RegioneEmilia-Romagna
SERVIZIO PIANIFICAZIONE TERRITORIALE,
URBANISTICA, DEL PAESAGGIO E DEI TRASPORTI

Corso "Valutare la rigenerazione urbana"

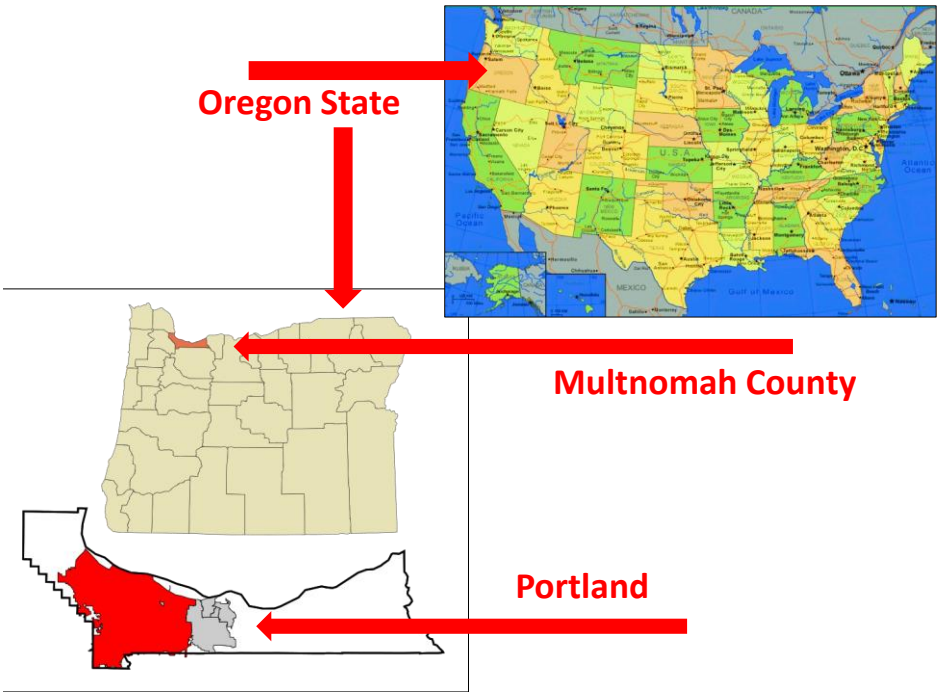
MODULO 2

Integrare le politiche: il caso di Portland

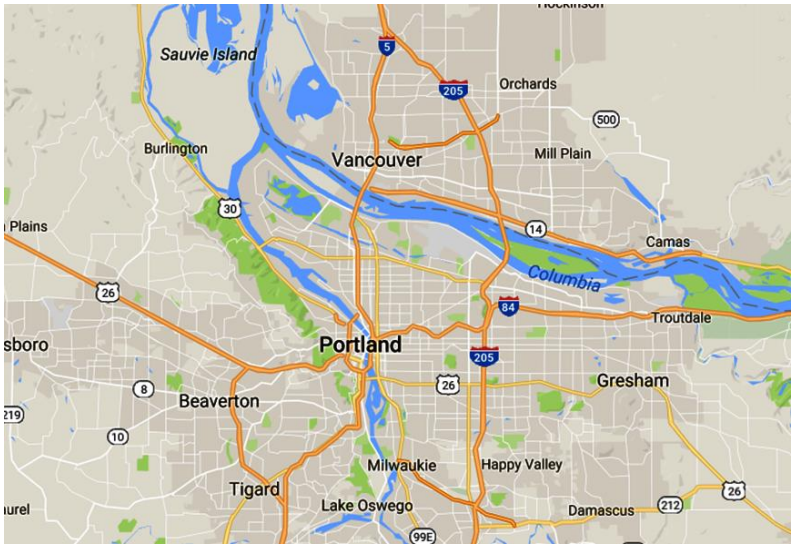
Prof. Maria Rosa Vittadini
10 novembre 2016

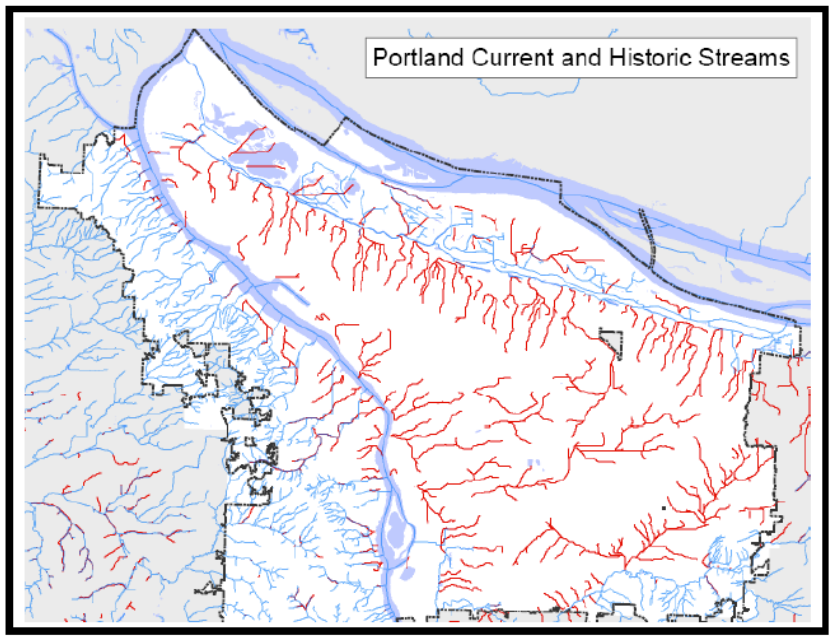
I temi della lezione

- Il caso di Portland come esempio virtuoso di integrazione tra politiche multisettoriali per la rigenerazione urbana: il *Comprehensive Plan 2035* (2012) e il concetto di *environmental justice*
- La valutazione delle vulnerabilità e del rischio e l'elaborazione della strategia per far fronte al cambiamento climatico (2015)
- Il coinvolgimento della popolazione G*reen street, rain gardens* e mobilità dolce: partecipazione, implementazione tecnica e modalità di finanziamento (dal 1990)



Portland è collocata alla confluenza tra il Willamette River e il Columbia River; copre 380 kmq con una densità di circa 1650 ab/kmq: conta 632.000 abitanti nell'area urbana e 2.390.000 abitanti nell'area metropolitana.





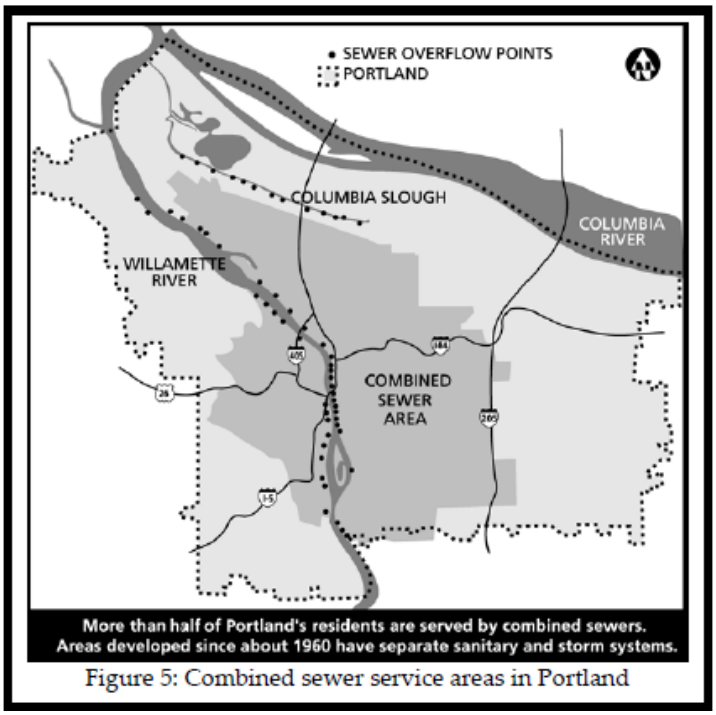
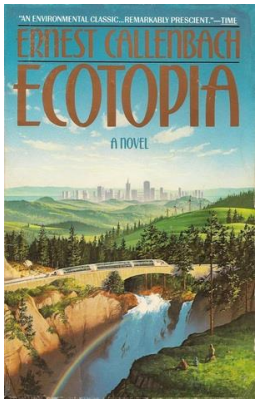


Figure 5: Combined sewer service areas in Portland

Una lunga storia di controcultura



Ernest Callenbach, *Ecotopia* 1975 Ispirato alle politiche ambientali di Portland. E' una via di mezzo tra il romanzo e il rapporto scientifico. Il Nord Ovest degli Stati Uniti è immaginato come una nazione autonoma governata secondo principi di sostenibilità.

Oggi il tema centrale per le città USA è Smart Growth, ovvero una crescita urbana con minore sprawl e maggiore coinvolgimento sociale, anche per Portland

Il sistema di pianificazione: Stato, Governo metropolitano, Città e Contea

- **L'agenzia di governo statale è** il *Department of land conservation and development* composto da un corpo amministrativo, dalla *Land Conservation and development commission (LCDC, tecnica)* e da una *Joint legislative Committee on land use (JLCLU, politica)*
- *La LCDC (max 10 tecnici nominati dal capo dell'esecutivo) definisce gli obiettivi e le linee guida statali di pianificazione, verifica la coerenza e controlla la pianificazione comprensiva (Comprehensive Plan) delle città e delle contee e la pianificazione settoriale dello stato.*
- *La JLCLU (4 deputati e 3 senatori) interviene con pareri e proposte nel processo di piano , ma con molto meno potere rispetto alla LCDC*

METRO: un governo metropolitano forte

- **Il governo metropolitano (METRO)** è responsabile dell' *urban growth boundary (limite dell'espansione urbana)* e della pianificazione dei trasporti dell'area metropolitana. Gestisce il sistema di smaltimento dei rifiuti solidi e il sistema degli spazi verdi di rilevanza metropolitana.

  METRO di Portland è l'unico caso, negli USA, di ente intermedio con un Presidente eletto.

County e City

- **Città e Contee (di pari livello)** hanno l'obbligo di redigere il *Comprehensive Plan* garantendo la coerenza con gli obiettivi statali. Il Piano è "*un insieme coordinato di una carta delle funzioni e di una dichiarazione di Policy che pone in relazione tutti i sistemi funzionali e le attività relative all'uso dei suoli…*"
- **Le città** con oltre 300.000 abitanti redigono autonomamemte il proprio *Comprehensive Plan* in diretto contatto con la LCDC.

