewer water, filtering and infiltration include using constructed wetlands, bioretention and sand filters, notable examples being projects such as SeaStreets and Living Machine. In addition, other terrestrial interventions might include dense urban forests to increase interception of precipitation

Bibliography

Booth, Derek, ed. “Regional, Synchronous Field Determination of Summertime Stream Temperatures in Western Washington (Special Issue).” *Washington Water Resource*. Volume 13, Number 1 (Winter 2002).

Dorava, Joseph M. et al “Enhancing Storm Water Infiltration to Reduce Water Temperature Downstream.” From EPA Conference Urban StormWater: Enhancing Programs at the Local Level. February 17-20, 2003, pp.85-97. http://www.epa.gov/owow/nps/natlstormwater03/

Kieser, Mark S., Feng Fang and Jeffrey A. Spoelstra. “Role of Urban Stormwater Best Management Practices in Temperature TMDLS.” Water Quality Trading in the US Conference.

LeBlanc, R.T., Brown, R.D., and FitzGibbon, J.E. “Modeling the effects of land use change on the water temperature in unregulated urban streams” Journal of Environmental Management, v. 49, (1997) p. 445-469.

Morley, S.A., 2000, Effects of urbanization on the biological integrity of Puget Sound lowland streams: restoration with a biological focus. M. Sc. Thesis, School of Aquatic and Fisheries Sciences, University of Washington, Seattle, Washington, USA.

Puget Sound Action Team publication. Changes in the Waters of Puget Sound. www.psat.wa.gov/Publications/climate_change2005/pdf_files/2005_climate_water.pdf

_____. Puget Sound Conservation and Recovery Plan 2005-2007. Publication No. PSAT05-09 http://www.psat.wa.gov/Publications/biennialplan/pscrp_05-07_final-web.pdf

_____. State of the Sound 2004. Publication No. PSAT 05-01 January 2005 http://www.psat.wa.gov/Publications/StateSound2004/PSATSOS2004.pdf

Whitfield, Paul H., David Fraser and Stewart Cohen. “Climate Change Impacts on Water Georgia Basin/Puget Sound — Special Issue.” *Canadian Water Resources Journa*l. Vol. 28, No. 4 (2003).

Seattle's Urban Forests

Is there long-term potential for productive forestry in Seattle's urban forests?

Nathan Brightbill

Productive Urban Forestry

Introduction

There is long-term potential for productive forestry in Seattle's urban forests, but one must develop a nuanced understanding of what productive means. If it were an understanding based solely on money the answer is probably, though not definitively, no. If it is an understanding that includes some modest gains in money, providing for some of the city's needs locally and avoiding gathering wood from virgin lands, as well as generating products that have a local character and significance, providing job and youth programs, and contributing to the generation of a network of greater self-sufficiency, not to mention the myriad environmental benefits from a robust forest program focused that might increase tree numbers by focusing some efforts on productivity, then the answer is yes. In this regard, the urban forest can already be considered productive, but there are many ways that its productivity can be significantly increased.

Thousands upon thousands of board feet are generated within many cities on a yearly basis. Simply by using trees that are blown down, removed for construction, or are diseaded a city can generate a large supply of useable wood. Products can range from wood chips for mulch and pulp for paper to wood floors and high-end furniture. There are limitations to such a program, however. In terms of truly generating a profit it is important to focus on value added products which makes many trees not worth the effort. Yet, there is also the issue of avoiding disposal costs, and there are many uses for trees that do not necessarily turn a profit for the owner of the log, but at least reduce the cost of disposal and keep wood out of the waste stream. The following will discuss benefits and limitations of urban forestry as well as case studies and ideas for making the most of cities' forests in a variety of ways.

Jim Newsome founded Urban Hardwoods, one of Seattle's most successful cases turning waste wood into high-end products. (photos: Urban Hardwoods)

Benefits

The many benefits of urban trees is undeniable. They provide an aesthetic benefit, contribute to the community in terms of image and livability, provide play and recreation opportunities increase property values, remediate noise, and provide a human link to nature. They also have many ecological benefits, such as

Waste wood is chipped at Rainier Wood Recyclers. Customers pay to have their wood taken and Rainier sells the wood at a profit. The costs for wood disposal, however, are cheaper than sending it to a landfill. (photo: USDA 2002)

The Genesee Power plant in Flint Michigan collects 200,000 tons of waste wood every year and is combusted for power. In this area coal would normally be used for power making the burning of wood a desireable alternative. (photo: USDA 2002)

Different parts of trees have many different uses. Limbs and low value trees might go to lower uses such as power generation and chipping for mulch. More valuable trees can go towards furniture. The key is all parties in volved being aware of available resources and potential uses. Many governmetns have started programs to help aid in this connectivity. King County is one example with its LinkUp program for diverting solid waste to beneficial uses: http://www.metrokc.gov/dnrp/swd/LinkUp/

habitat provision, regulation of water temperatures, carbon sequestration (1 acre of trees removes 13 tons of dust and gas per year), erosion prevention, rainwater purification and filtration, and energy savings (City of Seattle, 1998). In this regard it is already clear that Seattle and likely any city has a productive urban forestry program. Given the many benefits it is clear that Seattle should actively plant as many trees as possible. Yet, financing is always an issue in terms of keeping trees on the streets. Viewing the urban forest as a productive one in terms of economy can help by remediating the costs of running an urban forest. If it were managed as a productive forest it might be possible to have more tree cover in the city, while harvesting more wood for productive, local purposes. There are certain limitations to this type of effort, however.

Limitations

Taking advantage of urban wood has many limitations. One problem appears to be coordination. There are many entities that might use urban wood but connections might not be made between those who have wood they want to get rid of and those who can use it. In Seattle the recent notoriety of Urban Hardwoods has led to more connections to save wood and put it to use. Trees that came out of the Rainier Vista project were sent to Urban Hardwoods rather than being chipped or landfilled (King County 2003). In many cities, public entities provide information and a clearinghouse of connections, while private entities provide the actual machinery, skills and labor. Both parties benefit. Municipalities can reduce waste in landfills, and discposal costs, while private businesses receive a cheap supply of wood, which is often the only way to make their businesses viable. Other issues are further described below.

Logistics

A particular problem with harvesting wood to be made into products is logistics. One is logistical problem is wood location. In Seattle where topography is often steep, it is typically not worth removing fallen trees from greenbelt areas where access is difficult. This would disturb soil and also remove the benefits of a decomposing tree to a forest. Because of this it is generally considered not useful or beneficial to remove trees from Seattle's more natural areas.

Trees do sometimes fall on roadways because of storms or need to be removed from backyards. In this case there is access, but the problem is that one tree is not necessarily cost effective to take to a mill, making it very difficult to make any money in these cases. When areas are logged, those doing the logging decide when to go and cut down many trees at one time creating an economy of scale. Cities usually cannot choose when they remove trees or where they will be.

Municipalities may not make money on individual trees, but when they can be used for some sort of product disposal costs can be avoided. For example, King County might sell a tree for only $400-$500 or give it away, but they can avoid $1,200 in disposal costs (Vane 2005). There is the added benefit of removing wood from the waste stream which makes up about 17% of all landfill waste.

Quality

Wood quality is another primary issue. Many logs can be turned into low-end products, such as wood chips. Rainier Wood Recyclers currently produces wood chips from city trees in Seattle, but those who bring trees to them do not receive payment and are only avoiding the costs associated with landfilling. In order to make money, high value products must be produced from high value trees. Urban Hardwoods actively seeks exceptional trees that can be turned into products, typically furniture, that has high quality and character and comes with a local history attached. This does not make up a large percentage of the trees available, however. Planting future trees with quality in mind might generate an urban forest with more potential value many years in the future. Care should be taken not to sacrifice ecological benefits and diversity in this effort, however.

Politics and Permitting

It is politically difficult to promote the concept of logging in urban areas, though the right of way provides large amounts of useable land with easy access (Mead 2005). If these concepts can be developed, however, Seattle is a likely place given its history of milling (City of Seattle 1998). Using local trees to provide goods within the city is a concept that is ripe for larger scale implementation, particularly given the desire to preserve pristine areas.

Permitting is another issue. If more than 5,000 board feet are intentionally harvested the entity must have forest practices permit. If the available volume is not high enough this may not be practical.

Potential: What About the Right of Way Anyway?

There is great potential for productive urban forestry in an economic sense if it is an active focus. The City of Seattle reported that only 1/3 of all possible places were planted with trees (1998). There are thousands of acres available, particularly in rights of way that could accommodate more trees. Given the existing street network, it might make more sense to log in populated areas, rather than building more roads through forests. Any one neighborhood might be impacted once every several decades. If rights of way were used strategically, for example integrating trees meant for production with heritage trees, the impacts might not seem as great. Street trees tend to be planted at the same time and are often the same type. Planting a more diverse set by age and species may also bring habitat diversity benefits and reduce the risk of losing an entire street of trees to disease. Perhaps certain trees would be systematically harvested over a period of 20 or 30 years, the proceeds from which would go toward planting more trees. Some of this wood could go into improvements for the neighborhood from which the trees were taken. Additionally, many trees eventually conflict with power lines. These could also be harvested and then replanted until they are once again too large.

This type of effort goes hand in hand with urban agriculture. With the ability to receive resources from outside the city likely to decrease, it is important to begin supplying ourselves locally. A local material system is important as is a local food system. If this sort of large-scale effort is possible or not, some cities, businesses and individual are at least focusing on taking advantages of opportunities to use urban wood, where it would otherwise become waste. Maximizing the usefulness of wood that becomes available for various reasons is a first and most important step. There is little reason for wood to go to a landfill, and all attempts should be made to put it to other uses.

Selected Cases

Following are examples of efforts that take advantage of opportunities to use waste wood that have economic, social, and environmental benefits.

Community Woodworks, Oakland

Community Woodworks operates at the Oakland Army Base, receiving much of its wood from old barracks. It is important to remember that the useful life of wood is not just from tree to product, but also product to product. Construction and demolition waste is significant and can be put to other uses in some cases. An important feature of Community Woodworks is that it provides job opportunities for low-income individuals (USDA 2002).

An important feature of productive urban forestry is providing work opportunities for youth or underemployed individuals. This plays an important social benefit in job training or as after school programs. In this case the urban forest can be viewed not as a way to make money, but as a way to help finance social projects.

City of Olympia, Woodwaste Reycling Study

The City of Olympia has conducted research into the various potentials of the trees removed from its forest. They have identified multiple uses for wood removed due to hazard or disease. A wood artisan's program would provide local craftsmen

Productive Urban Forestry

The City of Olympia is actively engaged in salvaging and milling urban wood. (Photos: Roush and Royer)

	Grade	Use(s)	Value Type	Value Amount*
Spruce		siding		$4-$12/bdft
		instrument making		
Poplar, tulip		unknown		Unknown
Lindon - Basswood		wood carving		$3-$4/bdft
Cottonwood		cabinets		$2-$3/bdft
Fir, White		exterior trim		$1-$2/bdft
Retail Market values are taken from Puget Sound hardwood store retail prices Wholesale prices are 50-70% of retail prices.				

The City of Olympia has developed charts of wood user networks as well as uses and prices for wood to help direct wood to appropriate places , contributing to social programs, arts, ecology and business development. A portion of a one chart is shown here. (Roush and Royer 2001)

From Seattle DOT Tree Inventory: http://www.seattle.gov/transportation/treeinventory.htm

Health of Existing Trees

In 1994, Seattle Transportation conducted a health study of the city's 84,000 street trees. Each tree's health was rated from 1 (poor) to 5 (great). 59% of the trees ranked ranged from good to great. 42% of the trees ranged from poor to over half-dead. Many of the trees suffer from one or more problems, including trunk-area decay, canopy defoliation, tree topping, branch structure defects and root structure problems.

The Overall Condition of Seattle's Trees - % of Total - Actual Number

Over half dead - 3% - 2,214
1/4 to 1/2 dead - 8% - 6,927
Poor - 31% - 26,211
Good - 34% - 28,860
Great - 25% - 19,704

with free wood. Some wood could be used in business development, while a portion would go back to the city in the form of a product, such as a bench or public art. The city could also donate wood to high school woodshop programs, put it up for public auction as well as using some in retail sales. A particularly useful feature of the study is information to determine the value and use of a particular type of wood versus the cost of transportation and milling it depending on the particular circumstances.

King County and Seattle

King County and Seattle are actively engaged in similar projects like Olympia. King County is considering creating woodlots in portions of parks to store fallen trees from county land. This wood would be cut intermittently by a mobile mill and used for fences, signs, kiosks and other park needs (Vane 2006). Additionally the City of Seattle has begun developing a cost matrix, like Olympia, to determine the best uses for timber depending on where it is located and what type of wood it is (Mead 2006). Further developing such programs will continue to open new business opportunities that will mutually benefit community, ecology, and economy. The information at right shows that many of Seattle's trees are not in good shape. As these trees are removed a good program directing them in the appropriate places is all the more necessary.

References

City of Seattle. 1998. A City Among the Trees: An Urban Forestry Resource Guide. City of Seattle Urban Forest Coalition.

King County. 2003. Linkup Newslink. Urban Hardwoods: Building a Business on Urban Wood.

Mead, Mark. 2006. Seattle Urban Forestry . Personal Communication.

Roush, Joe and Royer, Scott. 2001. Wood Waste Recycling. City of Olympia.

USDA. 2002. Successful Approaches to Recycling Urban Wood Waste.

Vane, Linda. 2006. King County Urban Forestry Program. Personal Communication.

Other Resources

Sherrill, Sam. 2003. Harvesting Urban Timber: A Complete Guide.

King County Forestry Program: http://dnr.metrokc.gov/wlr/lands/forestry/

King County. 1998. Small Forest Management on the Urban Finge: A Bibliography.

Seattle Department of Transportation Urban Forestry: http://www.ci.seattle.wa.us/transportation/forestry.htm

LinkUp: http://www.metrokc.gov/dnrp/swd/LinkUp/
King County program to connect waste streams with potential users.

University of Washington College of Forest Resources: http://www.cfr.washington.edu/

Tree Link: http://www.treelink.org/
Urban forestry portal

USDA Forest Service: http://www.fs.fed.us/ucf/

American Forests: http://www.americanforests.org/

Cultural and Ethnic Minority Use of Open Space

Garrett Devier

Ethnic minority and cultural uses are an increasing aspect of open space and parks in the United States. Park managers and designers need to take it to consideration the cultural uses and preferences when designing parks.

There are many survey studies that can help park managers identify overlooked preferences, barriers, and useful patterns when designing for different cultures or ethnic minorities. However these are broad generalizations and do not tell us much about preferences among individuals within these categories.

Who are Ethnic Minorities?[1]

- People who were born outside of the United States
- Ethnic minorities can include people born within the country but have parental roots in another country.
- People who have parents of different ethnic backgrounds.
- Also indigenous ethnic minority groups.

Why is this important?

- Physical environment has a positive or negative effect on peoples perceptions of everyday life.
- Landscapes have a strong symbolic dimension. They can be seen as familiar, alien, welcoming or excluding.
- In order to treat people equally it is important to respond to their diversity.
- The future of open spaces is dependent upon it.
- If majority of people do not see their needs and issues addressed in open space, open spaces may not be protected or expanded.

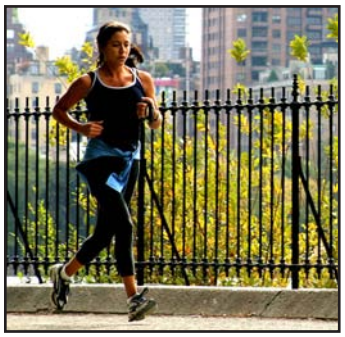
1 Rishbeth, Clare Ethnic Minority Groups and the Design of Public Open Space: an inclusive landscape?

http://depts.washington.edu/uwsp/shibaura/4%20Greenlake%20Bascketball.jpg

Common Cultural Uses of Parks[1]

African Americans
- Open spaces used mostly for sport.
- High Preference for social and relaxing benefits.

Whites
- More likely to use park on their own.
- Walking, jogging
- 50% value parks for their aesthetic qualities.



http://thomashawk.com/hello/209/1017/1024/Central%20Park%20Jogger4.1.jpg

Chinese
- Rare in parks..
- Mostly elderly men, socializing or doing Tai Chi
- See park as an aesthetic element of gorgeous design, not an expanse of green space for recreation and sport.

Hispanics
- Use parks in large social groups
- Food is involved
- Social and relaxation are highly rated elements.