Il governo della città

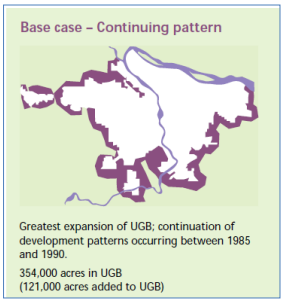
La forma del governo urbano (*Commission system of governance*) prevede l'elezione (non di partito) del Sindaco e di quattro Commissari.

I cinque membri compongono il Consiglio Municipale, corpo legislativo della città, e contemporaneamente hanno responsabilità esecutive.

Portland supplisce alla scarsa rappresentatività di questa forma di governo attraverso una larga utilizzazione di strumenti di partecipazione dei cittadini al processo decisionale, come la possibilità di **proporre leggi e di sottoporre a referendum** molte delle decisioni del Consiglio municipale.

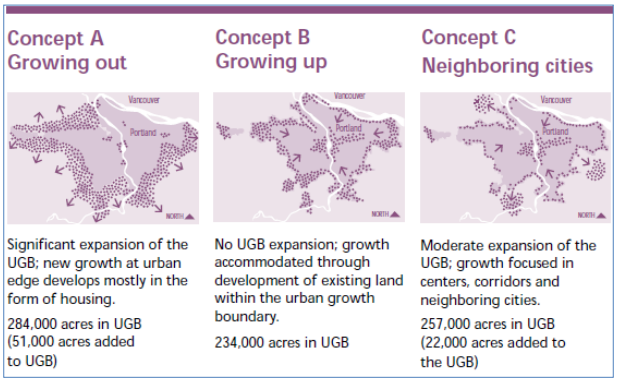
Nella pianificazione cittadini organizzati a livello di quartiere hanno storicamente conquistato ampie possibilità di progettazione e di autonoma proposta. Dal 1975 l' ***Office of Neighborhoods Association*** collabora con le associazioni di quartiere nel processo di pianificazione.

METRO la scelta tra opzioni alternative: dalla crescita dell'area urbanizzata (UGB - *Urban Growth Boundary*) alla densificazione mirata (città e corridoi)



Ogni opzione è valutata nei suoi effetti in termini di:

- **Consumo di suolo**
- **Tempi di viaggio e distanze**
- **Spazi aperti e qualità dell'aria**
- **Paesaggi urbani**



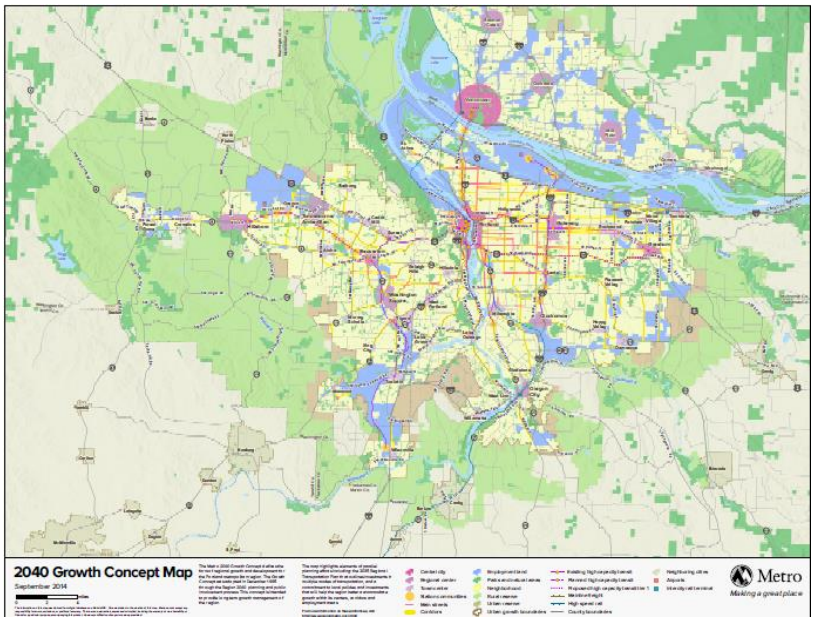
METRO le variabili considerate

L'alternativa scelta

Growth is encouraged in centers and corridors with increased emphasis on redevelopment within the urban growth boundary.

248,000 to 252,000 acres in UGB
(15,000 to 19,000 acres added to the UGB over 50 years)

METRO Piano di sviluppo al 2040: città e corridoi



The Portland Plan is a strategic plan with equity at its core.

What's in the Portland Plan?

The Portland Plan includes actions for the near-term as well as the next 25 years to help Portland:

- Grow the economy and add more and better jobs.
- Create housing and neighborhoods that are affordable for more Portlanders.
- Reduce disparities in health, income and education.
- Improve graduation rates and get people ready for jobs.
- Improve the health of kids, adults and families.
- Increase our sense of safety and overall well-being.
- Create a cleaner and greener built and natural environment—more trees, better air and water quality, and lower carbon emissions.
- Promote greater access to complete, walkable neighborhoods—with healthy food, parks, shops, transportation options and other amenities.

These actions are not just a "to do" list for the government or other public agencies. Many of them will benefit from the contributions of the entire community because even individual actions can make a big impact on our city—boosting prosperity and educational outcomes, and helping to advance health and equity.

My Portland Plan: Making it happen

In order to turn the Portland Plan into reality, everyone's participation is key. But where do we start?

Fellow Portlanders are making the Portland Plan their own by incorporating simple, everyday actions into their lives at home, work, school and other organizations. Learn more about their actions and what you can do today to make Portland better tomorrow at www.myportlandplan.com.

Together we can achieve greater prosperity, education, health and equity.

THE PORTLAND PLAN
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PROSPEROUS. EDUCATED. HEALTHY. EQUITABLE.

THE PORTLAND PLAN

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For generations, Portlanders worked with intention to create a city that is culturally vibrant, intellectually curious, innovative and beautiful.

IN 1980 our central city was stagnating and our air quality was dangerously polluted. But Portlanders had a plan … to reinvest in the urban core and build light rail lines instead of freeways. By linking land use, transportation, green spaces and people, we poured our efforts into creating attractive, livable neighborhoods instead of sprawl. Over the past 40 years, our community showed we could grow our economy, clean our environment and support vibrant places for Portlanders to work, live and play.

TODAY Portland's walkable neighborhoods, public transit system, robust central city, and biking and sustainable food cultures are features that cities around the world emulate. And our unique and compact neighborhoods continue to attract newcomers, who like the scale and livability of this beautiful city.

But not all Portlanders have equitable access to opportunities to advance their well-being and achieve their full potential.

The Portland Plan addresses some of our community's most pressing challenges, including income disparities, high unemployment, a low high school graduation rate and environmental concerns.

Practical, measured and strategic, the plan recognizes that Portland in the future will be a more racially, ethnically and age-diverse city, that various parts of the city are different—and one size does not fit all.

It's time to create a future Portland that is prosperous, educated, healthy and equitable.

The Portland Plan brought together more than 20 agency partners and thousands of residents, businesses and nonprofits to create a strategic plan to make Portland prosperous, healthy, educated and equitable. It provides a structure for aligning budgets and projects across numerous public agencies, guiding policies with an eye toward the year 2035, and a five-year action plan to get things started.

How is the Portland Plan different?

- The Portland Plan focuses on a core set of priorities: prosperity, education, health and equity.
- Better partnerships will drive change.
- Strong civic infrastructure is essential.
- The Portland Plan is a plan for people, not just land use.

What did we discover?

- Tomorrow's city will be shaped by growth and diversity.
- A competitive and innovative economy will drive success.
- One size does not fit all.
- High-quality basic services are fundamental.
- Resilience is important in a changing world.

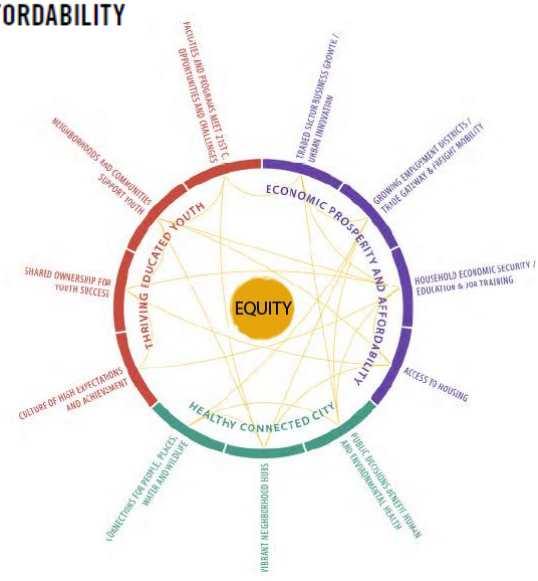
Portland Plan At a Glance

The Portland Plan includes a framework for equity, three integrated strategies and 12 measures of success.

Framework for Equity	3 Integrated Strategies	12 Measures of Success
Close the gaps		1. Equity and inclusion
Engage the community		2. Resident satisfaction
Build partnerships		3. Educated youth
Launch a racial and ethnic justice initiative		4. Prosperous households
Increase focus on disability equity		5. Growing businesses
Increase internal accountability		6. Job growth
		7. Transit and active transportation
		8. Reduced carbon emissions
		9. Complete neighborhoods
		10. Healthier people
		11. Safer city
		12. Healthy watersheds

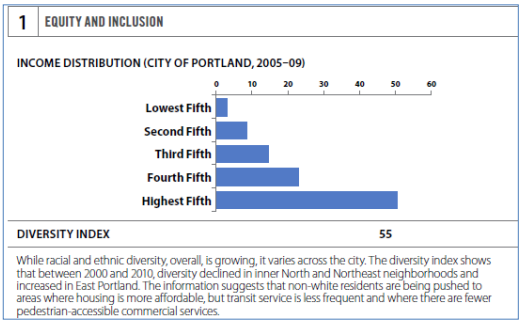
Il Comprehensive Plan di Portland

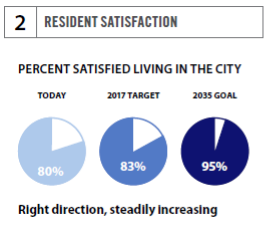
- THRIVING EDUCATED YOUTH
- ECONOMIC PROSPERITY AND AFFORDABILITY
- HEALTHY CONNECTED CITY

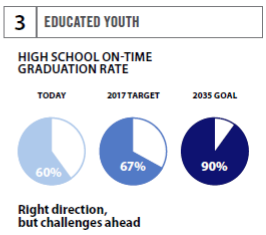


Framework for Equity	3 Integrated Strategies	12 Measures of Success
Close the gaps Engage the community Build partnerships Launch a racial and ethnic justice initiative Increase focus on disability equity Increase internal accountability		1. Equity and inclusion 2. Resident satisfaction 3. Educated youth 4. Prosperous households 5. Growing businesses 6. Job growth 7. Transit and active transportation 8. Reduced carbon emissions 9. Complete neighborhoods 10. Healthier people 11. Safer city 12. Healthy watersheds

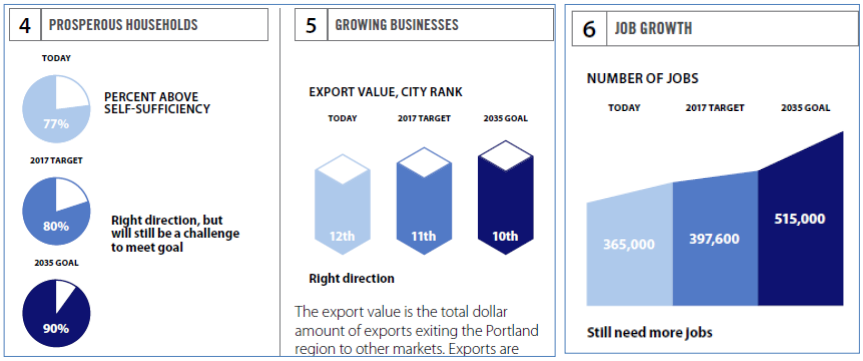
Obiettivi (da 1 a 12) da raggiungere







Obiettivi (da 1 a 12) da raggiungere



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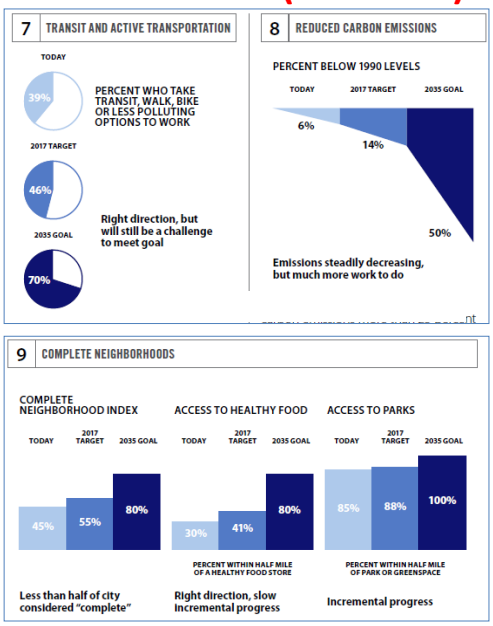


Obiettivi (da 1 a 12) da raggiungere

12 HEALTHY WATERSHEDS

WATER QUALITY INDEX	TODAY	2035 GOAL	TREND
Willamette River	67	75	Right direction, all steadily improving
Columbia Slough	52	60	
Johnson Creek	53	60	
Fanno Creek	56	60	
Tryon Creek	41	60	

	TODAY	2017 TARGET	2035 GOAL	TREND
TREE CANOPY	26% (2002)	28%	≥33%	Right direction, but challenge to raise percentage

A Framework for Equity: Making Equity Real

Definizione di Equity

Quando ciascuno ha accesso alle opportunità necessarie a soddisfare i suoi bisogni essenziali, migliorare il suo benessere, e sviluppare appieno le sue potenzialità. Ogni comunità deve poter dare forma al proprio presente e al proprio futuro. Equità è un mezzo per comunità sane e, allo stesso tempo, un fine da cui tutti traiamo beneficio.

Making Equity Real

Trasformiamo le promesse in reali opportunità quando:

- All Portlanders have access to a high-quality education, living wage jobs, safe neighborhoods, basic services, a healthy natural environment, efficient public transit, parks and green spaces, decent housing and healthy food.
- The benefits of growth and change are equitably shared across our communities. No one community is overly burdened by the region's growth.
- All Portlanders and communities fully participate in and influence public decision-making.
- Portland is a place where your future is not limited by your race, gender, sexual orientation, disability, age, income, where you were born or where you live.
- Underrepresented communities are engaged partners in policy decisions

Rischi ambientali ed eventi estremi colpiscono minoranze e comunità a basso reddito in modo sproporzionato: il concetto di "environmental justice"

Giustizia ambientale- definizione

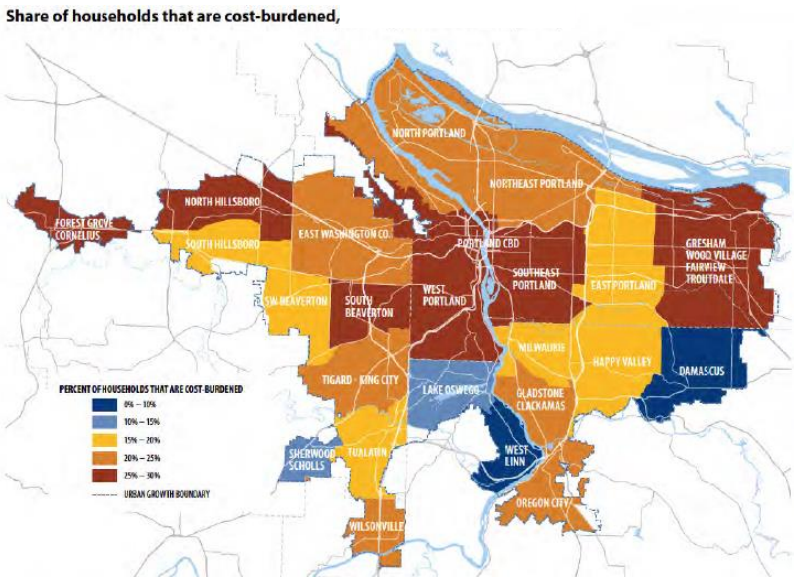
La Giustizia ambientale comporta l'equo trattamento e il sostanziale coinvolgimento di Tutte le persone, indipendentemente da razza, età, genere, paese d'origine, istruzione o livello di reddito nello sviluppo, implementazione e rinforzo delle leggi dei regolamenti e delle politiche in materia di ambiente.

La Giustizia Ambientale sarà raggiunta quando ciascuno godrà del medesimo livello di Protezione dai rischi per l'ambiente e per la salute e uguale accesso ai processi decisionali per avere un ambiente sano nel quale vivere, studiare, giocare e lavorare.

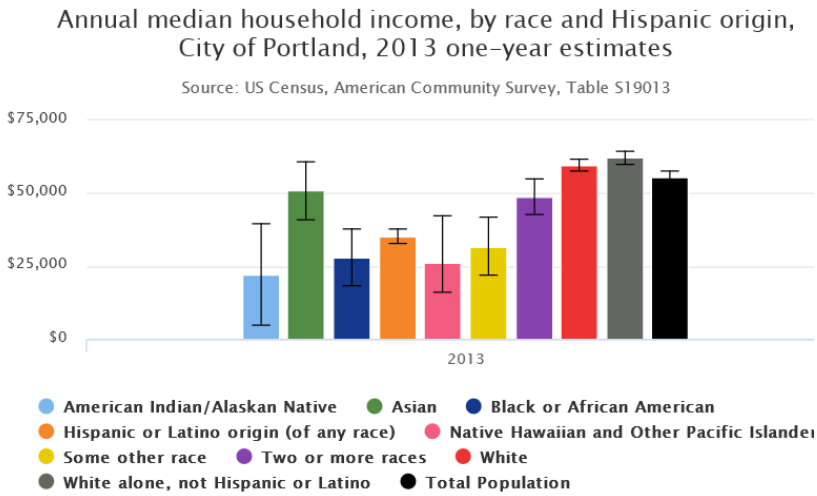
Il Department of Environmental Quality cura che le Agenzie che si occupano di risorse naturali:

(1) *consider the effects of agency action on environmental justice issues;* ***(2)*** *hold hearings at times and in locations that are convenient for people in the communities that will be affected by the decisions stemming from the hearings;* ***(3)*** *engage in public outreach activities in the communities that will be affected by decisions of the agency; and* ***(4)*** *create a Citizen Advocate position that is responsible for encouraging public participation, ensuring the agency considers environmental justice in its decisions, and informs the agency of the effects of its decisions on low-income communities, communities of color and other populations traditionally underrepresented in agency decision-making.*

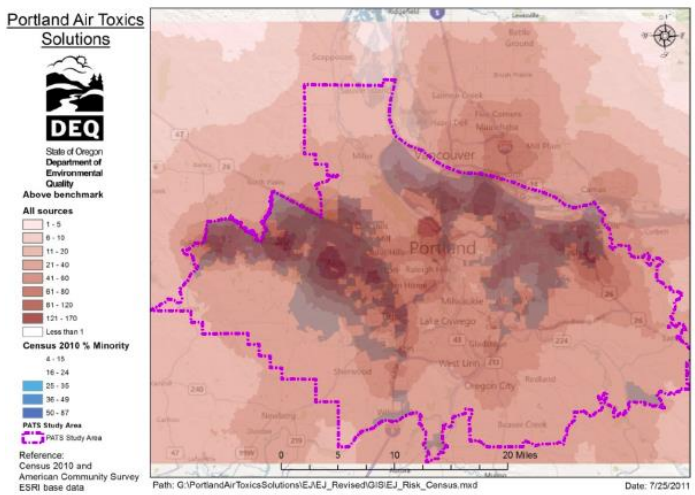
Grandi diseguaglianze. Cost-burdened household sono le famiglie che spendono circa il 50% o più del loro reddito per la casa e i trasporti



Il problema delle minoranze: profonde disparità di reddito



Le zone che Presentano una Concentrazione di Minoranze superiore al 25% sono interessate in maggio misura da inquinamento dell'aria causata da tutte le fonti



Economic Prosperity and Affordability | Element 2

PUBLIC AND PRIVATE URBAN INNOVATION

Maintain a leadership position in sustainability and support innovation, research, development and commercialization of new technologies. Strive to produce a "next generation" urban setting that fosters creativity and invention.

Portland's focus on sustainability is an economic asset and an advantage over peer cities. To stay competitive, the volume and speed of the results in resource conservation and green innovation must increase. The export of knowledge, expertise and production related to urban economic productivity through sustainable practices, technology and greater equity must also increase.