Common Cultural Preferences[2]

http://www.exmsft.com/~davidco/Travel/China/images/b%20tai%20chi%20IMG_2995%20copy.jpg

Urban Recreational Parks
- African Americans

Wildland Parks
- Whites

Individual pursuits such as biking, walking and jogging
- Whites

Passive Activities such as sitting and relaxing
- Latino, Asian, and African American

Common valued attributes: Lakes, Ponds, and Zoos
- Asians, Latinos, African Americans and Whites

http://outdoortravels.com/files/fl_balmboyette_72_burk_opas.jpg

Natural Environment
- Asians, Latinos and Whites

Cultural Facilities
- African Americans

1 Rishbeth, Clare Ethnic Minority Groups and the Design of Public Open Space: an inclusive landscape?

2 Lanfer, Ashley Graves and Madeline Taylor, Immigrant Engagment in Public Open Space: Strategies for the New Boston Barr Foundation

Strategies for Park Design[1]

Draw on universal principles of design

- Concept of the loop. The idea of coming full circle, beginning where one begins is a common quality appreciated across cultures.

- Impulse to protect and care for larger and older trees with in a neighborhood.

Incorporate natural elements that echo home patterns

- Spaces can be designed with elements that incorporate cultural and spatial resonance.

Accommodate particular user groups

Leave room for adaptation

Strategies for Park Management

Adapt the culture of park management
- Diversity of park staff, ability to speak different languages, avail able and appropriate signage, are all important elements.

Examine park rules
- It is important to make sure that rules of the park do not exclude certain cultural activities.

Strategies for Park Programming

Get the word out

Encourage people to come together for cultural celebrations

http://www.iliqchuan.org/Main/Images/Picnic04/Picnic%20060.jpg

http://www.barrfoundation.org/usr_doc/Immigrant_Engagement_in_Public_Open_Space_final.pdf

http://www.barrfoundation.org/usr_doc/Immigrant_Engagement_in_Public_Open_Space_final.pdf

http://www.barrfoundation.org/usr_doc/Immigrant_Engagement_in_Public_Open_Space_final.pdf

1 Lanfer, Ashley Graves and Madeline Taylor, Immigrant Engagment in Public Open Space: Strategies for the New Boston Barr Foundation

Bibliography and Resources

Carr Lake Regional Park: Open Space and Recreation, City of Salinas, CA.

Chavez, Deborah J., Janna Larson and Patricia L. Winter To Be or Not to Be a park: That is the Question Proceedings of the Second Symposium of Social Aspects and Recreation Research Feb 23-25, 1994 U.S. Department of Agriculture

City Parks Forum Briefing Papers, How cities use parks to…Improve Public Health, http://www.planning.org/cpf/pdf/improvepublichealth.pdf

Floyd, Myron F. Managing National Parks in a Multicultural Society: Searching for Common Ground, Managing Recreation Use, Vol. 18 Number 3, 2001.
Forsyth, Ann. People and Urban Green Areas: Perception and Use. University of Minnesota -- Center for American Urban Landscape. Design Brief, Number 4/ June 2003.
http://www.cala.umn.edu/design_center/reference_ctr/publications/designbriefs/pdfs/db4.pdf

Gobster, Paul H. and Antonio Delgado. 1993. “Ethnicity and Recreation Use in Chicago’s Lincoln Park: In-park User Survey Findings.” In Managing Urban and High-Use Recreation Settings, ed. Paul H. Gobster. St. Paul: United States Department of Agriculture, North Central Forest Experiment Station.

Heywood, John L. and Raquel L. Engelke Differences in Behavioral Conventions: A comparison of U.S. Born and Mexican Born Hispanics, and Anglo Americans Proceedings of the Second Symposium of Social Aspects and Recreation Research Feb 23-25, 1994 U.S. Department of Agriculture

Hospodarsky, Denver and Martha Lee, Ethnic Use of the Tonto: Geographic Expansion of the Recreation Knowledge Base, Proceedings of the Second Symposium of Social Aspects and Recreation Research Feb 23-25, 1994 U.S. Department of Agriculture

Lanfer, Ashley Graves and Madeline Taylor, Immigrant Engagment in Public Open Space: Strategies for the New Boston Barr Foundation

Loukaitou-Sideris, Anastasia. (1995). Urban Form and Social Context: Cultural Differentiation in the Uses of
Urban Parks. Journal of Planning Education and Research, 14:89-102.

Park and Recreation Trends in California 2005, California State Parks, http://www.parks.ca.gov/pages/795/files/recreation_trends_081505.pdf

Rishbeth, Clare Ethnic Minority Groups and the Design of Public Open Space: an inclusive landscape? Landscape Research Vol. 26, No. 4, 251-366, 2001

Sasidharan, Vinod, Fern Willits and Geoffrey Godbey, Cultural differences in urban recreational patterns: An examination of park usage and activity participation across six population subgroups. Managing Leisure Vol. 10 Number 1, January 2005

Schroeder, Herbert W. 1989. “Environment, Behavior, and Design Research on Urban Forests.” In Advances in Environment, Behavior, and Design, Vol.2, eds. Ervin H. Zube and Gary T. Moore. New York: Plenum Publishing Corporation. San Francisco Foundation Diversity Network Project Diversity Network Project http://www.sff.org/initiatives/dnpgrantees.html

Solly, Richard and Judy Ling Wong, Green and Pleasant Land for All, http://www.ben-network.org.uk/uploaded_Files/Ben_1/Ben_file_1_63.pdf

Tierney, Patrick T. Development and Testing of a Cultural Identity Construct for Recreation and Tourism Studies Proceedings of the Second Symposium of Social Aspects and Recreation Research Feb 23-25, 1994 U.S. Department of Agriculture

The 2020 Vision, Improving and enhancing the city’s cultural experience, http://www.southampton-partnership.com/cs_delivery_plan/kc8.pdf

Urban Ecosystems

Melissa Martin

Although they cover a relatively small area of the world, cities are home to many people and are expanding and densifying at staggering rates. By the year 2030, it is estimated that more than 60% (4.9 billion) of the estimated world population (8.1 billion) will live in cities (UN 1999 in Alberti 2005). On a local level, King County has experienced incredible growth over the last 30 years; the Seattle population increased 44%, from 1.2 million to 1.7 million, in the years 1970 to 2000 (Robinson et al. 2005). This growth has been particularly pronounced along the urban fringe of King County. Research indicates that suburban land in some urban fringe areas increased by 756% from 1974 to 1998 while rural and wildland area has decreased by 23% over the same time period (Robinson et al. 2005).

Cities have an enormous impact on ecological function at multiple levels. Numerous studies have documented that urbanization "fragments, isolates, and degrades natural habitat; simplifies and homogenizes species composition; disrupts hydrological systems; and modifies energy flow and nutrient cycling." (Alberti 2005, 169). Additionally, cities are characterized by high energy consumption (100 to 300 times that of natural systems), lack of habitat patch integration, invasion of nonnative species, warmer microclimate, increased precipitation and runoff, high metal and organic matter concentration in soils, and modification of natural disturbance regimes (Alberti 2005).

In attempt to understand how cities can function ecologically and provide habitat for nonhuman species, in contrast to past and current trends, this paper considers the application of landscape ecology principles to urban areas.

Principles of Landscape Ecology

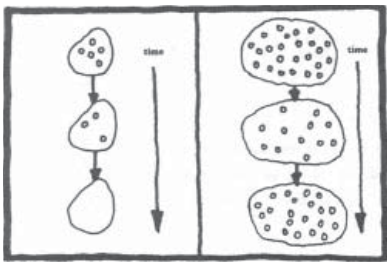
Regarding landscape ecology, author Richard Forman writes, "its large-area and long-term focus provide an obvious foundation for how we can design and plan the land for a more sustainable future" (2002, p.98). Understanding the language of landscape ecology is therefore essential to making planning decisions that enhance the ecological function of an area. Below are several key concepts from landscape ecology that can be applied to urban planning studies:

Ecosystem Function: Processes throughout a landscape interact to define its ecological function. This ability to function is described by Marina Alberti as "the ability of earth's processes to sustain life over a long period of time. Biodiversity is essential for the functioning and sustainability of an ecosystem. Different species play specific functions, and changes in species composition, species richness, and functional type affect the efficiency with which resources are processed within an ecosystem." (2005, p.169).

Resilience: "The ability of a system to adapt and adjust to changing internal and external processes" (Pickett et al. 2004). Resilience in an urban system depends on the city's ability to maintain ecological and human functions simultaneously (Alberti et al. 2003). This ability is often considered an accurate measure of ecological health.

Hierarchy and Scale: Scales are linked in a hierarchical manner, and actions at one level of biological and social organization influences the patterns and mechanisms operating at lower and higher scales (Alberti et al. 2003). In addition to spatial scales, it is important to consider temporal scales. For example, bird abundance and diversity in urban ecosystems varies over time of day, season, and among years (Savard et al. 2000).

Patch: A habitat patch is an area inhabited by a particular collection of species. Patches are surrounded by a matrix of environment that is less hospitable for those species, and the transitional edge between these two areas is know as an "ecotone" (Bailey 2002). Patch structure affects species survival and helps maintain the integrity of biophysical processes, preventing problems such as erosion and flooding (Alberti 2005).



"A larger patch normally has a larger population size for a given species than a smaller patch, making it less likely that the species will go locally extinct in the larger patch" (Dramstad et al. 1996, Plat P3)

In particular, the proportion of edge [edge = (perimeter of patch)/[2*(area of patch)^1/2] in a patch significantly influences species composition (Farina 1998). Landscape fragmentation, which divides large patches, generally causes an increase in edge area. Edge zones have different qualities than patch interiors. For example, forest edges have distinct microclimatic conditions: they experience more sunlight, higher temperatures, and stronger winds than interior areas (Collinge 1996).

These edge effects often alter the community composition of plants and animals that exist there. Further, edge influences may extend a significant distance into a patch. For instance, microclimatic edge effects may reach up to 240 m into a Pacific Northwest Douglas fir forest (Chen et al. 1990 in Collinge 1996). In addition to microclimatic differences, edges in urban or suburban areas are typically subject to human disturbance and invasive species invasion.

Corridor: A habitat corridor is a linear area that provides linkages between patches; a corridor can be terrestrial (vegetated areas) or aquatic (stream and river systems). It may also act as a barrier or filter to species movement, as not all individuals can pass safely. Connectivity provided by corridors is species-specific and depends on whether an individual perceives neighboring areas as fragmented or connected (Bailey 2002).

Metapopulation: A metapopulation is a network of patches, corridors, and matrix that support multiple subpopulations. It can be defined as "a system in which the rate of extinction and recolonization creates a flux of individuals that ensures genetic connectivity between subpopulations" (Farina 1998, p.28).

Non-equilibrium Theory: Recent ecological theory focuses on "processes and dynamics – function – rather than primarily on states and structures" (Pickett et al. 2003, p.374). This non-equilibrium theory recognizes that "ecological systems can have more than one state, including unstable states. For example, succession may not happen in a fixed sequence and may be unpredictable." (Farina 1998, p.125).

Strategies for Urban Ecological Health

Indispensable Patterns:
There are four documented "indispensable patterns" that authors claim provide ecological benefits that cannot be substituted by technological alternatives. These patterns include: large natural vegetation patches, wide vegetation corridors surrounding waterways, connectivity among large patches for movement of target species, and small patches and corridors – "bits of nature" that provide heterogeneity in developed areas (Forman 1995; Forman 2002).

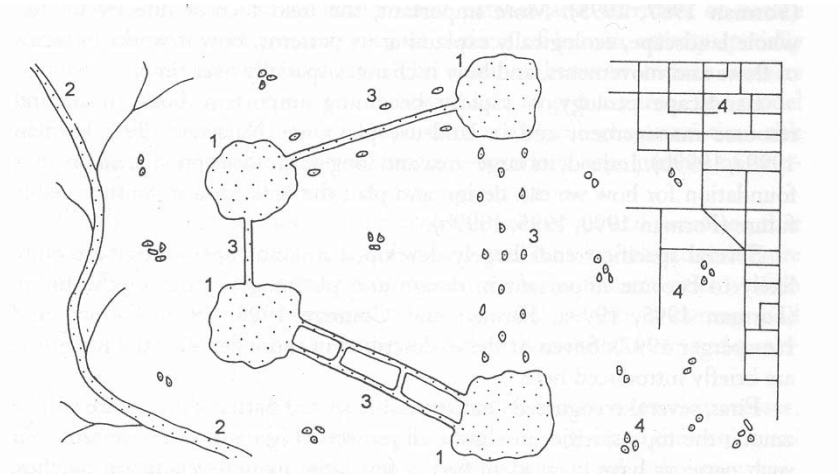
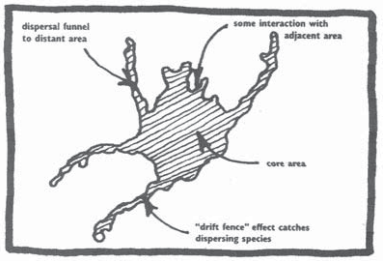
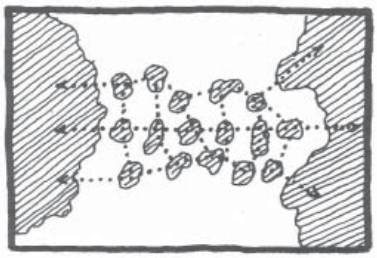


FIGURE 4-3.
Top-priority "indispensable patterns" in planning a landscape based on landscape ecology. 1 = a few large patches of natural vegetation; 2 = major vegetated stream or river corridor; 3 = connectivity with corridors and stepping-stones between large patches; 4 = heterogeneous "bits of nature" across the matrix. See Forman 1995; Forman and Collinge 1995, 1997; Forman and Hersperger 1997.

Forman in *Ecology and Design,* 2002



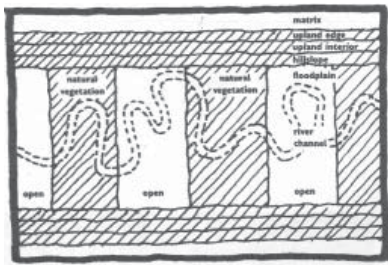
Ecologically Optimum Patch Shape
(Dramstad et al. 1996, Plat E13)



Cluster of Stepping Stones
(Dramstad et al. 1996, Plat C7)

In addition to the above four patterns, ecologists and designers have established a number of strategies for maintaining ecological health that can be applied to urban systems:

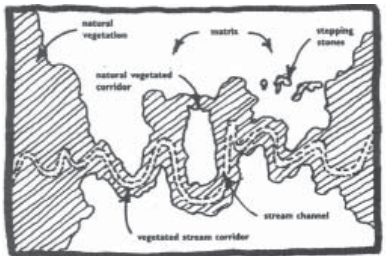
Patches:
Large patches are desirable. They usually have a larger population of any given species than a smaller patch, which makes it less likely that the species will become locally extinct. Large patches are also likely to have multiple habitat types present, which sustains higher biodiversity (Dramstad et al. 1996, Forman 1995). Finally, large patches often have larger interior habitat, which supports species that cannot tolerate edge zones. Small patches can supplement, although not replace, large patches. They can serve as "stepping stones" between larger patches for species dispersal or recolonization and provide heterogeneity in the landscape matrix (Forman 1995).



Corridor Width for a River
(Dramstad et al. 1996, Plat C12)

Several studies have attempted to determine a minimum patch size to support particular types of fauna and flora. For example, research suggests that small mammals, such as rodents and rabbits, need a minimum patch size of 1 to 10 ha. In contrast, the optimal watershed patch size for bull trout is approximately 2500 ha. In general, conservation of 20-60% of natural habitat in a landscape is needed to maintain biodiversity (Valentin et al. 2004). It is important to note, however, that these minimum or optimal patch sizes are affected by the quality of the patch, which depends on patch structure.

The optimal patch structure has been described as "spaceship shaped," with a rounded core area and tendrils that extend outward and facilitate species dispersal (Dramstad et al. 1996). In addition to shape, it is important to consider the orientation angle of the patch relative to surrounding flows, such as wind and water patterns (Forman 1995). When considering patch structure, it is valuable to note that more convoluted patches have a higher proportion of edge habitat, which may negatively impact interior-dependent species. For edge treatments, it is important to note that a vegetative edge that is less abrupt and has high structural diversity has greater habitat and species diversity and is more amenable to species movement across it (Dramstad et al. 1996; Collinge 1996).