Portland enjoys the position of being one of the most fully functional urban laboratories for innovation in sustainability. The city has valuable experience built on rethinking infrastructure investments; examples include:

1. Active transportation including our transit, streetcar and bicycle systems
2. Green stormwater system
3. The trail-linked open space system

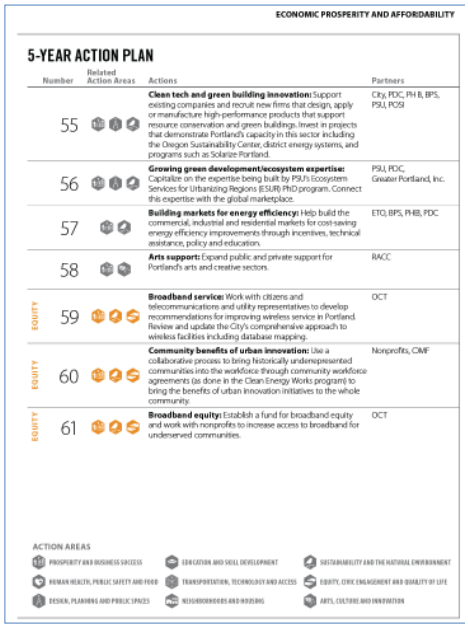
Portland universities and businesses are active in research and development and the commercialization of new technologies. Policies and programs, such as Clean Energy Works Oregon and Solarize Portland have contributed to growing the market for green building technologies and practices and have demonstrated how job creation can be part of reducing energy use and resource consumption.

Portland has a solid record of business growth related to urban innovation, including startups and niche product development. Examples include bicycle manufacturing, green building and stormwater products and services, local food businesses, planning and design, and international tourism.

Connections to other cities, nationally and internationally, and widening recognition of Portland as a sustainability leader have contributed to making the region and city more innovative and prosperous.

GUIDING POLICIES

- P-6 Enhance Portland as a national model for sustainability and as a center for business development by commercializing sustainability practices, products and services.
- P-7 Grow the local market for energy efficiency through incentives, market-based mechanisms and other programs. Use energy efficiency improvements to increase Portland's long-term affordability and resiliency and to reduce carbon emissions.
- P-8 Build on the advantages of the Central City as a center for innovation, commerce, universities, sustainable development, and green technology systems (such as district energy).
- P-9 Pursue universal, affordable and reliable access to high-speed information technology and the devices and training to use it. Support the deployment of high-bandwidth infrastructure through clustering and the co-location of users that need very large broadband capacity.
- P-10 Continue to promote innovation in public projects related to transportation and environmental services, including the following: (1) green infrastructure approaches as part of cleaning up the Willamette River, (2) an innovative active transportation system — transit, walking, use of mobility devices, biking, car and bike sharing, etc., and (3) urban parks and natural areas. These will enhance the livability of the city and give Portland a competitive advantage in retaining and attracting an educated, productive workforce.
- P-11 Support and invest in Portland's creative talent and leverage our arts and culture community to drive innovation and economic growth.
- P-12 Connect Minority, Woman-owned and Emerging Small Businesses (MWESB) with urban innovation opportunities.



5-YEAR ACTION PLAN

Number	Related Action Areas	Actions	Partners
55		**Clean tech and green building innovation:** Support existing companies and recruit new firms that design, apply or manufacture high-performance products that support resource conservation and green buildings. Invest in projects that demonstrate Portland's capacity in this sector including the Oregon Sustainability Center, district energy systems, and programs such as Solarize Portland.	City, PDC, PHB, BPS, PSU, POSI
56		**Growing green development/ecosystem expertise:** Capitalize on the expertise being built by PSU's Ecosystem Services for Urbanizing Regions (ESUR) PhD program. Connect this expertise with the global marketplace.	PSU, PDC, Greater Portland, Inc.
57		**Building markets for energy efficiency:** Help build the commercial, industrial and residential markets for cost-saving energy efficiency improvements through incentives, technical assistance, policy and education.	ETO, BPS, PHB, PDC
58		**Arts support:** Expand public and private support for Portland's arts and creative sectors.	RACC
EQUITY 59		**Broadband service:** Work with citizens and telecommunications and utility representatives to develop recommendations for improving wireless service in Portland. Review and update the City's comprehensive approach to wireless facilities including database mapping.	OCT
EQUITY 60		**Community benefits of urban innovation:** Use a collaborative process to bring historically underrepresented communities into the workforce through community workforce agreements (as done in the Clean Energy Works program) to bring the benefits of urban innovation initiatives to the whole community.	Nonprofits, CMF
EQUITY 61		**Broadband equity:** Establish a fund for broadband equity and work with nonprofits to increase access to broadband for underserved communities.	OCT

ACTION AREAS

PROSPERITY AND BUSINESS SUCCESS · EDUCATION AND SKILL DEVELOPMENT · SUSTAINABILITY AND THE NATURAL ENVIRONMENT · HUMAN HEALTH, PUBLIC SAFETY AND FOOD · TRANSPORTATION, TECHNOLOGY AND ACCESS · EQUITY, CIVIC ENGAGEMENT AND QUALITY OF LIFE · DESIGN, PLANNING AND PUBLIC SPACES · NEIGHBORHOODS AND HOUSING · ARTS, CULTURE AND INNOVATION

Strumenti per far fronte alla gentrification

Disponibilità di case

- **Aiuti per mantenere le famiglie nella loro residenza**
- **Aiutare le famiglie nell'accesso alla proprietà della casa**
- **Sviluppare strategie di sviluppo economico della comunità attraverso la riserva di case e accordi sulla ripartizione dei benefici**

Strumenti di tipo economico

- **Realizzare *Prosperity Initiative* per aiutare le attività commerciali del quartiere di fronte alla gentrification**
- **Supportare la piccola imprenditoria locale attraverso accordi con la forza lavoro**

Gestione e valutazione dei programmi

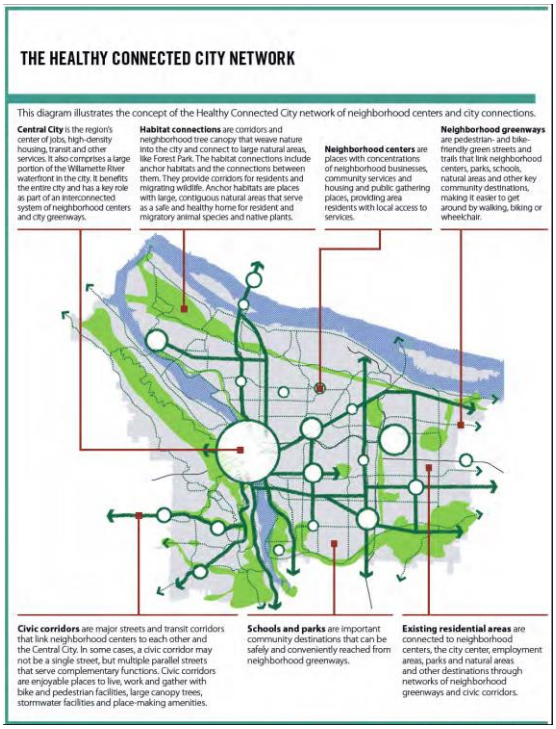
- **Monitorare i cambiamenti, inclusi quelli di razza, etnici, di età, di disagio, ecc.**
- **Utilizzare metodi di analisi per prevedere i potenziali effetti di gentrificazione degli interventi**
- **Valutare gli investimenti urbani e le azioni di trasformazione usando il Framework for Equity**

Ten actions that respond to the challenges posed by gentrification and displacement
Action 1: Enforce Title VI
Action 3: Evaluate equity impacts
Action 4: Improve evaluation methods
Action 12: Community dialogue
Action 34: Housing stability
Action 72: Neighborhood business development
Action 76: Housing strategy
Action 79: Equity in neighborhood change
Action 87: Hiring agreements
Action 97: Mitigate negative social impacts

HEALTHY CONNECTED CITY

GOAL: Improve human and environmental health by creating safe and complete neighborhood centers linked by a network of city greenways that connect Portlanders with each other.

Encourage active transportation, integrate nature into neighborhoods, enhance watershed health and provide access to services and destinations, locally and across the city.



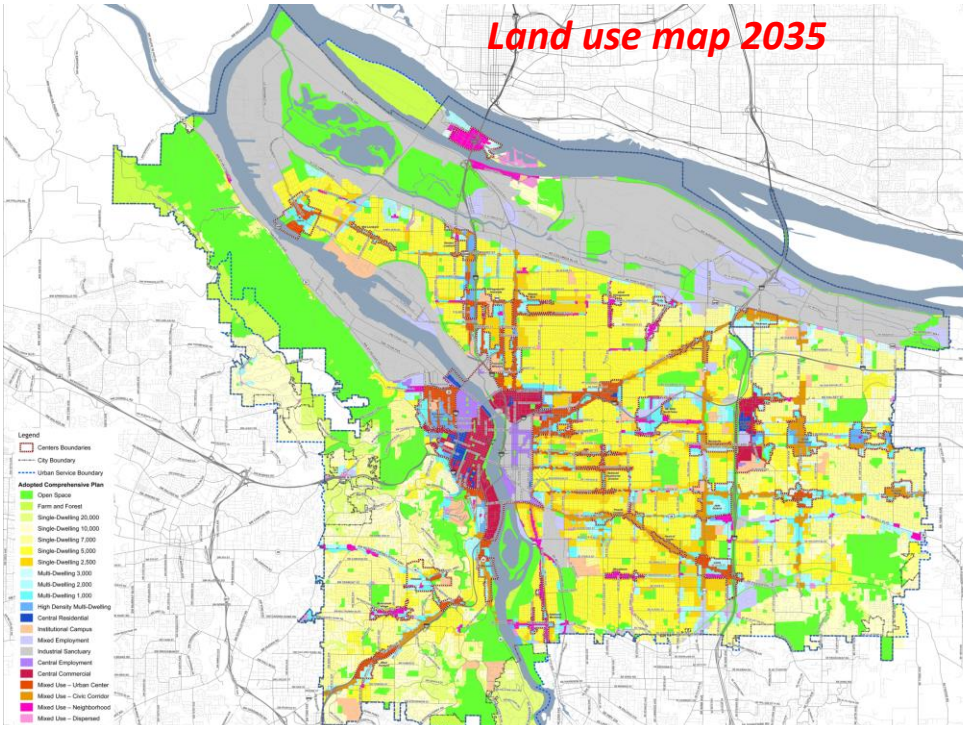
Intgrazione dei Piani settoriali

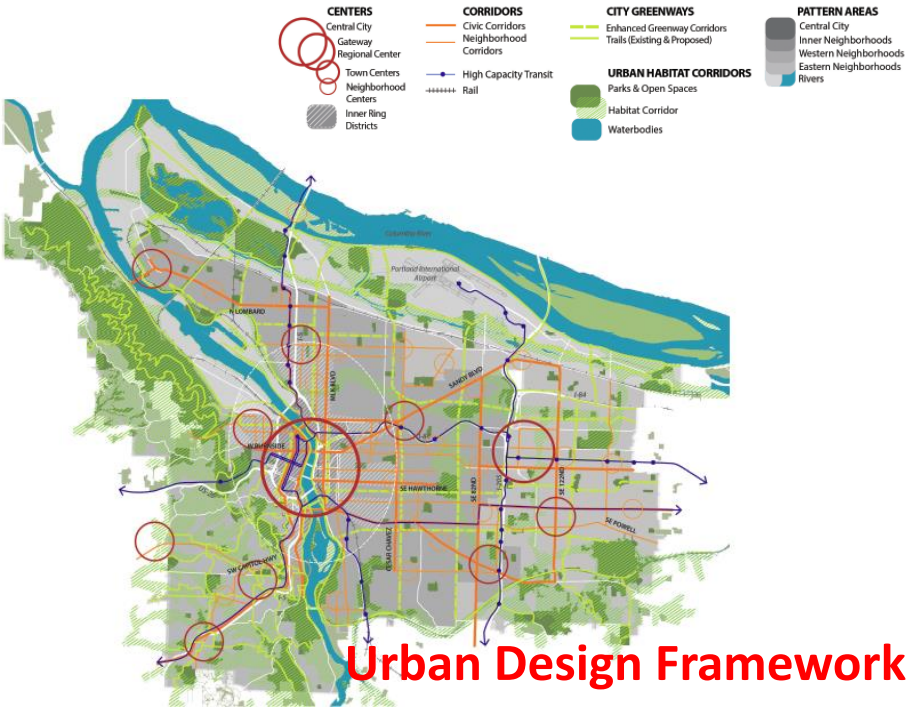
How was this diagram created?

It is based on elements from several different existing plans and studies. Each of these plans, taken individually, addresses some aspect of how the city grows or how we manage public spaces and street networks. The diagram illustrates how these different plans might interrelate to create a single multi-objective framework to guide the city's physical development. The following plans and initiatives informed the development of the diagram:

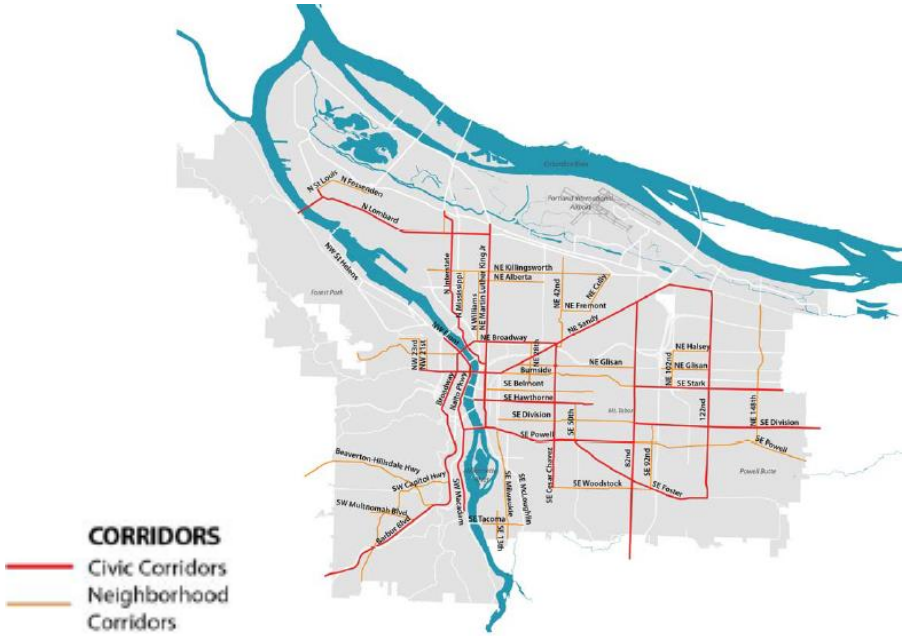
- Metro 2040 Framework
- Parks 2020 Vision
- The Interwine
- Streetcar System Concept
- Bicycle Plan for 2030
- Portland Watershed Management Plan

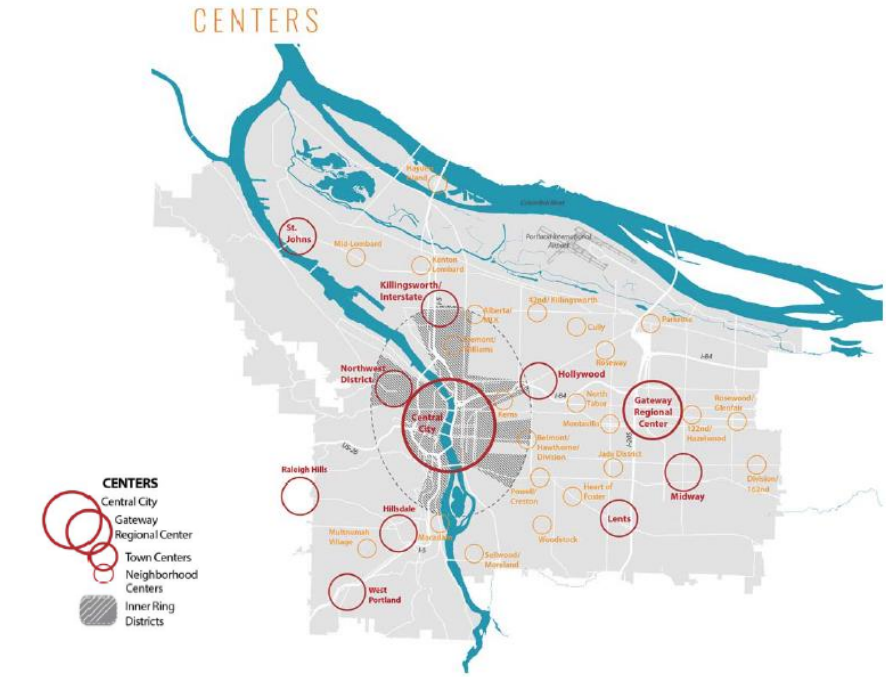
Land use map 2035





Urban Design Framework


CORRIDORS
Civic Corridors
Neighborhood Corridors
N St Louis
N Fessenden
N Lombard
N Interstate
N Rosa Parks
N Williams
N Vancouver
NE Killingsworth
NE Alberta
NE 42nd
NE Cully
NE Fremont
NE Sandy
NE Broadway
NE 2nd
NW 21st
NW Broadway
Burnside
NE Glisan
NE Halsey
NE 122nd
SE Belmont
SE Hawthorne
SE Division
SE 50th
SE Stark
122nd
SE 148th
SE Powell
Beaverton-Hillsdale Hwy
SW Capitol Hwy
SW Multnomah Blvd
SE Tacoma
SE Milwaukie
SE Cesar Chavez
SE Woodstock
SE 52nd
SE Foster


CENTERS
CENTERS
Central City
Gateway Regional Center
Town Centers
Neighborhood Centers
Inner Ring Districts
St. Johns
Killingsworth/ Interstate
Northwest District
Hollywood
Central City
Gateway Regional Center
Raleigh Hills
Hillsdale
West Portland
Midway
Lents

TRANSIT STATION AREAS

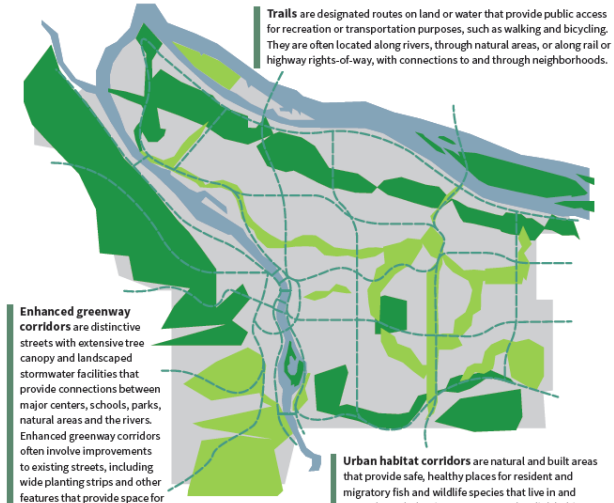
- Center Stations
- Employment Stations
- Transit Neighborhood Stations
- Destination Stations
- Central City Stations
- Intercity passenger rail alignment
- Future transit alignment & potential station areas
- Rail

URBAN HABITAT CORRIDORS

- Existing / Enhanced Habitat Corridor
- Future / Potential Habitat Corridor
- Parks & Open Space
- Waterbodies
- Elevation over 300'


CITY GREENWAYS
Trails (Existing & Proposed)
Enhanced Greenway Corridors
Heritage Parkways
Parks & Open Spaces


EMPLOYMENT AREAS
Central City
Industrial / Employment
Commercial
Institutional
Regional Truckway / Priority Truck Street
Heavy Rail



Trails are designated routes on land or water that provide public access for recreation or transportation purposes, such as walking and bicycling. They are often located along rivers, through natural areas, or along rail or highway rights-of-way, with connections to and through neighborhoods.

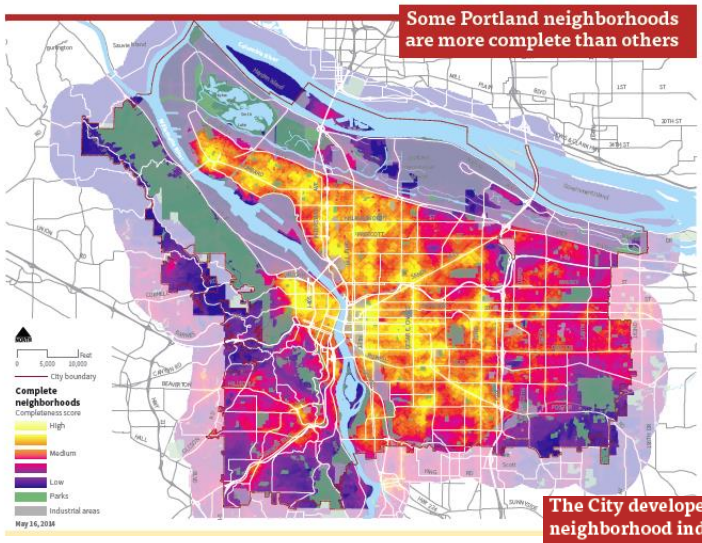
Enhanced greenway corridors are distinctive streets with extensive tree canopy and landscaped stormwater facilities that provide connections between major centers, schools, parks, natural areas and the rivers. Enhanced greenway corridors often involve improvements to existing streets, including wide planting strips and other features that provide space for large-canopy trees.