Loops and Alternatives
(Dramstad et al. 1996, Plat M2)

Street trees as habitat
www.claremont.wa.gov.au/trees.html

Backyard habitat
http://www.state.de.us/planning/livedel/information/ln_habitat.shtml

Urban pond wildlife
www.tamug.tamu.edu/paddler/Simsbayou.html

Wildlife in an abandoned industrial site
www.geog.ucl.ac.uk/esru/brownfield/justicebig.jpg

Connections:
Continuous, wide corridors of native vegetation are generally considered optimal for terrestrial systems. However, this is often not possible in urban areas and alternative strategies, such as stepping stones, are necessary. The optimal spatial arrangement of stepping stones is a cluster of patches that provides alternate routes for movement while forming an overall linear array between surrounding larger patches (Dramstad et al. 1996). Similarly, continuous riparian corridors are desired and provide the most benefit in terms of bank stability, habitat quality, water temperature, and water quality. Vegetated buffers also cnotribute woody debris (important for streambed complexity) and insects (a vital food source for juvenile salmonids). However, in cases where a continuous vegetated buffer is not possible, Dramstad et al. suggest that riparian buffers that form a “ladder pattern” composed of large patches that cross the floodplain can be fairly effective (1996).

When designing corridors, it is also important to be aware that corridors that are similar to regional patches in vegetation structure and species facilitate movement between patches. A final consideration is how seasonality may affect the quality of a corridor. For example, deciduous trees may not provide acceptable cover in winter when leaves are absent (Farina 1998).

Metapopulation:
A landscape that is primarily coarse-grained with some fine-grained areas is optimal for sustaining a metapopulation. It provides ecological benefits of large patches while adding diversity of habitat through the addition of smaller patches (Forman 1995). For systems where one large patch contains only a limited number of species for that patch type, four or five patches are often the minimum number required for maintaining metapopulation species richness. (Dramstad et al.1996). In considering the arrangement of corridors and patches in a metapopulation, creating loops and alternate routes in a network can reduce the impact of gaps and disturbances in a particular location, which it turn minimize the risk of local extinctions (Dramstad et al. 1996). In envisioning metapopulation networks, it is important to understand that each organism type or species has specific needs and perceptions. For example, species perception of patchiness and corridors may depend on specific visual, acoustic, olfactory, and chemical cues (Farina 1998). Therefore, it is necessary to be specific in stating goals for habitat or biodiversity (Savard et al. 2000).

Enhance Existing Habitat:
In addition to acquiring and restoring habitat patches and corridors, urban ecological function can be augmented by enhancing and connecting existing spaces that serve as urban habitat. These opportunities exist in many forms, such as woodlands and urban forestry, residential property, water bodies, industrial sites and brownfields, building infrastructure (walls and roofs), and cemeteries. In addition to these more human-dominated sites, small undisturbed and undeveloped areas that support high diversity also exist in urban areas. Both human-made and natural refuges should be incorporated in plans so that connections can be made to other patches in the metapopulation network (Farina 2000).

Woodlands provide a first example of urban habitat. Structural diversity in urban forest ecosystems, such as snags, decaying logs, leaf litter, and groundcover, provide habitat for many organisms. For example, large size, spatial heterogeneity, complex vertical structure, and diverse vegetation composition all contribute to higher bird species richness in woodlands (Savard et al. 2000). While woodlots of at least 5 ha can be beneficial, areas of over 10 ha have an increased chance of providing both edge and interior habitat (Valentin et al. 2004). In addition to woodlands, urban forestry – including trees along streets and trees in parks, plazas, and residential property – can provide substantial habitat for various species. For example, birds use tree canopies for breeding, roosting, and feeding (frugivorous species). Likewise, invertebrates including pollen and nectar feeders, leaf-miners, and sapfeeders depend on urban trees for food and habitat (Wheater 1999).

Similarly, residential backyard gardens and residential property can be valuable habitat, as they often contain an ideal mixture of open and sheltered space (Kendle and Forbes 1997; Wheater 1999). Small changes can bring significant habitat benefits. For example, mixing clover with grass seed can provide resources for nectar-feeding insects (Valentin et al. 2004). Similarly, mowing only areas that are necessary for recreation or other human use can enhance nonhuman habitat value (Hough 1995). Gardens can be coordinated to form a continuous corridor of native vegetation behind houses, instead of many small, isolated patches. For example, houses in Village Homes in Davis, California are arranged so that backyards open into a continuous greenbelt that extends throughout the community (Francis 2002; Girling 1994).

Water bodies, including wetlands, ponds, sewage works, industrial lagoons, and reservoirs, can also serve as habitat for fauna including waterfowl, amphibians, and invertebrate species (Kendle and Forbes 1997). Limited human disturbance is important for sustaining many species and should be considered when incorporating water bodies into ecological plans. In the city of Boulder, Colorado, for example, the Boulder Reservoir includes a substantial area that is maintained as a wildlife preserve and is off limits to human activities such as fishing, boating, and swimming (City of Boulder Parks and Recreation website).

Watermelon growing on Michigan State University Green Roof
www.hrt.msu.edu/greenroof

Industrial sites and brownfields are another example of potential sites for urban habitat. These areas can be structurally complex, which means there is the opportunity for multiple forms of habitat. Additionally, the low fertility common on these sites can create refuges for species with low competitive ability that are often excluded from more productive sites (Kendle and Forbes 1997, Wheater 1999). Contamination containment and plans for remediation are usually necessary for ensuring long term health of these sites and surrounding areas.

Building walls and rooftops cover a substantial area in cities. When covered with vegetation, these surfaces can enhance biodiversity, in addition to reducing urban heat island effects and stormwater runoff. Specifically, birds and insects benefit from green roofs and walls (Valentin et al. 2004; Green Roofs for Healthy Cities; Hough 1995). Similar to ground-level patches, green rooftops are most beneficial as habitat when they are spatially connected to other patches.

Cemetery wildlife
www.cedarhillcemetery.org

Cemeteries and churchyards can support biodiverse plant and animal communities. For example, over 100 species of plants often exist in small (0.5 ha) churchyards (Wheater 1999). Wildlife is frequently attracted to these sites because cemeteries typically experience low disturbance and have greater habitat diversity than surrounding environments. In addition to the cemetery plot itself, associated churches can attract animals, particularly birds and bats that find suitable nests on the building structure (Wheater 1999; Valentin et al. 2004).

When considering ecological function in any of the above urban areas, plant composition is an important factor. In order to provide habitat for native fauna, it is essential to maintain diverse native vegetation and to discourage invasion by exotic species. Additionally, each urban habitat location must be considered in the context of its surroundings; connection and distance to neighboring habitat patches significantly influence the success of an individual habitat site.

Urban Bird Box
www.geocities.com

Creative Urban Habitat:
Application of the principles of landscape ecology, including interactions among patches, corridors, and metapopulation habitat networks, is valuable for achieving urban ecological health. In addition to the above strategies, however, plant and animal species can benefit from man-made, “unnatural” habitat, pathways, and resources. For example, artificial chimneys have provided effective habitat for nesting swift (*Alnus* sp.) in urban areas (Cade and Bird 1990 in Savard et al. 2000). Likewise, construction of amphibian tunnels under highways has helped minimize road barrier effects in the United Kingdom (Langton 1989 in Dramstad et al. 1996). Constructed bird boxes and perches provide a final example of effective manmade supplements to urban habitat.

Monitoring and Adaptive Management

The above strategies and suggestions for applying concepts developed in landscape ecology to urban ecosystems provide a helpful starting point for ecological design in urban areas. However, much is unknown about urban ecology in general, and the unique characteristics of each particular city or region further complicate conservation attempts. Therefore, long-term monitoring and a policy of adaptive management are essential to enhancing urban ecological function.

Continual evaluation of various conservation strategies with respect to species population dynamics, microclimate, or other parameters, enables educated adjustment to render the strategy more effective. In essence, "the maintenance of large scale processes is vital for every small scale 'ecosystem' and, considering the broad time scale at which most large scale landscapes change, long term monitoring actions are necessary" (Bailey 2002, p.87).

> ***"Projected rates of continued human population growth will place increasing demands on natural resources and will continue to alter the spatial structure of native habitats. Landscape architects and planners are uniquely positioned to incorporate this knowledge of the ecological consequences of landscape spatial structure into creative landscape design and planning solutions" (Collinge 1996).***

References

Alberti, Marina, John M. Marzluff, Eric Shulenberger, Gordon Bradley, Clare Ryan, and Craig Zumbrunnen. 2003. "Integrating humans into ecology: opportunities and challeneges for studying urban ecosystems." *Bioscience*. 53 (12): 1169-1179.

Alberti, Marina. 2005. "The effects of urban pattern on ecosystem function." *International Regional Science Review*. 28 (2): 168-192.

Bailey, Robert G. 1987. *Ecoregion-Based Design for Sustainability*. New York: Springer.

Birkholz, Liz. 2004. "Ecological Guidelines for Rehabilitating Landscapes: Managing Change in Coastal Zones." Master's Thesis in Landscape Architecture. University of Washington.

City of Boulder, Colorado Parks and Recreation website: http://www.ci.boulder.co.us/parks-recreation/RESERVOIR/reservoir_main.htm.

Collinge,Sharon K. 1996. "Ecological consequences of habitat fragmentation: implications
for landscape architecture and planning." Landscape and Urban Planning. 36: 59-77.

Dramstad, Wenche E., James D. Olson, and Richard T.T. Forman. 1996. *Landscape Ecology Principles in Landscape Architecture and Land-Use Planning*. Harvard University Graduate School of Design, Island Press, and the American Society of Landscape Architects.

Farina, Almo. 2000. *Landscape Ecology in Action*. Dordrecht: Kluwer Academic Publishers.

Farina, Almo. 1998. *Principles and Methods in Landscape Ecology*. Cambridge: Chapman and Hall.

Forman, Richard TT. 1995. “Some general principles of landscape and regional ecology.” *Landscape Ecology.* 10 (3): 133-142.

Forman, Richard. “The missing catalyst: design and planning with ecology roots.” Editors Bart Johnson and Kristina Hill. 2002. *Ecology and Design: Frameworks for Learning*. Island Press.

Francis, Mark. 2002. “A Case Study in Community Design.” Landscape Journal 21 (1): 23-41.

Girling, Cynthia and Kenneth Helphand. 1994. Yard, Street, Park: The Design of Suburban Open Space. New York: John Wiley and Sons, Inc.

Green Roofs for Healthy Cities website. Updated 2005. http://www.greenroofs.org/.
Hough, Michael. 1995. *Cities and Natural Process*. New York: Routledge.

Kendle, Tony and Stephen Forbes. 1997. *Urban Nature Conservation*. London: E & FN SPON.

Pickett, Steward TA, Mary L Cadenasso, and Morgan Grove. 2003. “Resilient cities; monitoring, models, and metaphor for integrating the ecological, socio-economic, and planning realms.” *Landscape and Urban Planning*. 69: 369-384.

Robinson L, Newell JP, and Marzluff JA. 2005. “Twenty-five years of sprawl in the Seattle region: growth management responses and implications for conservation.” *Landscape and Urban Planning*. 71 (1): 51-72.

Savard, Jean-Pierre L, Phillipe Clergeau, and Gwenaelle Mennechez. “Biodiversity concepts and urban ecosystems.” 2000. *Landscape and Urban Planning*. 48: 131-142.

Schaeffer, Valentin, Hillary Rudd, and Jamie Vala. 2000. *Urban Biodiversity*. Ontario: Captus Press, Inc.

Wheater, C. Philip. 1999. *Urban Habitats*. London: Routledge.

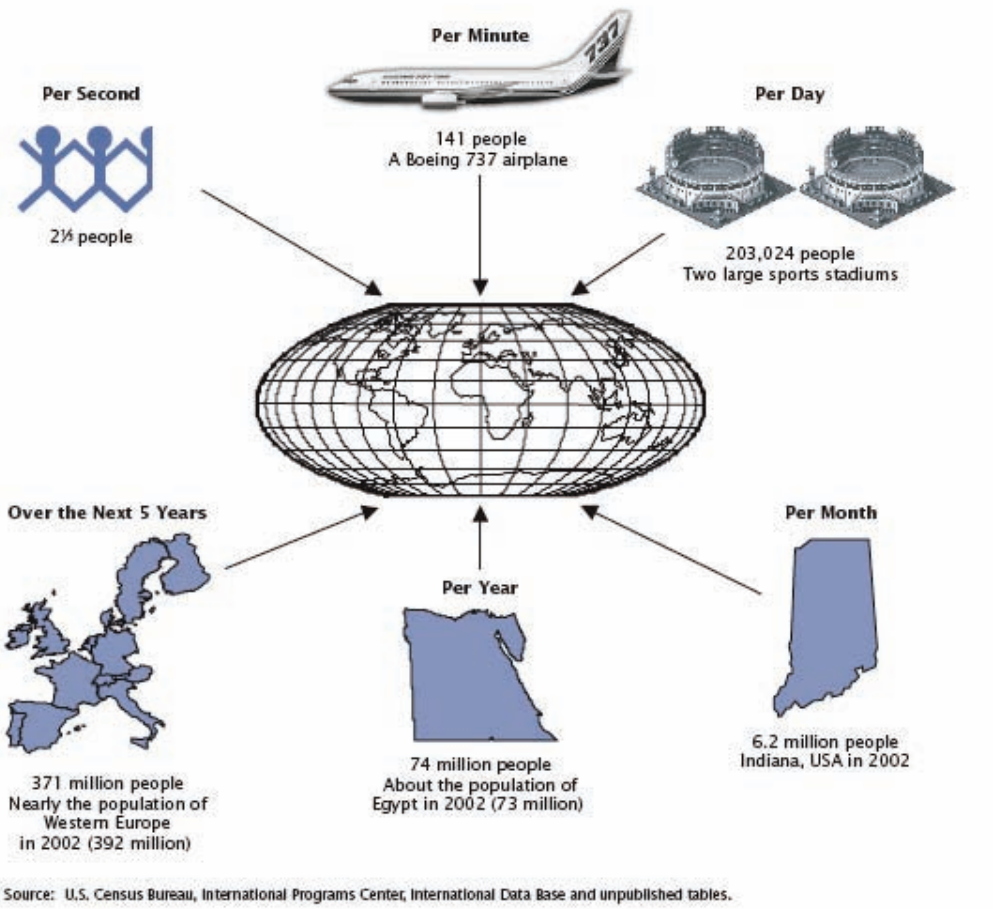
Demographic Projections

Jocelyn Freilinger

Predicting the future is a tricky business. It is both an art and a science. Numerous judgment calls must be made in formulating any number of algorithms that demographers might use to estimate population growth. Any number of variables can behave in unpredicable ways: migration, the impacts of emergent diseases and advances in medical technology, and natural disasters can all throw our predictions into disarray.

Still, generating potential scenarios is still a useful exercise for those who need to anticipate and plan for the changes that our society goes through.

There is no doubt that the human population is growing to unprecedented numbers. In 2006, demographers estimate that the global population will reach 6.5 billion and that the U.S. population will reach 300 million. The U.S. Census Bureau published the graphic below which illustrates what this meant for the year 2002.