Heritage parkways are iconic streets or segments of streets with elements such as linear parkways, scenic views, and distinctive landscaping or street design.

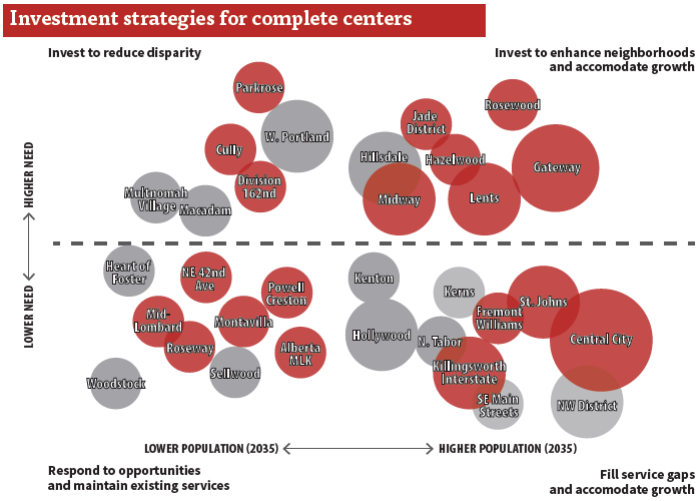
Neighborhood greenways are an extensive network of streets with low volumes of motor vehicle traffic. These routes are prioritized for bicycles and enhance the pedestrian environment, working in conjunction with the rest of the City Greenways system to extend the system into all neighborhoods.

Urban habitat corridors are natural and built areas that provide safe, healthy places for resident and migratory fish and wildlife species that live in and move through the city. As a system, they link habitats in Portland and the region, facilitating safe fish and wildlife access and movement through and between habitat areas. Enhanced habitat corridors are places where there is existing significant fish or wildlife habitat, as identified in the Natural Resource Inventory, and where habitat connectivity will be improved over time. Potential habitat corridors will be established over time. They are places where habitat features and functions (e.g., trees, vegetation, nesting and perching sites, food, etc.) will be integrated into generally more developed areas of the city.

2035 COMPREHENSIVE PLAN



The City developed the 20-minute neighborhood index to measure access to community amenities, products and services. The areas shown in yellow have the highest levels of access to services and amenities. The areas shown in purple have the lowest levels of access.



Circle sizes correspond to center types: Central City (largest), Gateway Regional Center, Town Centers and Neighborhood Center (smallest). Darker red circles indicate that the center includes higher than average concentrations of vulnerable residents, such as renters, communities of color, households with low-median incomes and/or low education levels.

La strategia per il cambiamento climatico

GUIDING PRINCIPLES FOR IMPLEMENTATION

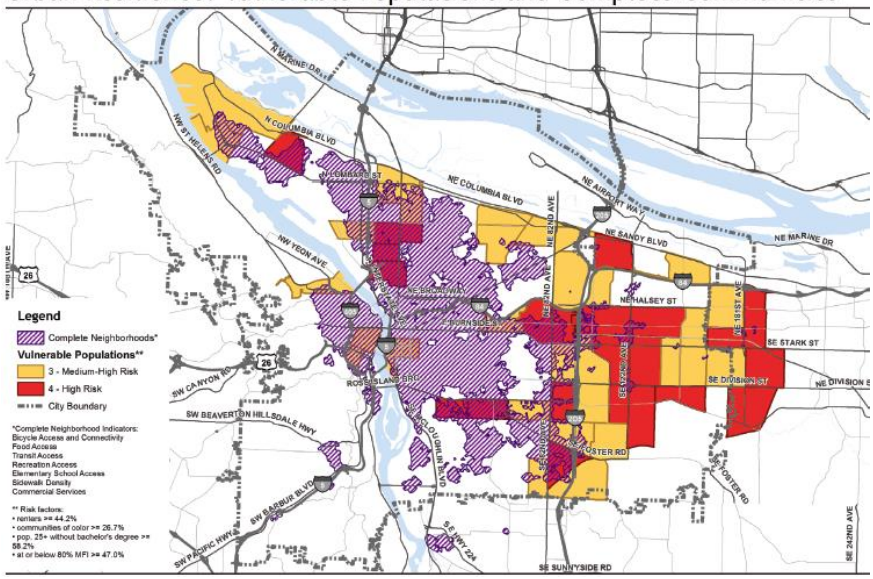
In implementing this Climate Change Preparation Strategy, the City and County are guided by these principles:

- Use the best available science at the time and stay abreast of new developments.
- Use an adaptive management approach, assemble information needed to improve efforts and promote flexible approaches that leave a range of future options available.
- Leverage existing efforts, funding, policies and programs.
- Maximize the co-benefits, improve equity outcomes and meet the needs of populations most vulnerable to climate change impacts.
- Integrate climate change preparation into operational and decision-making processes.
- Engage residents and the business community and coordinate and implement climate preparation efforts with other local and regional partners.

Figure 2. Climate change preparation planning and implementation process

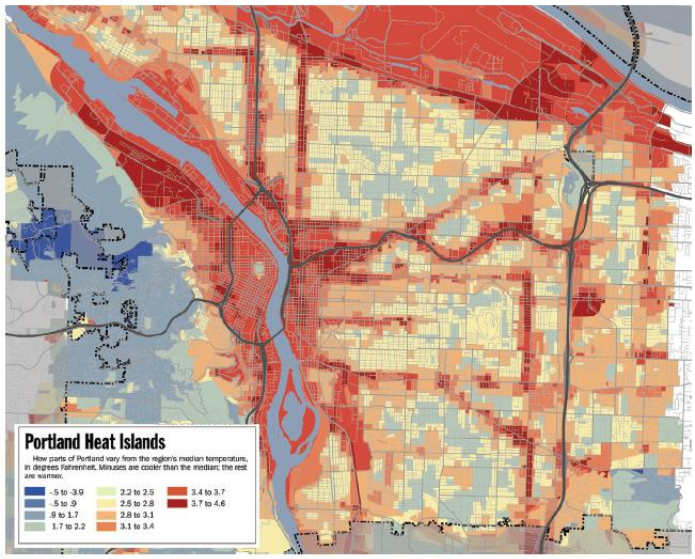
Le vulnerabilità

Urban Resilience: Vulnerable Populations and Complete Communities



Le vulnerabilità

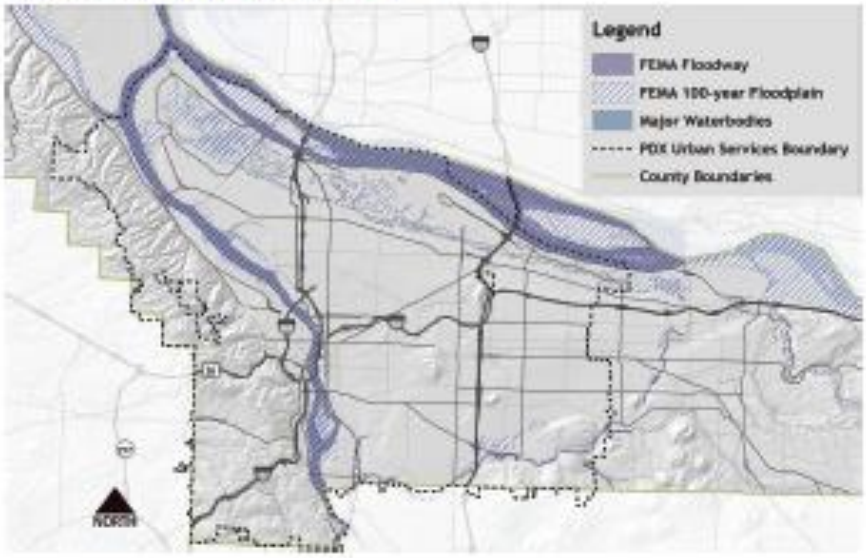
Figure 6. Urban heat islands in Portland



(Source: PSU's Sustaining Urban Places Research Lab, SUPR Lab; and David Sailor and Melissa Hart)

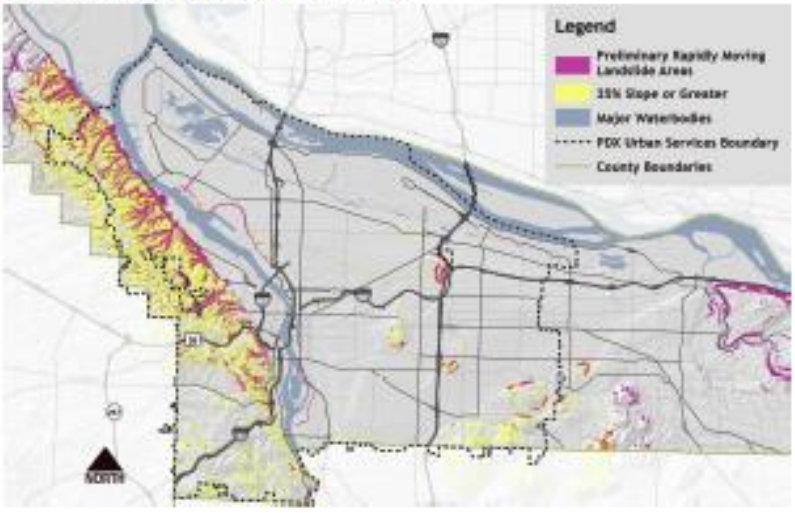
Le vulnerabilità

Figure 8. Portland flood hazard map



Le vulnerabilità

Figure 9. Portland landslide hazard map



Effetti del climate change

A FEW DEGREES OF WARMING WILL REALLY MAKE A BIG DIFFERENCE

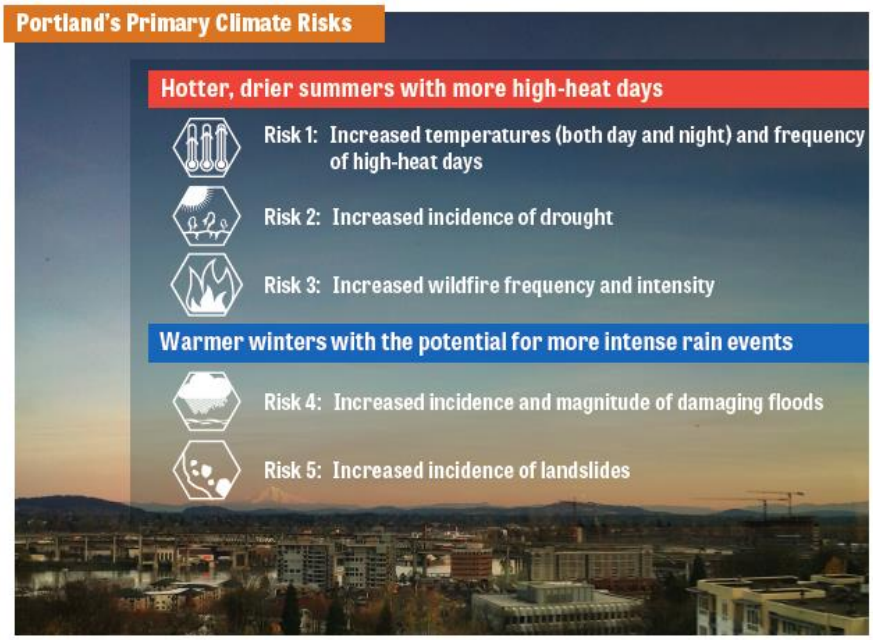
An average temperature increase of 1 °F per decade might not seem dramatic. However, such a shift in temperature will have significant impacts in Oregon.