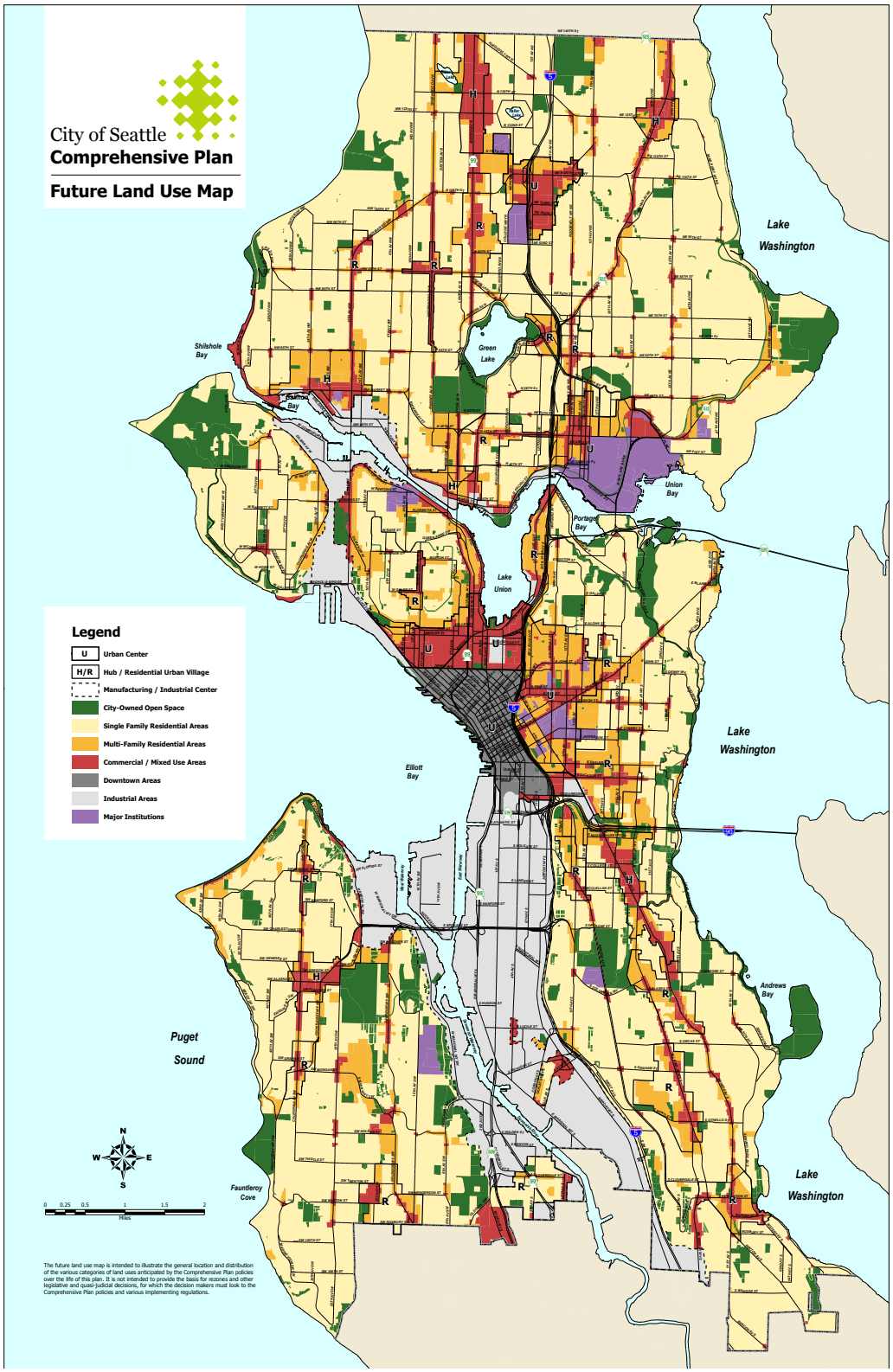
Source: U.S. Census Bureau, International Programs Center, International Data Base and unpublished tables.

	Population by year				
Country or area	1950	2005	2015	2025	2050
			(thousands)		
World[1]	2 519 470	6 464 750	7 219 431	7 905 239	9 075 903
World[2]				7 834 028	9 078 851
USA[1]	157 813	298 213	325 723	350 103	394 976
USA[2]				349 666	420 081
			(ones)		
WA State low[3]		5,935,479	6,460,127	6,925,750	
WA State high[3]		6,621,080	7,867,806	9,215,093	
King County low[3]		1,721,585	1,813,290	1,894,659	
King County high[3]		1,851,128	2,080,093	2,318,368	

[1]UN Department of Economic and Social Affairs
[2]US Census Bureau
[3]Washington State Office of Financial Management

The table above shows population projections from several different sources. We can observe several notable trends in these numbers. First, that the growth rate of the U.S. will be plateauing relative to the growth rate of other countries. At the regional level, we expect Washington State to grow by as much as 1 to 2.5 million; up to half a million of this growth will be in King County.

The City of Seattle's Future Land Use Map (opposite) reflects a growth plan that theoretically will accommodate 40-60 years of growth. The current growth strategy encourages densification of neighborhood business centers as a strategy to decentralize growth in a somewhat organized way.


City of Seattle
Comprehensive Plan
Future Land Use Map
Legend
U Urban Center
H/R Hub / Residential Urban Village
Manufacturing / Industrial Center
City-Owned Open Space
Single Family Residential Areas
Multi-Family Residential Areas
Commercial / Mixed Use Areas
Downtown Areas
Industrial Areas
Major Institutions
Lake Washington
Shilshole Bay
Green Lake
Fremont Bay
Union Bay
Portage Bay
Lake Union
Elliott Bay
Lake Washington
Andrews Bay
Puget Sound
Fauntleroy Cove
Lake Washington
N
W
E
S
0 0.25 0.5 1 1.5 2
Miles
The future land use map is intended to illustrate the general location and distribution of the various categories of land uses anticipated by the Comprehensive Plan policies over the life of this plan. It is not intended to provide the basis for rezones and other legislative and quasi-judicial decisions, for which the decision makers must look to the Comprehensive Plan policies and various implementing regulations.

References

Recent Census and Projection info:

Global/Federal sources

World Population Prospects: The 2004 Revision http://www.un.org/popin/data.html
Global Population Profile: 2002 http://www.census.gov/ipc/www/wp02.html (global trends)(2004)

State and Local

http://www2.cityofseattle.net/GIS_Map/sub_interim.asp?topic='Demographics'
Washington State County Population Projections http://www.ofm.wa.gov/pop/gma/
Future Land Use Map. http://www.ci.seattle.wa.us/dpd/stellent/groups/pan/@pan/@plan/@proj/documents/Web_Informational/cos_004501.pdf

General Reference

Academic

http://faculty.washington.edu/~krumme/350/population.html#clippings
http://www.cses.washington.edu/cig/

Other

O'Neill, et al. "A Guide to Global Population Projections." *Demographic Research*. v. 4, article 8, 13 June 2001.
http://www.demographic-research.org/Volumes/vol4/8/4-8.pdf

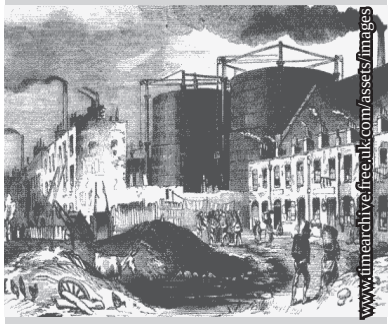
Roberts, Sam. "Come October, Baby Will Make 300 Million or So." *The New York Times*. 13 January 2006.

Public Health and Open Space

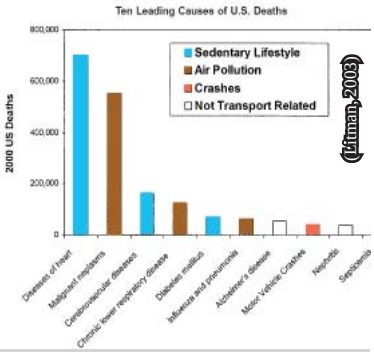
Betsy Severtsen

History of Planning for Public Health

The major health problems of the 19th Century city revolved around infectious diseases. Because of this, public health officials became the first urban planners; they provided zoning and regulations that discouraged crowding and increased overall sanitation in urban areas. Policies and attitudes from this time period still encourage the dominant view that cities and urban concentrations are unhealthy, even though for the most part modern public health crises no longer revolve around infectious diseases.



The major public health problems of today include chronic diseases, toxic exposure, injuries and violence. The leading cause of U.S. deaths (heart disease) is often caused by a sedentary lifestyle, characterized by low physical activity and a high caloric (but low nutrient) diet. Physical inactivity is a major contributor to many other mental and physical health problems and in fact, leads to nearly 200,000 deaths per year (Perdue, 2003).



While public health officials have been actively involved in the planning and design of cities in the past, their contributions to combat inactivity and poor nutrition through modern city planning and built environment design is only just beginning.

What are the public health impacts of access to open space?

Open space can provide opportunities for active recreation and transport, as long as there is sufficient access:

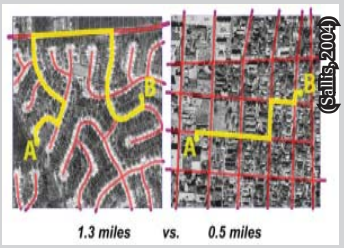
- People living in areas with few outdoor recreation facilities were more likely to be overweight (Catlin, 2003).
- Children (especially boys) who walked to school were more physically active the rest of the day than those who were driven (Cooper, 2003).
- Older women living within walking distance of stores, trails or parks had significantly higher pedometer ratings than women who did not. The more destinations that were nearby, the more these women walked (King, 2003).

Open space can aid in mental restoration:

- Providing a sense of fascination as well as a greater extent, separating users from distraction (Kaplans, 1998), reducing negative emotions, holding a person's attention, and blocking stressful thoughts (Ulrich, 1981) have all been shown to occur in natural landscapes.
- Patients with views of nature have significantly less post-operative stay times, less medication use and experience fewer minor post-operative complications than patients with views of a wall (Ulrich, 1984).

There are health implications to certain landscape materials:

- The chemicals incorporated into open space through fertilizers for lawns can lead to cancer in wildlife and humans (Steingraber, 2002).
- Total emissions from lawn mowers and tractors have surpassed cars in the amount of several pollutants that cause ozone formation (Lyman, 2000).
- Trees as opposed to grasslands provide the greatest airborne particulate sequestration, finer more complex foliage patterns of conifers can allow for greater particulate capture (Beckett, 2000)



(Sallis, 2004)

Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.

~W.H.O., 1948

Are there particular populations that benefit from more open space? What types of open spaces are most beneficial?

Population	Healthy Choice	Open Space Considerations
Children and Adolescents (Foxhall, 2004) (Stratton, 2000)	Walking to school	Safe, connected and short distance (grid system) sidewalk routes or trail system with adequate sight lines.
	Playing outside near homes	Speed humps or other traffic calming measures in and around roadways.
	Playing outside at school	Marking pavement for play (hop-scotch, 4-square) and providing balls, equipment and supervision.
Low socio-economic status individuals, especially low SES ethnic minorities and senior citizens (Popkin, 2005)	Active Recreation	More programs and/or facilities organizing space, especially if street crime is prevalent
	Active Transportation	Safe, connected and short distance routes: may incorporate walking routes with driving routes (driver "eyes on street") to enhance feeling of safety.
	Nutrition	Besides greater access to supermarkets and health stores, more farmers markets, p-patches and rooftop gardens within neighborhood
Female-heads of household (Eyeler, 2002)	Combining childcare with physical needs of mother	Intergenerational recreation areas like walking tracks surrounding playgrounds
Those with "no time for exercise"	Active Transportation	Close by trails linking destination hubs, grid streets, mixed use development (closer proximity to errand destination)
	Active Recreation	Closer proximity to home and/or work

References:

Beckett, K.P., Freer-Smith, P.H. and G. Taylor. 2000. Particulate Pollution Capture by Urban Trees: Effect of Species and Windspeed. *Global Change Biology*. 6: 995-1033

Catlin, T.K., Simoes, E.J. and R.C. Brownson. 2003. Environmental and Policy Factors Associated with overweight among Adults in Missouri. *American Journal of Health Promotion.* 17: 249-258.

Cooper, A.R., Page, A.S., Foster, L.J. and D. Qahwaji. 2003. Commuting to School: Are Children Who Walk More Physically Active? *American Journal of Preventative Medicine*. 25(4):273-276.

Eyeler, A.A, Vest, J.R., Sanderson, B., Wilbur, J., Matson-Koffman, D., Evenson, K.R., Thompson, J.L., Wilcox, S. and D.R. Young. 2002. Environmental, Policy and Cultural Factors Related to Physical Activity in a Diverse Sample of Women: The Women's Cardiovascular Health Network Project - Summary and Discussion. *Women and Health.* 36(2): 123-134.

Foxhall, K. 2004. Speed humps work well in Oakland. *Better Roads.* 74: 66-67.

Kaplan, R., Kaplan, S. and R. Ryan. 1998. "Restorative Environments" in *With People in Mind*. (pp. 67-77). Island Press.

King, W.C., Brach, J. and S. Belle. (2003). The Relationship between Convenience of Destinations and Walking Levels in Older Women. *American Journal of Health Promotion.* 18: 74-82.

Litman, T. 2003. Integrating Public Health Objectives in Transportation Decision-Making. *American Journal of Health Promotion.* 18: 103-108.

Lyman, F. 2000. Smog Engulfs Downtown Los Angeles. MSNBC Report, 23 May.

Perdue, W.C., Gostin, L.O. and L.A. Stone. 2003. Public Health and the Built Environment: Historical, Empirical and Theoretical Foundations for an Expanded Role. *The Journal of Law, Medicine and Ethics.* 31(4): 557-566.

Popkin, B.M., Duffey, K. and P. Gordon-Larsen. 2005. Environmental Influences on Food Choice, Physical Activity and Energy Balance. *Physiology & Behavior*. 86: 603-613.

Sallis, J.F., Kraft, K. and L.S. Linton. 2002. How the Environment Shapes Physical Activity: A Transdisciplinary Research Agenda. *American Journal of Preventative Medicine.* 22(3): 208.

Steingraber, S. 2002. "Exquisite Communion: the body, landscape and toxic exposures". In Johnson, B.R., Hill, K. (Eds.), *Ecology and Design: Frameworks for Learning*. Island Press., Washington D.C., pp. 192-202.

Stratton, G. 2000. Promoting children's physical activity in primary schools: An intervention study using playgrounds markings. *Ergonomics*. 43: 1538-46.

Ulrich, Roger S. 1981. "Natural Versus Urban Scenes: Some Psychophysiological Effects." *Environment and Behavior,* 13 (5): 523-553.

Ulrich, R.S., 1984. "View Through a Window may Influence Recovery from Surgery." *Science.* 224: 420-421.

Place-Based, Historically Grounded Urban Ecology: A Century of Park Planning in Seattle

Sarah Dooling[1]
Gregory Simon[2*]
Ken Yocom[3]
[1]*University of Washington, Department of Urban Design and Planning*
[2]*University of Washington, Department of Geography*
[3]*University of Washington, Program in Built Environment*

***Corresponding Author**
Gregory Simon
University of Washington
Department of Geography
Box 353550, Smith 408
Seattle, WA 98195
glsimon@u.washington.edu
Fax: (206) 543-3313
Voice: 206.399.8138

Abstract. This research responds to calls from within the field of urban ecology to explicitly incorporate humanities based research in order to achieve robust interdisciplinarity. Our research provides an example of a place-based, historically grounded urban ecological analysis. We use this framework to analyze over a century of park planning and development within the city of Seattle. We identify four eras of park planning that are linked by a comprehensive one hundred year park plan. This case study examines how the political, cultural, and economic aspects of park planning have produced and been influenced by long-term trends and historical contingencies. This research also offers practical insights for effective contemporary urban planning, emphasizing the need for flexible and adaptive long term plans when confronted with unpredictable events, emerging political arrangements, changing cultural priorities, and shifting fiscal climates.

Urban ecology; Seattle; urban parks; humanities; interdisciplinary; long-term planning; Olmsted Firm

Introduction

Seattle is a city of over half a million residents with approximately 9% of its total area designated as park or open space (US Census, 2000). There are currently more than 400 city-owned and maintained parks, including forested areas, boulevards, playfields, playgrounds, and golf courses. Guided by a vision and comprehensive plan for parks developed in 1903 by John C. Olmsted, Seattle has woven an extensive system of park spaces into the fabric of the city. This commitment to parks and open space has persisted throughout the development history of the city. Although the contemporary park landscape is a physical legacy of the 1903 Olmsted Plan, shifting political processes, fluctuating economic conditions and evolving cultural ideologies have influenced the

implementation of the plan over the past century. More than a century after its initial implementation, the plan continues to be interpreted and applied within the context of a densely settled urban system, where the converging interactions between politics, economics, and park planning culture are in some ways similar, yet inherently distinct from the earliest period of park planning in Seattle.

Our research explores the development and influence of park planning in Seattle from 1884 to 2004 within an analytic framework of urban ecology (see Alberti et al 2003). Within natural science research, urban ecology promotes the re-integration of humans into researching the ecology of urban systems (May 2004; Albert et al 2003; Pickett et al 2001; Grimm et al 2000. Much of the natural science research about urban systems has defined these systems as ecosystems without explicitly acknowledging the influence of humans on the biophysical landscape (McIntyre 2000). However, as ecological processes in urban and urbanizing environments are increasingly impacted by development pressures, natural scientists have become motivated to perceive urban environments as human dominated systems which function in distinct ways from non-human dominated systems. The growing appreciation among natural scientists for the role of urban social systems in driving urban ecological change facilitated the construction of an urban ecological framework that perceives urban systems as simultaneously co-evolving human and natural systems (Alberti et al 2003).

The application of an urban ecological framework allows for the detailed study of interactions between human (including political, economic, and cultural) and biophysical (including hydrological, climatological, and terrestrial) conditions as well as resulting patterns of environmental and social change. Urban ecology has been positioned between the humanities and science, with some urban ecologists proposing that humanities become the backbone of rigorous urban ecology research (Alberti et al 2003). Although, most urban scholars acknowledge the importance of history and culture, few recognize the influence of historical contingencies on the social and ecological patterns that emerge in urban systems. May (2004) explicitly incorporates a humanistic approach into an urban ecological analysis, and articulates the influence of historical conditions and cultural practices in the development of an urban area. Building upon the work of May (2004), we expand this urban ecological framework to incorporate methods of historical analysis for exploring how the interactions between politics,

economics, and ideologies have influenced park planning and development over time.

Our framework embraces a place-based, historically grounded approach focusing on the relationship between patterns of park development, shifting political arrangements, changing cultural conditions, and fluctuating fiscal resources within park planning. We ask three questions:

1. what major political, economic, and cultural processes have influenced park planning in Seattle over the past century;
2. how have these processes interacted to produce significant and distinct periods of park planning (including acquisition and development) activity; and
3. how has the 1903 Olmsted Plan persisted and adapted to the shifting processes of park planning during this same time.

We define the politics of park planning as the relationship between the Seattle Parks and Recreation Department (SPRD), Seattle city elite and local community members in the process of park planning. The economics of park planning refers to private, city, regional, and federal fiscal resources used to acquire, develop, and maintain parks. Park planning culture is viewed as the influence of citywide agendas concerning park acquisition, maintenance and development. Primarily driven by local factors, these three components of park planning are further influenced by scalar economic, political, and cultural conditions. We explore each component individually, while also paying attention to their interactions in order to describe and situate the application of the 1903 Olmsted Plan. By incorporating an historic analytic method to Alberti et al's framework of urban ecology, we are able to identify fluctuations in long-term processes, which lead to a rich understanding of the evolution of urban systems.

Our description of the process of urban park planning and development over one hundred years motivates an understanding of cities as ecological systems, where the interaction between human systems and the physical environment produces tangible outcomes like parks on the landscape. The inseparability of politics from the park planning process has been well established by previous scholars (Rothman 2003; Cranz 1982). Park historian, Galen Cranz (1982) documents the emergence of new cultural ideologies and forms of public engagement, specifically addressing changing demands from citizens on the

creation of new park designs and models. She acknowledges the impact of economics on urban park development, claiming parks have received increasingly smaller portions of city revenues, resulting in an increased dependence on federal funds for acquisition and maintenance. Our research builds upon Cranz's work. Where Cranz identifies large, nation-wide patterns based on three cities, we explore the single case study of Seattle, a city known both for its initial commitment to cultivate a park system and for its contemporary participatory approach to urban park planning. Cranz (1982) asserts that the history of urban parks is relatively homogenous. Our research suggests that Seattle shares some similarities with other urban centers (i.e., fiscal challenges, use of parks for social reform and public health agendas), yet also possesses unique interactions between the politics, economics, and culture of park planning (i.e., the influence of a 100 year park plan, a progressive participatory park planning model and a natural endowment of hilly forested terrain, mountain views and scenic waterways). We situate our research within a broader framework of urban ecology, using the history of park development as a focal point to highlight the contributions of historical analysis for understanding complex urban environments.

We define historical analysis within this framework as the expansion of the sampling time frame in an effort to capture contingencies and the variation associated with long-term and accumulative changes in the development of urban systems. Tracing the development, dormancy and resurgence of the Olmsted Plan over one hundred years illustrates challenges and adaptive methods that accompany long term planning efforts. May (2004) emphasizes the influential power of ideology espoused by elites in high society on city development while Rozensweig (1983) emphasizes the necessity of acknowledging citizen influence on the design and development of urban landscapes. Our research incorporates both of these perspectives. We demonstrate that park planning including the process of implementing and adapting the Olmsted Plan in Seattle is a product of efforts undertaken by political and economic elites as well as local neighborhood groups. We further argue that the constellation of institutional, elite, and local citizen participants, as well as the influence of regional and national park planning trends, has impacted both the process of park planning and the kinds of parks produced in Seattle.

This paper makes three significant scholarly contributions:

1. **We respond to calls from within the field of urban ecology to utilize methods and epistemologies prevalent in the humanities.** Scholarship commonly found in historical and cultural studies should be rigorously incorporated into the field of urban ecology to achieve robust interdisciplinarity. Specifically, we have developed a *place based, historical analysis* to understand urban ecosystems. This form of analysis is based on a city-specific case study and draws explanatory power from an assemblage of unique historical and contemporary actors, events and processes. Although, we recognize that our research is limited primarily to humanities-based methodologies, we maintain substantive interdisciplinarity by addressing the cultural, economic, political and physical dimensions of park development and landscape change in Seattle. Our research provides an example of analytical methods and an epistemological orientation commonly identified with research in humanities.
2. **Our findings illustrate that incorporating humanities into the field of urban ecology broadens our understanding of urban ecosystems.** Incorporating a humanities orientation allows us to explore the cultural, political, and economic aspects of an urban system, the uniqueness of the social and physical environment and the unpredictable outcomes of a place's history. We develop an in-depth, place-based analysis that integrates the cultural, economic and political aspects of park planning in Seattle. This analysis highlights how relationships between these three aspects of park planning have both produced and been influenced by long-term trends and historical contingencies. In Seattle, one hundred years of park planning has been influenced by: stochastic financial resource availability across federal, regional, state, and city scales; an evolving park planning culture that included shifts in institutional ideologies and priorities; and an ever changing political fabric that resulted in emergent arrangements of political representation and power. By incorporating an extended time frame and the cultural aspects of urban systems we are providing an interpretation that is typically not provided by urban ecological research projects developed within dominant natural sciences epistemologies . We argue that a humanities-based understanding of urban systems contributes a rich, multi-faceted understanding to the interpretations generated by natural science-based research.

3. **Our research shows how a place-based, historically grounded urban ecology can offer practical insights for effective contemporary urban planning.** A historical analysis of the 100-year Olmsted Plan in Seattle reveals important lessons for successful long term urban planning. Specifically, our study illustrates the need to implement and maintain flexible and adaptive long-term plans that can remain viable in the face of unpredictable events, emerging political arrangements, changing cultural priorities, and shifting fiscal climates.

Methods

By conducting historical analysis within an urban ecological framework, we developed a mixed methodological approach for determining the relationships and nuances between the ideological, economic, and political components of park planning within Seattle.

We first constructed a database containing: the date of acquisition; method of acquisition (purchase, condemnation, donation); purchase amount; source of funding for acquisition (i.e., park bonds, levies); location of park; type of park (park, boulevard, playfield, playground, golf courses and community centers); and size of park. The database included parks acquired in Seattle between 1884 and 2003. We identified all designated park parcels excluding those less than 0.25 acres that functioned as medians, places, and triangles. Although owned by SPRD, these parcels are typically managed by local residents. The database accounts for 93% of all park properties. A histogram of the data representing the numbers of parks acquired through donations, direct purchase, condemnation, and transfer of ownership reveals four discrete park eras, including three periods of intense park acquisition activity and one period of relative inactivity (Figure 1).

We then conducted a content analysis of primary sources such as the Seattle Parks and Recreation Department (SPRD) Annual Reports and park history files, as well as local newspaper accounts, and official correspondence between SPRD, the Engineering Department, and Seattle City Council. Information regarding the SPRD and other stakeholder agendas regarding park acquisitions, changing organizational structure within SPRD, and shifts in civil society participation were recorded. We concentrated our data collection on the

periods of park acquisition activity; however the period of inactivity was also examined to identify shifts in management and acquisition strategies for park land that constrained acquisitions and development efforts.

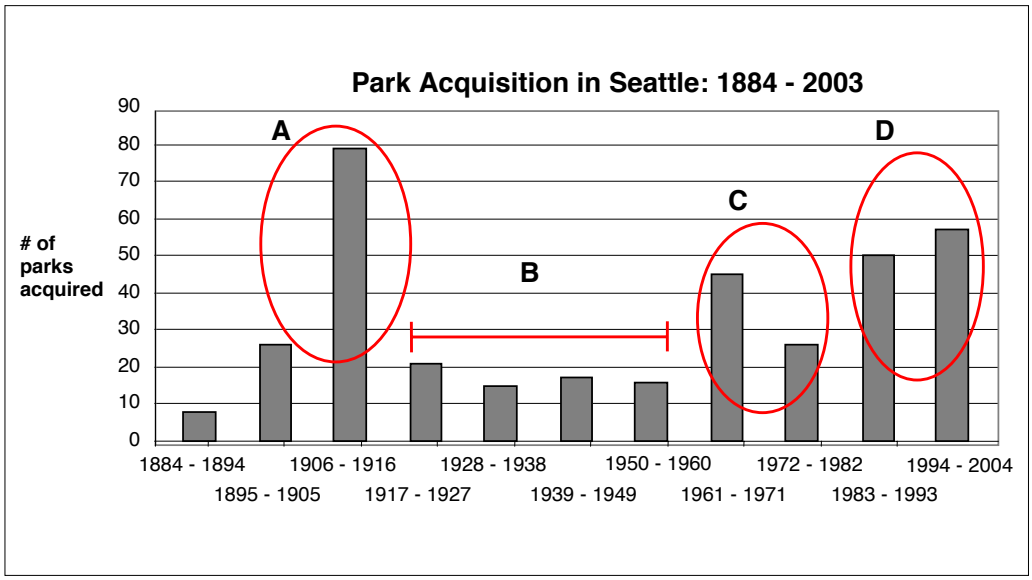


Figure 1: Eras of park planning in Seattle between 1884 and 2004. The three periods with high rates of park acquisition are: (A) The Olmsted Vision 1884 – 1913, (C) Urban Challenges, 1968 – 1982, and (D) Olmsted Revised, 1990 – 2003. The phase of inactivity is referred to as the period of (B) Competition and Constraints (1915-1966).

Eras of Park Planning

In the following sections we present the eras of park planning, while keeping in mind the political, economic, and cultural trends in park planning and their collective influence on the process of park development and the types of parks produced. These periods of activity are named 'the Olmsted Vision', 'Urban Challenges', and 'Olmsted Revised'; and the time of inactivity is named the period of 'Competition and Constraints'. We present a narrative history of each period and then discuss in more detail the major organizing themes that dominate Seattle's history of park planning. We conclude with lessons we have learned from conducting our historical analysis within the framework of urban ecology, by focusing on the contribution of historic analytics and the challenges and opportunities of multiple epistemologies in urban ecology research.

The Olmsted Vision (1884-1913)

In 1884, Denny Park was obtained by the city of Seattle, marking the official beginning of Seattle's park system. Nearly 20 years later, the park

acquisition and planning process was dominated by the development of the 1903 Olmsted Plan, a document that reflected the commitment on the part of influential city elites, politicians, and local citizens to the design and creation of a comprehensive parks system. An interweaving set of political, economic, and cultural conditions greatly influenced the adoption and actualization of an Olmsted-based park planning agenda. The first period of park acquisition was heavily influenced by institutional and city elite interests who viewed parks as a means of refining and beautifying the urban landscape. They also imagined Seattle as the economically prosperous hub of the Northwest and parks as a necessary feature of this elite city status. Driving much of the early parks development activity was a fear of current and future fiscal constraints and land scarcity. As the city population and demand for urban infrastructure grew, the city of Seattle acted quickly to secure extensive parkland.

Fluctuating economic conditions greatly facilitated urban development including the creation of parks in Seattle. From its founding in 1856, and through several tenuous decades of development, the small port town of Seattle was known as an isolated frontier outpost in the far northwest corner of the nation; yet by the turn of the century, the city was steeped in economic competition with Tacoma, a smaller town 30 miles to the south. The growing population of political and economic elite within the city wanted to establish Seattle as the center of Pacific Northwest commerce while providing the city with an aura of civic growth, sophistication, and most importantly material wealth.

Much of the economic prosperity of this period can be attributed to the Alaska-Yukon gold rush between 1896 and 1898 (Berton 1965). The port town of Seattle served as the last major port for supplies as perspective miners made their way north. Local merchants reaped the economic benefits. This prosperity brought with it opportunities, attracting investors, speculators, and future residents. Between 1890 and 1900, the resident population of Seattle increased from 63,000 to 80,000. A decade later, the city's population had increased nearly 300%, reaching 240,000 residents.

As the population and physical city grew, so did the local economy. Such growth was intrinsically linked to the transformation of the biophysical landscape and the waterways surrounding the region. Local hydrologic, timber, tideland and soil resources were harnessed to develop the nascent urban landscape and to

develop the required infrastructure for its rapidly increasing population (Klingle 2001). The city also began to refashion its landscape through an extensive grading process designed to level the steep landscape of the Puget Sound shoreline in order to increase the buildable area of the city. The biophysical environment provided both opportunities and limitations for the diversity of urban projects in the emerging city, including the development of a citywide parks system. The drive for economic competition, coupled with population growth and city expansion, were important factors that led to the commission and subsequent adoption of a comprehensive park plan developed by John C. Olmsted in 1903. Seattle, and its future park system, was to be carved out of, and built into, the surrounding physical environment as a result of this early economic prosperity.

Early on, Seattle Park Commissioners recognized that in order to foster a refined citizenry and powerful local and regional economy that was attractive to merchants and investors, the city needed to take full advantage of its environmental setting. Consistent with romantic ideals of urban society in the United States during this period the Seattle Park Commissioners stated,

> "Nature has blessed Seattle with a magnificent setting for a beautiful park system. With the placid waters of the Puget Sound…Lake Washington…the lofty Olympic Mountains…the Cascades…with two large lakes within the city itself, what more could one conceive in the way of scenic environment" (Park Board Commissioners 1912, p.9).

City boosters hoped that harnessing these environmental aesthetics would help to acculturate a sense of high-class identities. As the park commissioners wrote in their 1893 Annual Report to the City Council, "Proper provision should be made for a system of parks and avenues as an agent of humanizing and refining the community" (Park Board Commissioners 1893, p. 3).

Figure 2: This 1920 image of **Mt Baker Park** portrays the aesthetic, sophisticating ideals of the Olmsted plan as experienced by park visitors. **(Source: Seattle Municipal Archives)**

A decade later, Seattle's Board of Park Commissioners hired the renowned Olmsted Brothers landscape firm from Brookline, Massachusetts to design a connected system of parklands across the city. The Park Commissioners wrote, "Our citizens were quick to realize that with nature's endowment we had before us a wonderful opportunity to develop a park system which would attract the eyes of the nation." (Park Board Commissioners 1912, p.9). Urban parks of this period were viewed as civilizing features of the congested and polluted cities; these parks represented the social refinement, civic health, and aesthetic beauty necessary for creating a modern, elite and nationally recognized city (Cranz 1982).

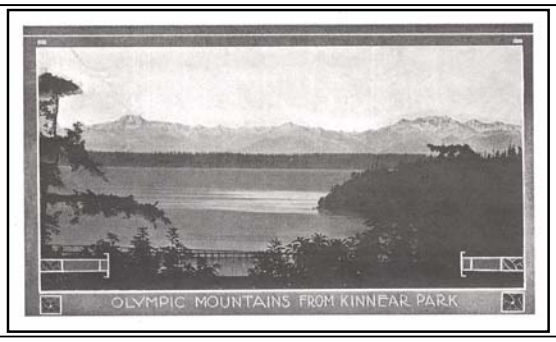


Figure 3: Report from Parks Department shows view from **Kinnear Park**. During the early 1900s, Seattle parks provided aesthetic getaways or 'portals' into the surrounding (**Park Board Commissioners Report 1913, p.8**)

The Olmsted Firm presented a one hundred year plan for the implementation and development of a citywide park system. The hundred-year time frame allowed the city to implement the plan gradually. A key strategy, recommended by John C. Olmsted, was the condemnation and acquisition of large tracts of land. However, a rising population brought about both supply and demand side pressures, which actively influenced the timing and rate of park acquisition. The Park Commissioners acknowledged the threat of increasing land prices and increasing human population for the development of a comprehensive park system (Park Board Commissioners 1904, p. 43; 1909, p.11). In the early stages of park development, the notion of scarcity was also prevalent. The notion of scarcity was embedded in the fundamental ideology of the Olmsted Plan and in institutional strategies for park acquisition and development.

A major goal of the 1903 Olmsted Plan titled Parks, Playgrounds, and Boulevards for Seattle was to produce an opportunity to commune with nature within the city. Such an experience was already perceived to be threatened by rapid urbanization. Between 1908 and 1912, Schmitz Park Preserve was donated to the city to bring the urban citizenry "close to nature" while simultaneously

protecting some of the last stands of old growth Douglas Fir in the city (Park Board Commissioners 1913, p.38). After its donation, Schmitz Park Preserve was maintained as a forested ravine because the owner perceived a scarcity of old growth forest due to extensive logging practices in Seattle's early history.