For example, pinot noir grapes grow best at an average temperature of 57.2–60.8 °F, which is the temperature in the Willamette Valley during peak grape-growing season. Based on climate modeling, temperatures are predicted to increase 3.7 °F by year 2049 (Jones, White, Cooper & Storchmann, 2005). This change would mean that the Willamette Valley climate would shift to the current California wine region climate (61.7–67.1 °F), which is the optimal temperature range for cabernet sauvignon grapes rather than pinot noir.

Pacific Northwest ski areas are also at risk for negative impacts due to precipitation falling as rain rather than snow and earlier snowmelt. Data collected from 1948 to 2000 shows an average 9- to 11-day earlier snowmelt in the Pacific Northwest. Scientists project a 3.6 °F increase in winter temperatures in the Cascade and Olympic ranges. This warming could have a profound impact on local winter recreational activities (Nolin & Daly, 2006).

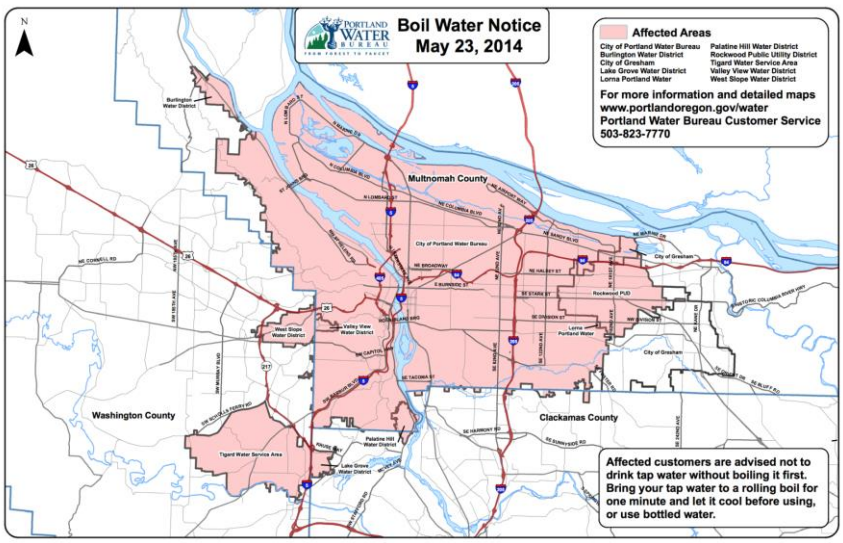
Source: Tinsley Humsdorfer/Audubon Society of Portland

Increased temperatures, along with associated dry spells, can result in dramatic impacts on the ecology of the region. In the fall of 2012, Smith and Bybee Lakes experienced an outbreak of avian botulism that resulted in the death of more than 4,000 birds. The Audubon Society of Portland treated over 150 birds from a variety of species. Coupled with impacts to the natural flushing mechanisms of the hydrologic system from surrounding development and invasive species — dry, hot weather created the ideal conditions for the outbreak of botulism. Hotter, drier summers could result in more of these types of events in the future.

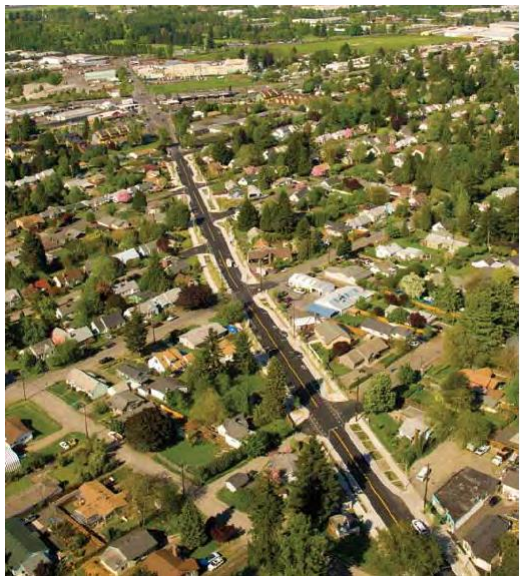


Azioni integrate per il Cambiamento climatico

	HOTTER, DRIER SUMMERS WITH INCREASED INCIDENCE OF HIGH-HEAT DAYS
1	Decrease the urban heat island effect, especially in areas with populations most vulnerable to heat.
2	Minimize health issues caused by extreme heat days, especially for populations most vulnerable to heat.
3	Increase the resilience of Portland's water supply to drier summers.
4	Increase the resilience of natural systems to adapt to increased temperatures and drier summers.
5	Manage the risk of wildfires as a result of drier summers.
	WARMER WINTERS WITH THE POTENTIAL FOR MORE INTENSE RAIN EVENTS
6	Increase the resilience of the natural and built environment to more intense rain event and associated flooding.
7	Manage the increased risk of disease due to changes in vector populations.
8	Manage the increased risk of landslides due to changing precipitation patterns.
	BUILDING CAPACITY TO PREPARE FOR AND RESPOND TO CLIMATE CHANGE
9	Strengthen emergency management capacity to respond to weather-related emergencies.
10	Institutionalize climate change preparation planning and best practices.
11	Improve the capacity of the community, especially populations most vulnerable to climate change risks, to understand, prepare for and respond to climate impacts.
12	Improve monitoring, evaluate effectiveness of climate change preparation actions and advance new research to support climate change preparation efforts.




Walkin' Wild
Discover wildlife in our backyard along the North Columbia Slough. Keep your eye out for eagles, ducks, herons and cormorants. Wander through the park at the Treatment Plant which features great wildlife related art and travel along the great new sidewalk on N Columbia Blvd. One trailhead is a half mile walk from either Kenton or Delta Park stations.
Accessibility: Access to the trailhead along N Denver is difficult; the trail is hard-packed gravel and there are paved sidewalks from the Treatment Plant.
BEGIN at Paul Bunyan statue across from the Kenton/N Denver MAX Station
1. Cross N Interstate and MAX tracks to eastside of N Denver
2. Walk north along N Denver, across the N Denver Viaduct
3. Cross to traffic island at N Schmeer
4. Cross over N Denver at N Schmeer Road to Columbia Slough Trailhead
5. Walk west along the Columbia Slough Trail under the railroad overpass
6. Turn left onto the pedestrian bridge and follow trail around to the left, through to N Columbia Blvd.
7. Turn right along trail that parallels N Columbia Way to N Portsmouth
8. Cross N Columbia Blvd with signal at N Portsmouth
9. Turn left and walk along N Columbia Blvd path
10. Angle right up slight hill on N Argyle to N Denver back to Paul Bunyan
4.5 miles
9,000 steps
1 hour 45 minutes



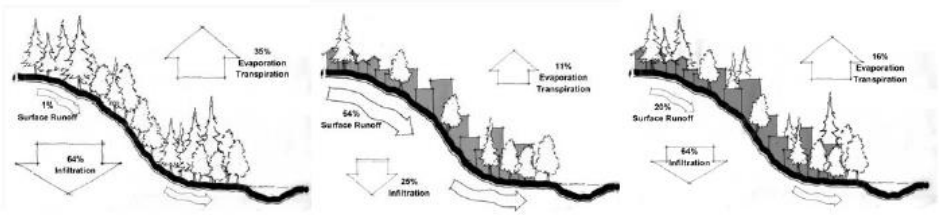


Figure 2: Hydrologic cycle scenarios relative to impervious surface cover

Dopo la pioggia il fiume è più inquinato

Il patto con i cittadini

Stormwater runoff can impact water quality in rivers and streams. Portland uses green streets, ecoroofs, trees and other green infrastructure to increase sewer system efficiency, and protect water quality, public health, and the environment. Green infrastructure keeps stormwater out of the sewer system, filters pollutants, provides habitat and increases neighborhood green space for healthier watersheds.

ENVIRONMENTAL SERVICES CITY OF PORTLAND working for clean rivers

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working for clean rivers

Community Watershed Stewardship Program

Program Overview

The Community Watershed Stewardship Program (CWSP) helps Portlanders improve watershed health and helps organizations develop the capacity to continue that work into the future. CWSP offers funding for community projects, assists with project planning and management, and identifies extra resources to help complete projects.

CWSP provides annual stewardship grants of up to $10,000 for community projects that protect and enhance watershed health, and native plant mini grants of up to $500. Contact us to discuss ideas 503-823-7917.

Watershed health projects have many other benefits. CWSP projects give Portlanders more access to nature by creating green space. Communities take responsibility for making positive changes to their environment. Groups increase their ability to create positive changes in the future.

CWSP offers grants of up to $10,000 for watershed health projects. Grant recipients can spend up to $3,000 on professional services, including compensation for project coordinators, contracted services, and stipends for participating youth. An additional $2,000 may be spent on youth stipends. Recipients typically also spend grant funds on native plants, soil amendments, tools, and other materials.

Education

Education is a part of every CWSP project. CWSP connects community groups with resources to develop educational events or programs about Portland's watersheds and natural areas.

Pavement Removal and Urban Restoration

Hard surfaces like asphalt do not allow rain to soak into the ground and generate stormwater runoff that can wash pollutants into rivers and streams.

In some parts of Portland, runoff also contributes to combined sewer overflows to the Willamette River. Removing pavement reduces stormwater runoff and creates green space.

Rain Gardens and Stormwater Management

Rain gardens and swales collect rain water from roofs and parking areas and let it soak into the ground. Plants and soil in rain gardens filter and cool the water as it replenishes groundwater supplies.