The creation and equitable distribution of playgrounds was another goal of the 1903 plan (Sheridan 2004). Echoing Olmsted's concern over the equity of park distribution, and responding to the Board of Commissioners concerns over diminishing opportunities for securing new parklands, the 1903 Report of the Park Commissioners (p. 50) indicated the need to acquire playgrounds. Playgrounds were intended to provide opportunities for active recreation. The 1922 Report of Park Board Commissioners measured desired access to playgrounds as within half a mile of every residence. Achieving spatial equity of park distribution across the city was an important benchmark if the Olmsted Plan was to be considered successful.

Figure 4: Schmitz Park is presented by the Parks Department as an urban refuge where the public may get "close to nature" and leave the stresses of urban life behind. **(Source 1913 Park Board Commissioner Report, p38)**

In 1904, despite resistance from the City Council, the Board of Park Commissioners was granted administrative authority over the parks and boulevards. It was argued that this administrative shift would take decision-making power out of bureaucratic hands and better serve the needs of the public (Seattle Mail and Herald 1904). With this transition came a series of Park Bonds put forth by the City. Every two years, between 1907 and 1912, city residents

approved bonds totaling over $5 million (approximately $20 million in 2005 dollars) for the acquisition, development, and management of parklands within the city (Bagley 1906). While park bonds and parcel condemnation were important mechanisms for acquiring and maintaining early parklands, donations of private land by wealthy, land holding citizens were equally significant. From 1884 to 1913, 13 private parcels were donated to the city for park use, including Seattle's first park, Denny Park, donated in 1884. During this period the majority of decision making power and fiscal authority over park creation resided within the prominent land holding sectors of Seattle's citizenry. This form of centralized governance, despite necessitating public approval, reflected the goals and objectives of the economic and political elite, and supported the implementation of their ideological agendas.

Although ultimate public support for the park bonds was evident in the bonds' approval, there was also a strong dissenting voice among the citizenry at large. Opponents argued that government officials were acting out of self-interest by strategically locating the majority of parks in areas that improved the personal real estate value of the politicians (Seattle Mail and Herald 1905). These instances of civic response foreshadowed a future decentralized public participation approach, which was institutionalized within SPRD in later years.

From 1884 to 1914, a total of 109 parks were incorporated into the cultural and biophysical fabric of Seattle (see Figure 1). The majority of parks acquired during this period were large open tracts; however nearly a quarter of parks were developed as playgrounds, playfields and boulevards. In the rapidly urbanizing cityscape, new parks served as tools for economic development and social refinement. They also served as sites for preserving and experiencing the natural amenities of the city. The process of achieving the Olmsted vision for an Emerald City was dominated by institutional and city elite decision makers. Underlying their desire for an economically prosperous, beautiful and refined urban environment was a perceived scarcity of money and land. As future developments unfolded, these concerns and prognostications were proven sage.

Period of Competition and Constraints (1915-1966)

Relatively little park acquisition activity occurred between the Olmsted Vision period and the period of Urban Challenges. Two World Wars and the

Great Depression, coupled with a citywide emphasis on other forms of infrastructure, such as highway development, left few resources for park planning within Seattle. The scarce city funds allotted to the SPRD during this period were used almost entirely to develop and maintain the properties acquired during the Olmsted Vision period.

During and after World War I the economic and population boom of Seattle's early decades began to wane with a local population of roughly 315,000 residents (Berner 1992). From 1915 to 1922, no new parks were acquired. The Seattle park system fared slightly better under the New Deal Programs implemented during the Great Depression of the 1930s. The Depression resulted in the merging of national and local political efforts to deal with the unemployed and relief efforts. With assistance from federal programs such as the Work Projects Administration and the Civilian Conservation Corps, the Seattle park system slowly expanded with the modest acquisition of 38 park properties between 1923 and 1944 (Berner 1992).

Although the wartime economy created by World War II created a temporary economic upsurge for Seattle, the city and region returned to its economic slump following the war's end in 1945 (Sale 1992). Available fiscal resources were prioritized for the construction of a major north-south highway, which bisected the center of Seattle, requiring the intentional sacrifice of parks, boulevards, and neighborhoods.

The citizenry also demonstrated little support for the park system. Between 1952 and 1958, four bond measures slated to provide Seattle's park system with nearly $12 million for acquisition, development, and management were defeated by popular vote. The Superintendent of Parks lamented, "… this was an era of disappointments and failures" (SPRD Annual Report 1956). With little fiscal capacity to address the maintenance of Seattle's urban infrastructure, many parks fell into decay. From 1946 to 1965, only 45 park properties were acquired. During this period, there were inadequate fiscal opportunities and little public support to continue implementing the Olmsted Vision and the Olmsted Plan remained dormant.

Urban Challenges (1968-1983)

The period of Urban Challenges is characterized by a resurgence in public park acquisition driven by an increase in citizen and neighborhood-based participation in the park planning process. Concerned by the decaying condition of Seattle's urban infrastructure, and predictions on the magnitude of future growth in Seattle these groups demanded more attention and money be provided for acquiring remaining open space. The growing scarcity and increasing cost of available land began to exert pressures on park development, motivating creative approaches for re-developing land previously occupied by industries, municipal partnerships and other economically productive uses. These pressures resulted in the development of a diversity of park types across the city that reflected the character of the community they served (King County 1980).

During this period, the guidance for acquiring parks by the Olmsted Plan was not explicitly utilized. Rather, the Olmsted Plan was replaced with a focus on the city's decaying urban infrastructure. The city of Seattle also emphasized the integration of citizen needs in the overall planning process for park development.

Mired in an economic recession, Seattle experienced its first decline in population since the city was established more than a century earlier. Early profits gained from Seattle's entrance into the U.S. and global economic markets following WWII soon waned. Seattle developed into a blue-collar city economically controlled by labor union politics, reliant on the abundant timber and hydrological resources of the region (Berner 1992). During these financially lean times, little attention was given to the development and maintenance of physical infrastructure and urban amenities.

By the mid-1960s an uneasy tension between Seattle's citizenry and city government institutions increased as residents voiced concerns ranging from racial inequality to the overall physical decay of the city, including the amount, quality and distribution of local parks (Sale 1991). Many of these dissenting voices united under the community-driven initiative termed, Forward Thrust, which focused on assessing the impacts of future urban growth within the region (Forward Thrust Committee 1970). The community-based planning process supported by the Forward Thrust program led to the establishment of formal partnerships between residents and city departments, including the Parks Department. In 1968, Forward Thrust proponent James R. Ellis described the

initiative as "…a partnership of people from every section of the County, every viewpoint and walk of life. This was not a citizen front for a program pre-determined by government" (Ellis 1968). A basic component of the Forward Thrust program was to empower the citizenry and provide them with an outlet to voice their concerns about the condition of the city in which they lived.

As part of the Forward Thrust movement in Seattle, a 'Committee of 200,' that included city, county and local business leaders, spent two years determining the direction of development in King County. The committee emerged with an expensive 12-year capital improvement program package of 13 city and county propositions totaling an estimated appropriation of more than half a billion dollars, much of which would be used to secure matching federal funds offered for urban renewal projects. The package included a proposed $385 million mass transit rail system, some $68 million for roads, $68 million for flood and wastewater control, $40 million for a sports stadium, and $118 million to be used to acquire, develop, and maintain parks across King County (King County 1968). At the time, the Forward Thrust program was the nation's largest, per capita, public infrastructure improvement package (Sale 1991).

On February 13, 1968, six of the Forward Thrust propositions were approved by a public vote, the parks proposition included (Seattle Post Intelligencer 1968). Over the 12-year program, $44 million from existing state and federal sources further supplemented the $118 million bond for parks. From 1968 to 1982 over $41 million of related Forward Thrust funds were spent within Seattle for the acquisition of new parks and the maintenance and improvement of existing park properties. A decision to focus the acquisition of parklands early proved fortuitous as real estate prices escalated during the middle years of the 1970s. A total of 64 parks equaling more than 1,050 acres within the city were acquired during this 14-year period. The majority of this land, over 700 acres, was acquired from the federal government in a 'Lands to Parks' program that transferred ownership of decommissioned military bases to municipalities around the country. Two facilities, now named Discovery Park and Magnuson Park, are two of the largest contiguous tracts of parkland within Seattle. Other parks acquired during the Forward Thrust period range in size from roughly 140 acres of Puget Sound tidelands to small "vest pocket" parks of less than half an acre.

As development pressures and real estate values within and around the city increased, vacant city land was quickly becoming a scarce commodity, and condemnation no longer was a simple strategy of transference for development rights and ownership from private land into park management. Instead, the expansion of the park system required the creative development and conversion of already built lands into parks. An example of this conversion is Gas Works Park a former gas manufacturing plant located in a prominent location near downtown. Originally built in 1906 the plant became technologically obsolete and subsequently closed by the 1950s. The City of Seattle purchased the land in 1962, and by 1975 the conversion of the area from a previously industrial land use to dedicated park and recreation use was completed. Today the park retains the five-story high cracking towers from the smoke-belching days of industrial use and remains one of the city's most popular urban recreational areas.

Figure 5: Gasworks Park stands on an old Brownfield site. As developable land became increasingly scarce throughout the city, Seattle began reclaiming former urban wastelands and turning them into viable public park spaces. **(Source: Seattle Parks and Recreation)**

Another example of this innovative creation of parklands includes Freeway Park. Built atop Interstate 5 using interstate air rights, the 5.2-acre park reconnects the financial center of downtown with the residential and business neighborhoods to the East. Completed in 1976, the project was supported through an array of sources including Forward Thrust bonds and state and federal highway funds. School properties presented yet another creative opportunity to convert lands for park use. SPRD, in partnership with the Seattle School Districts since 1948, implemented the "Grey to Green Initiative," a program that mandated SPRD to convert publicly owned asphalt surfaces to green surfaces for park use at selected school sites throughout the city. In this agreement, the newly formed parks were utilized by school children during the day and open to public use after school hours.

Figure 6: Representative of efforts to mitigate the negative impacts of urban infrastructure development, **Freeway Park** was built directly above Interstate 5 connecting the financial center of Seattle with surrounding neighborhoods **(Source: Seattle Parks and Recreation)**

The implementation of the Forward Thrust bond measures further altered the approach and management of the city's urban park system. As a countywide measure, emphasis for connecting the system of open spaces moved beyond Olmsted's vision of a locally interconnected urban park system to a broader regional context. For example, the Burke-Gilman Trail, which was converted from abandoned railroad tracks into a bike and pedestrian route bordering 35 miles of the western shore of Lake Washington, reflected the Forward Thrust agenda. Although the responsibility for the acquisition, development, and management of Seattle's park system still resided with SPRD, the objectives and priorities of the designed system were to be more inclusive of wide-ranging efforts to connect open spaces across the county.

The shift in park planning culture during this period included a stronger role for civil society in articulating their needs and desires for park spaces. And while the types and location of proposed parks differed by neighborhood, the ideology was similar: local participation was important in easing the tension between city government and local residents. The convergence of the politics of participation and the ideologies of park planning was further supported by the locally generated Forward Thrust bonds. In many ways, this period marked Seattle as a city with a park system driven by local needs, and guided by efforts of participatory, community-based planning.

Olmsted Revised (1995-2003)

This period is characterized by expanding ideologies within SPRD regarding the role of parks in the urban landscape of Seattle. Whereas the Olmsted Vision promoted a sense of nature based on aesthetic value, the Olmsted

Revised period promotes a functioning of nature based on a scientific understanding of ecological systems. The 1903 Olmsted Plan is revisited, revised and expanded to reflect its application in a more densely settled urban area. While serving the recreational needs of Seattle's citizenry remains an important goal, a conservationist approach also infuses park management.

Figure 7: During the most recent period of park acquisition, a distinct **environmental consciousness** informs the park planning process. (Source: Seattle Parks and Recreation)

The year 2003 marked the hundredth year of the comprehensive Olmsted park system plan for Seattle. Although the importance of the Olmsted plan in managing the park system was not apparent in the middle decades of the twentieth century, the plan and its guidelines experienced a revival in the mid 1990s and served as a critical element of SPRD's mission.

Patterns of globalization profoundly influenced how Seattle city boosters framed the function of parks as symbolizing the city's 'emerald' quality. Seattle now competed for mobile capital from transnational corporations with other cities in the Pacific Rim and elsewhere around the world (Gibson 2004). The marketing of Seattle's distinctly high quality of life emphasized the natural beauty and recreational opportunities provided by the region's environment, including parks. As in the Olmsted Vision period, parks were utilized as an economic development tool to attract economic resources and investments.

Trends in globalization also influenced the fiscal capacity of the city and the funding mechanisms used to acquire parkland (Gibson 2004). During the Olmsted Vision period, park acquisition was funded by locally generated tax money and through parcel condemnation and land donations. During Forward Thrust, local funds were supplemented by state and federal support. During the Olmsted Revisited period local funds were generated when Seattle residents approved the 2000 Pro Parks Levy, worth $198.2 million, to acquire the land for more than 30 new parks, and to continue the development, improvement, and management of more than 95 already established parks. Then Deputy Mayor

Tom Byers characterized the passage of the parks levy as the most substantial reflection of public support since the 1903 Olmsted Plan. Once again, citizens of Seattle supported the financing of park development, reflecting how parks are valued.

The requirements and guidelines of the Pro Parks levy signaled important shifts in the priorities of park management agendas and acquisition decisions for SPRD. Broadening their environmental agenda, SPRD embraced a more ecologically oriented management strategy for parks. During this time SPRD created its first Wildlife Habitat Management Plan for the parks system in response to the desire expressed by the citizens of Seattle "to have wildlife as an integral part of the city, despite the pressures of human population and development" (SPRD 2000a). Park users wanted not only passive and active recreation opportunities, but they also wanted opportunities for observing urban wildlife species and experiencing "natural" settings, as well as the preservation of contiguous forested and green areas. SPRD's Urban Wildlife and Habitat Management Plan expanded the management goals of the agency "toward more natural and ecological resource management of parks than has taken place in the past" (SPRD 2000a). This Management Plan was consistent with the City's Environmental Critical Areas Policies and the Environmental Action Agenda, which called for the incorporation of environmental stewardship into all City actions.

The local desire for more wildlife and habitat oriented management efforts within SPRD was emblematic of the larger national conservationist and sustainability environmental movements which increasingly emphasized tree plantings, utilizing native plant species, and wildlife habitat protection efforts in the urban core. The influence of the environmental movement impacted the types of parklands that were purchased during this period. Land, which was previously considered useless and negligible, including steep slopes along forested ravines, was acquired to preserve the remaining open spaces within the city for wildlife use and habitat protection.

Figure 8: The **Duwamish Greenbelt** is indicative of many recent park purchases and acquisitions. **Steep ravines and corridors** have been integrated into the city wide mosaic of park lands. These parcels are not specifically designed for human use and access. Instead they are intended to serve as important wildlife habitat areas and industrial buffers. **(Source: Seattle Parks and Recreation)**

The shift from a primarily human-centric management effort during the Olmsted and Forward Thrust periods, to a combined human and natural resource management focus was also reflected in the types of park improvement projects implemented by SPRD. For example, in the early 1990s the management for Schmitz Preserve Park shifted to a larger ecological agenda, which included daylighting a small stream flowing through the preserve. The original intention of the preserve – the protection of the oldest growth in the city -- has been maintained over time through the incorporation of new ecologically oriented management tools.

In 1990 and 1991, citizens passed growth management legislation establishing an urban growth boundary (UGB) around the Seattle Metropolitan region. The UGB was applied as a planning tool to focus high density, residential and commercial growth within a defined area where urban services were already constructed. Thus, the political context in which parks in Seattle were acquired, developed, and improved, changed in response to an increasingly urban and densely populated landscape. With the legal mandate to intensify development within the UGB boundary, the goals of the SPRD shifted to prioritize the purchase of small neighborhood, pocket parcels to maintain and provide additional open space within the UGB. As of 2003, the levy purchased six neighborhood sites for pocket parks.

Park development was placed in direct conflict with the need for other forms of urban amenities and infrastructure. In 1997, the mayor decided to sell part of a playfield to developers for middle-income, single-family homes (Seattle Times 1996). In response, citizens supported Initiative 42, preventing the sale of parkland for non-park use, unless equal or better replacement was provided. The mayor's pre-empted actions signified the city's persistent fiscal struggle to

provide for multiple and oftentimes competing forms of urban infrastructures, including affordable housing and park space.

Citizen involvement regarding proposed park use continued evolving. In 1985, SPRD created an advisory board for concession related grievances when a local neighborhood opposed the selling of alcohol by a park concessionaire (Seattle Times, 1985). During Forward Thrust, SPRD used a neighborhood based planning approach to define the location and type of future park development. SPRD worked with these neighborhood groups as consultants, not as park planning experts. By the 1990s, SPRD established 24 neighborhood advisory councils that provided a forum for testing new program ideas; and by 1991, this local, decentralized planning process for parks was the norm. In 1993, SPRD restructured its management to reflect the decentralized planning approach by programs and park planning efforts under the management of three geographic divisions of the city (Seattle Post-Intelligencer 1993). SPRD no longer provided, and citizens no longer desired nor expected, the top-down, expert driven model of park development. This period of citizen participation was marked by increased leverage of citizen groups to promote specific agendas. "Friends of Parks" groups mobilized around park-specific issues, and used their collective bargaining power to demand certain amenities for parks from SPRD. In the 2000 update to 1993 Department of Parks and Recreation comprehensive plan (COMPLAN), SPRD defined its primary fundamental responsibility as "listening to the citizens … and involve them from the beginning in decisions affecting the future of their parks and recreation system, especially in their neighborhoods. Implementing recommendations from neighborhood planning activities and the community initiated efforts to improve the Seattle park system" (SPRD 2000b).

During this period 95 parks were acquired and developed, only 14 fewer than during the Olmsted Vision period. The 1903 Olmsted Plan was integrated into a re-visioning of recreational park spaces in the city and region. Instead of treating the Olmsted Plan as a static historic plan without relevancy for contemporary Seattle, SPRD strategically incorporated aspects of the Olmsted Plan that best fit the unique political, cultural, and economic context of each time period. Such a flexible, opportunistic attitude towards the implementation of the Olmsted Plan was necessary for its persistent, if discontinuous, influence on park development in Seattle. Importantly, city politicians and citizens continued to give

high priority to parks, reflecting the initial valuation of green and open spaces articulated in the 1903 Olmsted Plan. Seattle's 2000 COMPLAN update states: "Planning for parks and recreation must be sensitive to the stresses and complexities of urban life, flexible to changing conditions, and be a part of the City's overall growth strategy" (SPRD 2000b).

The parks themselves are the physical legacy of the history of park planning in Seattle. Through the lens of politics, economics, and culture, the presentation of these historical narratives reveals trends and contingencies that influence the production of a citywide park system.

Discussion

The organization of Seattle's park history around three themes- the economics, politics, and culture of park planning- allows us to understand planning approaches, various funding strategies, and city development agendas during the four eras of park planning. Furthermore, we can identify emerging trends and the influence of historical contingencies. Through this analysis we recognize the interrelatedness of these three themes and their collective explanatory power for understanding the process of park development in Seattle. These themes shed light on important factors influencing the rate and type of parks acquired in Seattle. Urban ecologists can utilize historical insights in order to better appreciate contemporary and future urban landscape change in the context of shifting economic, political and cultural conditions.

Politics of Park Planning: From Frederick to Friends

The history of park development in Seattle has been marked by changes in how city residents and SPRD engage in the process of park acquisition, development, and maintenance. The changes in the relationship between SPRD and city residents reflect an overall national trend toward decentralized planning, with contemporary citizen groups influencing management action priorities. Today, the Seattle city government is renowned for its model of participatory planning protocols. The theme of accessibility effectively captures these shifts. Accessibility, as we view it, occurs along two lines: access to the political process of park planning and the creation of accessible park use (accommodating diverse park uses and users).

Planning for accessibility evolved from a top down policy model with limited public access to a more accessible and participatory civic engagement process. During the Olmsted Vision period, the Board of Park Commissioners and the early Parks Department consisted of a collection of city and technical elites; largely members of upper echelon urbanites held park planning decisions. Likewise, the Olmsted Brothers Firm planning model espoused an elite driven, expert dominated approach. Although this top-down planning process was framed as serving the public good, the primary opportunities for city residents to participate in park development was limited to voting on proposed park bond issues and through the donations of private property for park use.

In contrast, the Urban Challenges period was marked by an intense degree of public participation in identifying the location and type of future parks. During Forward Thrust, citizens organized around an infusion of state and federal money into the local and regional planning process, with SPRD functioning as experts to the neighborhood planning effort. As public participation persisted and demand for such participation grew, SPRD institutionalized this new form of citizen engagement with the establishment of committees and guidelines. This shift in the relationship between SPRD and city residents reflected the overall trend in municipal governance towards decentralized planning.

During the Olmsted Vision period the Seattle citizenry experienced an increase in accessibility to the park planning process. Formal community participation institutionalized during the early 1970s created a more open and inclusive planning process. Citizens established 'Friends of Parks' groups that operated external to institutional planning efforts and organized around specific parks in the city. As a decentralized model for participatory park management, 'Friends of' groups have leveraged their collective resources to advocate for specific amenities and management actions.

Accessible park use (accommodating diverse park uses and users) increased as the city's ideological hold on acceptable park use expanded. By the end of the Olmsted Vision period, there were numerous small and well-dispersed parks. Parks and playgrounds were perceived as spaces for tacit forms of social control, designed to refine and humanize the population and provide a limited diversity of uses (Cranz 1982; Sutton 1971). With the participatory planning forum in place during the Urban Challenges period, an increased diversity of park

types were produced which, in turn, created a more accessible park-planning approach. Consequently there was an emphasis on social equity of park access, with greater attention given to neglected communities by strategically identifying park space and park uses for underserved neighborhood communities. This led to an increase of not only a diversity of park uses in the city but also to a diversity of park users.

Multiple scales of economy: Encountering Scarcity and Opportunity

Perhaps no other factor contributed more to the acquisition of parks, and to the formation of acquisition periods, than the availability of financial resources. The history of Seattle's park development is largely influenced by a series of fiscal restraints and opportunities. As Seattle's park planning history reveals, any assessment of the ongoing struggle to secure fiscal resources must examine economic interactions across local, regional, and global contexts and the impacts of these multi-scalar economies on the financing of parks. In the early 1900s, the park planning process mostly depended on a local economy that supported park acquisition and maintenance through the donations of local landholders and city funds. Although this money was generated locally, the city's wealth arrived only a few years earlier as part of the post-gold rush regional resource market expansion. A direct intra-regional economic competition between Tacoma and Seattle fueled Seattle's efforts to attract money and investors. This regional economic competition influenced the approval of local bonds that provided the bulk of the money for Olmsted Plan's recommended purchases and designs.

During the Urban Challenges period, an infusion of matching state and federal funds into regional and local planning projects was necessary to overcome escalating land values and local fiscal restraints. Beginning in the mid-1990s, when the Olmsted Plan was revived, the City of Seattle still faced budgetary fiscal constraints similar to previous periods. The Pro-Parks Levy was approved in 2000 and once again citizens allocated monies for park purchase and maintenance. The Olmsted Revised period can be seen, in large part, as a return to a dependence on locally generated funding streams. However, instead of being derived primarily from urban elites and major landholders, as was the case in the early period, this

purchasing power was derived from the public at large, through a complex set of city tax arrangements.

The establishment of Seattle as a regional economic power, which was the goal of urban residents and boosters during the early Olmsted Vision period, expanded during the Olmsted Revised period. While parks had always been used as an economic development tool by the city and private developers, the link between Seattle and international markets generated new opportunities for park development. Public and private interests around the city viewed parks as a valuable tool to effectively market desirable qualities of Seattle to transnational corporations and an international labor pool.

Park Planning Culture: Getaways, lungs, and global markets

Dominant ideologies of park planning influenced the allocation of fiscal resources and, to a great extent, the vision of parks functioning within the city. The ideologies of park planning in the earliest period were characterized by the initiation of the 100-year, comprehensive Olmsted Plan and the influence of Seattle's regional economic agenda to become the economic center of the Pacific Northwest. Parks in the city were viewed as places for humanizing, sophisticating and refining the urban citizenry. Parks as sites of refinement required harnessing and utilizing aesthetics of the natural environments. Ravenna and Schmitz parks were designed as urban 'getaways' while others like Volunteer Park were established in part to serve as aesthetic 'portals' to the surrounding water, mountain and wilderness areas. These ideologies of park planning emphasized the progressive pursuit of social health and refinement simultaneously with the beautification of the city and romantic notions of nature.

Park planning efforts during the Urban Challenges period were couched within a broader context of urban infrastructural decay. Parks were thought to contribute to the salubriousness of the city. As part of an urban regeneration project, parks infused new spaces of vitality throughout the city neighborhoods and were viewed by many residents and politicians as the "lungs of the city". The planning culture of the Olmsted Revised and Olmsted Vision periods both viewed city parks as tools for economic development. In the Olmsted Vision period, parks were used to attract potential residents to Seattle and to newly developed

neighborhoods. To the national and international audience, parks were used to market Seattle as a unique and livable urban area within the global market.

With the revival of the Olmsted Plan, many original Olmstedian principles, including connectivity of green spaces, access to park spaces, and a public health focus for parks, are still of concern to SPRD and city residents. However, the ideologies of SPRD have expanded the early Olmstedian vision for connected green spaces and sophisticating recreational use with the incorporation of an explicit ecological agenda, which operates in concert with social programs.

The persistence of the Olmsted Plan in the shifting cultural ideologies of park planning reflects the capacity of SPRD to embrace the Olmstedian principles and goals while recognizing the context of an evolving urban system where constraints and opportunities for securing funding and initiating park development vary over time.

	Olmsted Vision 1884 - 1913	Competition and Constraints 1916-1966	Urban Challenges 1968 - 1983	Olmsted Revised 1990 - 2003
Economics				
+	Parks are acquired by SPRD through land donations, condemnation, and locally generated funds totaling $5 million.	Despite a regional economic surge during WWII, the economy of Seattle slumped, and fiscal resources for park acquisition were scarce.	Matching state and federal funds bolsters locally generated monies from the approved parks proposition of the Forward Thrust program.	Locally generated money from the approved Pro Parks Levy. Competition between forms of urban infrastructure. Citizens pass Initiative 42, preventing the sale of parkland for non park uses.
Politics				
+	The process for planning for the parks system is dominated by city government and economic elites.	Other forms of urban infrastructure development such as highway construction are prioritized over the park planning process.	The parks planning process shifts towards a more community-oriented participatory planning approach.	SPRD institutionalized participatory planning process and adopted a decentralized organizational structure.
Culture				
+	Urban parks are viewed as both economic attractors to speculative investors as well as a social refinement tool.	Little public support was afforded to the park system as much of the public open space, including parks, fell into decay.	The diversity in types and use of parks in the city increases to accommodate multiple perspectives and community desires.	Maintenance of pre-existing parks and development of pocket parks in high-density residential neighborhoods. Parks are managed for social and ecological uses. Parks viewed as a tool for economic development in the global economy.
Outcomes				
=	SPRD accepts and implements a 100-year plan for Seattle's park system developed by John C. Olmsted in 1903. Parks are incorporated into the urban form of the city.	The public defeated 4 bond measures between 1952 and 1958 that would have provided nearly $12 million in park-specific funds.	Seattle and King Co. residents approve a major urban renewal program known as Forward Thrust in 1968.	Seattle residents approve 2000 Pro Parks Levy. Centennial celebration of Olmsted Plan.

Table 1. The economic, political, and cultural aspects of park planning for each era of park planning in, Seattle, WA, and the specific outcomes associated with each era of park planning.

Conclusion

Integrating Analytical Approaches and Epistemologies from the Humanities into Urban Ecology

We take seriously the call for a "unity of sciences and humanities" as the "backbone" of urban ecology (Alberti et al 2003). We operationalize these notions and articulate advancements within the field of urban ecology along two tracks: an

integration of historical place-based analytics and a practice of interdisciplinary research. The field of urban ecology provides a rich and diverse platform from which to ask a multitude of research questions. Urban ecology's inherent interdisciplinarity or "integrated approach" is outlined by numerous scholars (Pickett et al 2004; Alberti et al 2003; Collins et al 2000; Grimm et al 2000). This convergence of multiple disciplines has led to a flurry of literature by these authors on how to combine the research agendas of social sciences with natural sciences to address a more holistic consideration of the ecology "of cities" (Grimm et al 2000).

We recognize that the majority of research questions asked by urban ecologists seek to organize and explain variables in ways that reduce them to a series of generalizable, well-defined patterns and processes. While these approaches are highly valuable and contribute to a robust understanding of urban systems, we offer a complimentary approach by including forms of evidence and explanation that are idiographic. We suggest that there are benefits to an urban ecology that accommodates explanations and descriptions, intentions and unanticipated outcomes, place-based and generalizable findings. After all, if the field of urban ecology is to be profoundly interdisciplinary, it necessitates an integration of different methods, theories, and epistemologies.

Improving our Understanding of Cities: Place-Based Historical Analysis

Utilizing an explicitly historical and place-based approach we extend an integrated study of human and ecological systems over 120 years of park planning in Seattle. In doing so, we build upon the model put forth by Alberti et al. (2003) which integrates humans and ecosystem science by linking "human and biophysical drivers, patterns, processes and effects" (p. 1174). This approach to urban ecology reveals both the spatial changes in land development from non-park to parkland, and the rich tapestry of influential political, economic and cultural processes.

While a place-based approach to urban ecology can lead to a profound understanding of the nexus between city culture, politics and economic processes, a historically grounded approach elucidates the relationship between these processes as they change over time and interact through various citywide developments (see Table 1). Indeed, two recent ideas promoted in urban ecology,

'cities as systems of resilience' (Pickett et al 2004) and 'cities as emergent phenomenon' (Alberti et al 2003) can be more effectively revealed within a research agenda that incorporates long-term changes within urban systems. Our study illustrates how a historical and place-based analysis comes together to reveal changing governance structures and ideologies, while also allowing for a more precise documentation of how these structures and ideologies function as emergent and variable sources of political influence. Moreover, examining a 120-year time period enables important scalar economic relationships between city, regional, and federal programs to be revealed.

From the early sophisticating aesthetics of the Olmsted Firm to the locally derived multi-use and ecologically oriented park plans found today, changing structures of political representation have influenced the process and outcome of park planning. Moreover, the city of Seattle has overcome fiscal and land scarcity in creative ways and has utilized park space strategically to elevate its image and competitive position within broader economic agendas. Under a place-based historical analysis the park landscape within Seattle can be viewed as a legacy of these shifting strategies and conditions.

Practical Benefits

By implementing an historical approach to urban ecological research our paper reveals the influence of a 100-year comprehensive plan as it evolves through long periods of absence and periods of renewed interest. Accounting for long term trends, cyclical patterns, and historical contingencies enables us to reveal practical insights that are useful for urban planners and practitioners. We illustrate that the viability of long term plans requires flexible and adaptive application in the face of unpredictable events, changing political arrangements, and shifting cultural priorities and fiscal climates. Understanding dynamics that support and challenge long term planning efforts is typically not provided in temporally truncated studies.

Alberti, M., Marzluff, J., Schulenberger, E., Bradley, G., Ryan, C., and Zumbrunnen, C. (2003). Integrating humans into ecology: opportunities for studying urban ecosystems. *Bioscience* 53(12):1169-1179.

Bagley, C. (1916). *History of Seattle: From the earliest settlement to the present time, Volume 1.* Chicago, IL: S. J. Clarke Publishing Company. 623 pp.

Berner, R. (1992). *Seattle 1921-1940: From boom to bust.* Seattle, WA: Charlie Press. 554 pp.

Berton, P. (1965). *The Klondike Fever: The Life and Death of the Last Great Gold Rush.* New York: Alfred A. Knopf. 99-130 pp.

Collins, J., Kinzig, A., Grimm, N., and Fagan, W. (2000). "A new urban ecology." *American Scientist* 88(5): 416-425.

Cranz, G. (1982). *The politics of park design.* Cambridge, MA: MIT Press. 347 pp.

Forward Thrust Committee (1970). *The Possible Dream: a report to the citizens of King County from the Forward Thrust Committee.* Seattle, WA.

Gibson, T. (2004). *Securing the spectacular city: The politics of revitalization and homelessness in downtown Seattle.* New York: Lexington Books. 312 pp.

Grimm, N., Grove, J., Pickett, S., & Redman, C. (2000). "Integrated approaches to long-term studies of urban ecological systems." *Bioscience* (50)7:571-584.

Ellis, J. R. (1968). "The Chance of a Lifetime." in *Selected Speeches on Forward Thrust, King Co., Washington, 1965-1968.* pp. 61 – 68.

King County. (1980) *Final Forward Thrust Progress Report.* Seattle, WA. 94 pp.

Klingle, M. (2001). *Urban by nature: An environmental history of Seattle 1880-1970.* PhD dissertation (History), University of Washington, Seattle. 505 pp.

May, R. (2004). "Editorial – On the role of the humanities in urban ecology: The case of St. Petersburg." *Urban Ecosystems* 7:7-15.

McIntyre, N.E., Knowles-Yanez, K., and Hope, D. (2000). "Urban ecology as an interdisciplinary field: Differences in the use of "urban" between the social and natural sciences." Urban Ecosystems 4: 5-24.

King County, Washington. (October 1, 1968). "$39,100,000 unlimited tax general obligation bonds: consisting of $6,100,000, Youth Services Center 2 – 30 years, $7,000,000 arterial highway improvements 2 – 40 years, $26,000,000 park and recreation 2 – 40 years." *Official Statement.* Seattle, WA. pp.26

Olmsted. F. (1971). *Civilizing American cities; a selection of Frederick Law Olmsted's writings on city landscapes.* S. B. Sutton (ed). MIT Press. 310 pp.

Pickett, S., Cadenasso, M., & Grove, J. (2004). "Resilient cities: meaning, models, and metaphor for integrating the ecological, socioeconomic, and planning realms." *Landscape and Urban Planning* 69:369-384.

Pickett, S., Cadenasso, M., Grove, J., Nilon, C., Pouyat, R., Zipperer, W., & Costanza, R. (2001). "Urban ecological systems: Linking terrestrial ecological, physical, and socioeconomic components of metropolitan areas." *Annu. Rev. Ecol. Syst.* 32:127-137.

Report of Park Board Commissioners. (1893).

Report of Park Board Commissioners. (1904).

Report of Park Board Commissioners. (1909).

Report of Park Board Commissioners, (1912).

Report of Park Board Commissioners. (1913).

Report of Park Board Commissioners. (1922).

Rosenzweig, R. (1983). Eight Hours For What We Will: Workers and leisure in an industrial city, 1870-1920. (New York: Cambridge University Press):pp. 304

Rothman, H. (2003). *The New Urban Park: Golden Gate National Recreation Area and Civic Environmentalism*. (Lawrence, Kan: University of Kansas Press):pp. 258.

Seattle Mail and Herald. (1904). 7(11). p.2. "The Board of Park Commissioners."

Seattle Mail and Herald. (1905). 8(47) p.2. Untitled.

Seattle Mail and Herald. (1906). 9:(3). p.1 "Vote against park bonds."

Seattle Parks and Recreation Department. (1956). *Annual Report*. Seattle, WA.

Seattle Department of Parks and Recreation. (2000a). *Urban wildlife and habitat management plan: 2000 update*. Prepared by Greg Miller. Seattle, WA. 79pp.

Seattle Parks and Recreation. (2000b). *Seattle Parks and Recreation Plan 2000: An update to the 1993 Parks COMPLAN*. Seattle, WA. 86 pp.

Seattle Post-Intelligencer. (January 1, 1993). "'93 Brings Big Changes at Parks Department." p. D3.

Seattle Post-Intelligencer. *(*February 15, 1968). "The Triumph of Forward Thrust." p B1.

Seattle Post-Intelligencer. (February 15, 1968). "The Anatomy of Thrust Vote," p. 1.

Seattle Times. (February 24, 1985). "Citizens gain bigger role in direction of parks." p. B1, B4.

Seattle Times. (November 20, 1996.) "Parks initiative submitted to city." p. B2.

Seattle Times. (December 17, 1996.) "Initiative on parks may be on fall ballot." p. B2.

Sheridan, M. (March 2004). DRAFT: The Olmsteds in Seattle: A continuing legacy of parks and boulevards. Sheridan Consulting Group with Artifacts, Inc. 34 pp.

Sutton, S.B., editor. (1971). *Civilizing American cities; a selection of Frederick Law Olmsted's writings on city landscapes*. Cambridge, MA*:* MIT Press. 310 pp.

United States Census Bureau. (2000) *Summary File 3 (SF3)*. Retrieved from the World Wide Web on insert date from http://www.census.gov.

Vandenbosch, S.E. (1974) *The 1968 Seattle Forward Thrust Election: An Analysis of Voting on an ad hoc effort to solve metropolitan problems without metropolitan government*. PhD Dissertation, University of Washington, Seattle. pp. 242.

Zimmerer, K. (1994). "Human geography and the 'new ecology': The prospect and promise of integration." *Annals of the Association of American Geographers* 84(1):108-125.

Map Bibliography

Seattle Aerial Image - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/seaair.pdf
Current Land Use - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/landuse.pdf
Future Land Use - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/futlanduse_00.pdf
Manufacturing Center - Ballard - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/mics/binmic.pdf
Manufacturing Center - Duwamish - www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/mics/duwamish.pdf
Neighborhood Planning Ares - www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/npa/npa_ovrvw.pdf
Selected Planning Related Areas - www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/npa/plnareas_sm.pdf
Census Tracts and Zip Codes - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/tract00zipmap.pdf
North Seattle Tract - www.seattle.gov/DCLU/demographics/pdf/CT53033_001.pdf
2000 Seattle sub areas - http://www.seattle.gov/DCLU/demographics/files/2000/sf1/subarea/subarea00.pdf
Median Household Income - http://www.seattle.gov/DCLU/demographics/pdf/mdn_hhinc_99.pdf
Individuals Living Below Poverty Level - http://www.seattle.gov/DCLU/demographics/pdf/inc2pov_lt1.pdf
Maps of Race Related Demographic Info Collected in 2000 -
White Population Tract Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/white1.pdf
Black or African American Map www.seattle.gov/DCLU/demographics/files/2000/pl94171/blackaa1.pdf
American Indian and Alaska Native Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/aian1.pdf
Asian Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/asian1.pdf
Native Hawaiian / Other Pacific Islander Map - www.seattle.gov/DCLU/demographics/files/2000/pl94171/nhopi1.pdf
Hispanic or Latino (of any race) Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/hisplat.pdf
"Some Other Race" Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/other1.pdf
Multiracial Map - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/race2+.pdf
Population Density - http://www.seattle.gov/DCLU/demographics/files/2000/pl94171/popdens.pdf
Transportation Routes - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/transprt.pdf
Urban Centers/Villages - http://www.seattle.gov/DPD/planning/comprehensive/spidr/pdffiles/urbvillg/cenvillg.pdf
Comprehensive Plan Urban Villages -
www.cityofseattle.net/transportation/docs/Map74Assess_Travel_Speed_Evening_0817.pdf
City Wide Zoning - http://www.ci.seattle.wa.us/dpd/Research/gis/webplots/smallzonemap.pdf
Seattle Creek Basins - http://www.seattle.gov/transportation/rowmanual/manual/pdf/figure6_9.pdf
Seattle Urban Nature Project Habitat Maps – http://www.seattleurbannature.org/

1. Bitter Lake
2. Jackson Park Golf Course
3. Lake City Neighborhood
4. Carkeek Park
5. North Seattle Community College
6. South Fork Thornton Creek
7. Meadowbrook Neighborhood
8. Magnuson Park
9. View Ridge Neighborhood
10. Laurelhurst Neighborhood
11. University of Washington
12. Ravenna Park
13. Green Lake Woodland Park
14. Loyal Heights Neighborhood
15. Golden Gardens
16. Discovery Park
17. Ballard Locks & Lawton Park
18. Fremont Neighborhood
19. Wallingford Neighborhood
20. Magnolia
21. Interbay
22. Queen Anne Hill
23. Myrtle Edwards Park
24. Denny Hill Regrade
25. Volunteer Park, Eastlake & Montlake
26. Arboretum & Madison Park
27. Harrison Ridge & Miller Playfield
28. First Hill & Pioneer Square
29. Frink Park & Madrona Park
30. North Beacon Hill & I-90 Lid

31. Colman Park & Mt. Baker Park
32. Jefferson Park Golf Course
33. Genesee Park
34. Seward Park
35. Columbia City & Rainier Valley
36. Dearborn Park
37. Van Asselt Playfield
38. Rainier Beach Neighborhood
39. Kubota Gardens Park
40. Lakeridge Park
41. Seattle Westcrest Park
42. South Seattle Community College
43. Camp Long & Longfellow Creek
44. Alki Beach & Duwamish Head
45. Schmitz Park & Me Kwa Mooks Park
46. West Seattle Shoreline
47. Fauntleroy Ravine & Lincoln Park
48. Roxhill Park & Sealth High School
49. Arroyos Natural Area & Seola Park
50. Georgetown Neighborhood
51. Kellogg Island
52. Harbor Island
53. SoDo

Gaps in Open Space Breathing Room - http://www.cityofseattle.net/parks/open_spaces/maps/map1.jpg
Gaps in Usable Open Space - http://www.cityofseattle.net/parks/open_spaces/maps/map2.jpg
Pro Parks Levy Projects - http://www.cityofseattle.net/parks/open_spaces/maps/map9.jpg
Longfellow Creek Watershed Maps - www.longfellowcreek.org/maps/maps.htm#Longfellow%20Creek%20Watershed
Traffic Related Construction Projects in 2005
Carpool Parking Map
King Count Metro Map - http://transit.metrokc.gov/tops/accessible/accessmap-905.pdf
Watershed Map - http://dnr.metrokc.gov/wlr/watersheds/puget/miller-salmon/PDFs/0208millerWALKEjuris.pdf
Map of gaps in Bike paths - http://www.mtsgreenway.org/Graphics/trail_missing_links.pdf
Interactive Maps from Sustainable Seattle - http://www.sustainableseattle.org/Programs/SNIP/neighborhoodstats
Neighborhood Demographics Interactive Map.
Open Space Accessibility Interactive Map.
Travel Speed Evening - www.cityofseattle.net/transportation/docs/Map74Assess_Travel_Speed_Evening_0817.pdf
Travel Speed Peak - http://www.cityofseattle.net/transportation/docs/Map72Assess_Travel_Speed_Peak_0817.pdf
Travel Speed Base - http://www.cityofseattle.net/transportation/docs/Map73Assess_Travel_Speed_Base_0817.pdf
Transit Related
Population/Employment Density 2000 -
http://www.cityofseattle.net/transportation/docs/Map312000_Pop_Emp_Dens_w_Ridership.pdf
Population/Employment Density 2030 -
http://www.cityofseattle.net/transportation/docs/Map52_2030_Pop_Emp_Dens.pdf
Current Zoning - http://www.cityofseattle.net/transportation/docs/Map54Current_Zoning.pdf
Urban Village Transit Network - http://www.cityofseattle.net/transportation/docs/map55UVTN_1011.pdf
UVTN Segments for 2007 Implementation - www.cityofseattle.net/transportation/docs/Map71UVTN_Segs_2007_Imp_1012.pdf
City Wide Aquatic Habitat Problem Summary – Restore Our Waters
City Wide Water Quality/Sediment Problems in Seattle Area – Restore Our Waters
City Wide Areas Draining to Major Receiving Waterbodies – Restore Our Waters
City Wide Reported Flooding Problems – Restore Our Waters
City Wide Creek Watersheds – Restore Our Waters
City Wide City Property by Department – Restore Our Waters
City Wide SDOT Street Sweeping Routes – Restore Our Waters
City Wide Drainage and Wastewater Service Areas – Restore Our Waters
City Wide Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Duwamish Waterway Reported Flooding Problems – Restore Our Waters
Duwamish Waterway City Property by Department – Restore Our Waters
Duwamish Waterway SDOT Street Sweeping Routes – Restore Our Waters
Duwamish Waterway Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Duwamish Waterway Orthophoto – Restore Our Waters
Duwamish Waterway Land Use – Restore Our Waters
Duwamish Waterway Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters

Duwamish Waterway Critical Areas: Landslide Prone Areas – Restore Our Waters
Duwamish Waterway 200' Shoreline Management Zone – Restore Our Waters
North Lake Washington Reported Flooding Problems– Restore Our Waters
North Lake Washington City Property by Department– Restore Our Waters
North Lake Washington SDOT Street Sweeping Routes– Restore Our Waters
North Lake Washington Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
North Lake Washington Orthophoto– Restore Our Waters
North Lake Washington Land Use– Restore Our Waters
North Lake Washington Critical Areas: Wildlife, Wetlands and Riparian – Restore Our Waters
North Lake Washington Zones – Restore Our Waters
North Lake Washington Critical Areas: Landslide Prone Areas– Restore Our Waters
North Lake Washington 200' Shoreline Management Zone– Restore Our Waters
Puget Sound North Reported Flooding Problems – Restore Our Waters
Puget Sound North City Property by Department – Restore Our Water
Puget Sound North SDOT Street Sweeping Routes – Restore Our Water
Puget Sound North Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Puget Sound North Orthophoto – Restore Our Waters
Puget Sound North Land Use – Restore Our Waters
Puget Sound North Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters
Puget Sound North Critical Areas: Landslide Prone Areas – Restore Our Waters
Puget Sound North 200' Shoreline Management Zone – Restore Our Waters
South Lake Washington Reported Flooding Problems – Restore Our Waters
South Lake Washington City Property by Department – Restore Our Waters
South Lake Washington SDOT Street Sweeping Routes – Restore Our Waters
South Lake Washington Drainage and Wastewater Storm Drain and – Restore Our Waters
South Lake Washington Combined Sewer Outfalls – Restore Our Waters
South Lake Washington Orthophoto – Restore Our Waters
South Lake Washington Land Use – Restore Our Waters
South Lake Washington Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters
South Lake Washington Critical Areas: Landslide Prone Areas – Restore Our Waters
South Lake Washington 200' Shoreline Management Zone – Restore Our Waters
Puget Sound Central Reported Flooding Problems – Restore Our Waters
Puget Sound Central City Property by Department – Restore Our Waters
Puget Sound Central SDOT Street Sweeping Routes – Restore Our Waters
Puget Sound Central Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Puget Sound Central Orthophoto – Restore Our Waters
Puget Sound Central Land Use – Restore Our Waters
Puget Sound Central Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters
Puget Sound Central Critical Areas: Landslide Prone Areas – Restore Our Waters
Puget Sound Central 200' Shoreline Management Zone – Restore Our Waters
Lake Union/Ship Canal Reported Flooding Problems – Restore Our Waters
Lake Union/Ship Canal City Property by Department – Restore Our Waters
Lake Union/Ship Canal SDOT Street Sweeping Routes – Restore Our Waters
Lake Union/Ship Canal Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Lake Union/Ship Canal Orthophoto – Restore Our Waters
Lake Union/Ship Canal Land Use – Restore Our Waters
Lake Union/Ship Canal Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters
Lake Union/Ship Canal Critical Areas: Landslide Prone Areas – Restore Our Waters
Lake Union/Ship Canal 200' Shoreline Management Zone – Restore Our Waters
Puget Sound South Reported Flooding Problems – Restore Our Waters
Puget Sound South City Property by Department – Restore Our Waters
Puget Sound South SDOT Street Sweeping Routes – Restore Our Waters
Puget Sound South Drainage and Wastewater Storm Drain and Combined Sewer Outfalls – Restore Our Waters
Puget Sound South Orthophoto – Restore Our Waters
Puget Sound South Land Use – Restore Our Waters
Puget Sound South Critical Areas: Wildlife, Wetlands and Riparian Zones – Restore Our Waters
Puget Sound South Critical Areas: Landslide Prone Areas – Restore Our Waters
Puget Sound South 200' Shoreline Management Zone – Restore Our Waters
Categories of Maps that can be obtained from WAGDA with a University of Washington login.

https://wagda.lib.washington.edu/gis/uwonly/data/seattle

City Boundaries
Neighborhood Boundaries

- Census Boundaries
- Community Services
- Digital Orthophotography
- Drainage and Public Utilities
- Environmental Layers
- Property and Survey
- Street Network and Geocoding
- Terrain
- Transportation

Maps that are generally available from the city of Seattle website - http://www2.cityofseattle.net/gis_map/default.asp

- Recreation
  - Activities
  - Attractions
- Transportation
  - Commuting
  - Traffic Travel Outside Seattle
- Property and Land Use
  - Community Boundaries
  - Zoning and Permits
- Utilities
- Environment
  - Air
  - Water
  - Soil and Terrain
  - Vegetation
- City Services
  - City-wide
  - Community-based
- Demographics
  - Census
  - Statistics
  - Historical
- General Usage Maps