Natural Area Restoration

Removing invasive plants and restoring native plants improves wildlife habitat and maintains natural food webs. Participants in natural area restoration projects learn about watershed health and discover places to enjoy nature.

Community Gardens

Creating community gardens can involve pavement removal, soil improvements, erosion control, and invasive plant removal. Community gardens can include edible native plant areas, native plant areas for pollinators, rain gardens, fruit and nut trees, and can provide watershed education opportunities. All of these things contribute to healthy watersheds and healthy communities. If you are building or improving a community garden, call the grants coordinator to discuss how your garden can improve watershed health.

Cleanup Projects

Removing trash from natural areas and waterways benefits local wildlife and water quality, and transforms neglected places into community assets.

www.portlandonline.com/bes/stewardship
Stewardship Coordinator 503-823-7917

The Green Street Steward's Maintenance Guide

Green Streets

are landscaped spaces that transform street surfaces into living stormwater management facilities. Green streets capture stormwater runoff and let water soak into the ground as plants and soil filter pollutants. Green Streets convert stormwater from a waste directed into a pipe, to a resource that replenishes groundwater supplies and protects urban watershed health. They also create attractive streetscapes and urban green spaces, provide natural habitat, and enhance pedestrian and bicycle safety.

ENVIRONMENTAL SERVICES CITY OF PORTLAND working for clean rivers

Maintaining your Green Street's Function

Begin by:
1) registering as a Green Street Steward
2) selecting a Green Street to adopt
3) accepting the terms and conditions

The most important part of Green Street maintenance is to make sure Green Streets capture and filter stormwater. So check your Green Street regularly to assure water flows into the facility. Simply follow the maintenance steps below:

Clear Curb Openings

Clear curb openings so water can flow into the facility. Rake and remove leaves, trash and debris. Push aside, but do not remove, sediment to create a clear path for stormwater flow. **The best time to clear curb openings is before or during a rain storm.**

Clear Drains

Make sure that overflow drains aren't blocked. Remove leaves, debris and trash on top of grates. Do not lift grates.

Remove Trash

Pick up any trash you find and recycle if appropriate or throw into a trash can.

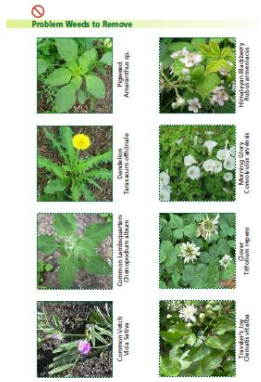
Watering

Although Green Street plants can tolerate our dry summer climate, they can benefit from additional watering during extended periods of summer drought or extreme heat. The city welcomes your help with watering during these times. Please use a gentle, low pressure shower setting to avoid erosion, and don't water at a faster rate than the ground can soak it up.

Please DO NOT:

The city selects plants and soil that work best for Green Stre function. Any changes, alterations or additions to the Green Street may disrupt this function and the growth of plants. For these reasons, **please do not**:

- Prune or trim plants and trees in the facility
- Add or replace plants
- Use chemical herbicides, fertilizers, or insecticides
- Modify or alter the facility's function or design
- Add or remove soil, compost, mulch, or fill
- Store tools, lumber or other items in the facility
- Remove dead or dying plants
- Remove sediment



Volontari all'opera

What Makes a Project Successful?

Defining success

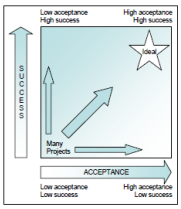
A successful stormwater management project is one that functions as designed and meets the overall goals and objectives of the project. Every stormwater best management practice (BMP) will have its own specific measures of success based on the initial goals and specifications. Goals and objectives should be established at the beginning of every project. These, supplemented with a set of metrics and a monitoring plan, will allow you to evaluate the success of your project.

Many successful projects share one or more of the following characteristics:

- The BMP meets expectations of public/client.
- The BMP meets regulatory requirements.
- The BMP functions as intended (water quality and quantity goals are met).
- The BMP remains viable and attains the intended design aesthetic over its intended lifespan (maintenance requirements have been developed and executed properly).

Success vs. acceptance

There are two ways to describe the end result of any project: whether it is successful and whether it is accepted. A successful project, as indicated above, is one that accomplishes its intended purpose or achieves a stated goal. A project that is accepted receives a favorable reception and is met with approval by the various stakeholder groups. Ideally, a project will be both highly successful and highly accepted.



Predicting success

It is impossible to predict with certainty whether a project will be successful. Each BMP project has a unique set of goals and metrics, a defined set of resources, and is developed in a particular regulatory, social, and political climate. There are, however, certain factors that may increase the likelihood that you will achieve the ideal of high success and high acceptance:

Communication:

- Effective communication is probably the most important aspect of a successful project and it's the one you have the most control over.
- Communication should start early and be frequent, consistent, respectful and responsive.
- Introduce ideas and projects slowly – start simple and small and build from there.
- Involve key decision makers early in the process and strive to obtain buy-in for your ideas and projects.

Collaboration:

- Solicit participation from multiple stakeholder groups.
- Involve the public. Educate them on the benefits and requirements of your installation.
- Identify what motivates different groups and use that to pitch your ideas.

Design/Development:

- Take an integrated approach – a stormwater project can address water quality and quantity goals while simultaneously providing added aesthetic, recreational, or other amenities to the site or the community at large.
- Develop projects that respond to and respect the character and function of the site in particular and the larger community in general.
- Bring technical expertise to the project to ensure that it is designed to meet performance goals with minimal maintenance.
- Pay close attention to potential problems during installation and make modifications as necessary through each stage of development.
- Be proactive in your approach to removing obstacles to implementation.
- Address all stakeholder concerns in turn and work with them to identify acceptable solutions.
- Always include a maintenance and monitoring strategy as part of the development plan.
- Maintain installations to uphold the standards and values of the surrounding community.

Other factors:

- View every stormwater BMP installation as a marketing opportunity for your next project
- Remove any road blocks you can identify in advance and anticipate the needs of your stakeholders.
- Establish demonstration projects so people can experience BMPs in action.
- Keep the project design as simple as possible – fewer "bells and whistles" lead to fewer complications.

There are also some external factors that may impact the level of success and acceptance your project can achieve, including regulatory and social factors. The following are aspects of a community that is receptive to new ideas and approaches:

- A regulatory framework is already in place to accommodate non-traditional approaches to stormwater management.
- Interdisciplinary planning teams are a common aspect of many projects.
- The public or your client is already familiar with the potential benefits of stormwater BMPs.
- The community favors environmentally friendly or sustainable development and supports a green aesthetic.

You may also be interested in:

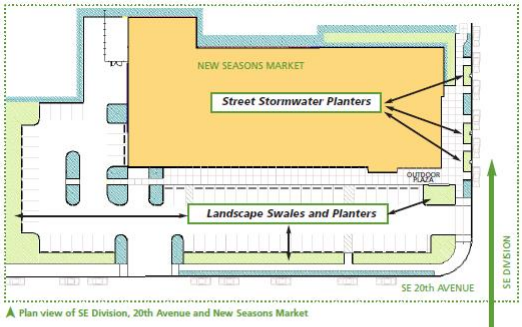
Bring Your Ideas to the Community
Metrics and Measurement
Drivers and Motivating Factors
Using Rainwater to Grow Livable Communities

Principi basici

- ***Trattare l'acqua come una risorsa e non come un rifiuto***
- ***Progettare in armonia con l'idrologia naturale di ciascun sito***
- ***Infiltrare, drenare o ritenere l'acqua di pioggia nei limiti del progetto dovunque possibile***
- ***Partire da piccoli progetti per arrivare a progetti maggiori***
- ***Ricorrere a interventi semplici***
- ***Progettare secondo gli standard e le aspettative della comunità locale***

Principi basici (segue)

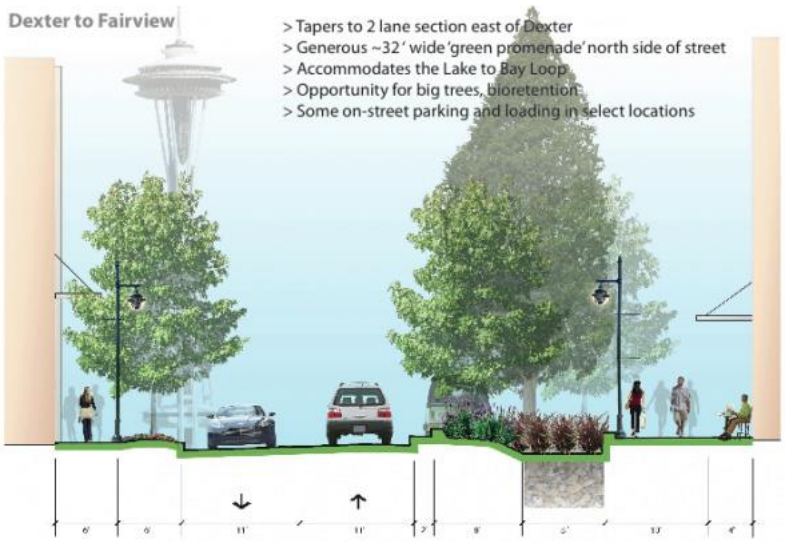
- ***Progettare avendo in mente la qualità, la quantità dell'acqua e la sua amenità***
- ***Le buone pratiche di gestione dell'acqua devono essere integrate in pressoché tutti i progetti***
- ***I progetti devono essere collaborativi e incoraggiare la partecipazione attiva di molti soggetti***
- ***Le buone pratiche sono parte della soluzione: occorre integrarle, se occorre, con i sistemi tradizionali***



Plan view of SE Division, 20th Avenue and New Seasons Market

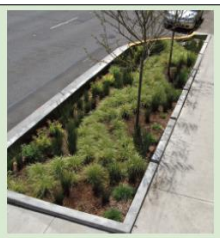
SE Division Green Street Planters. Stormwater slows as it enters the landscape area, water soaks into the ground, and plants filter pollutants.

Le componenti progettuali



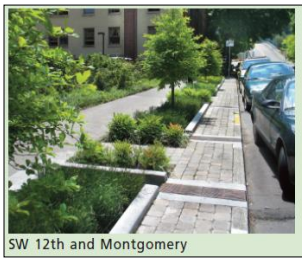
Tipi di green street

SE 42nd and Belmont



SE 12th and Clay

Stormwater Curb Extension
Extending into the street, stormwater curb extensions transform the curb lane into a landscape area. Curb extensions can conveniently integrate a ramp for safe pedestrian crossing.



SW 12th and Montgomery

SE 92nd street

Stormwater Street Planter
Stormwater Street Planters between the sidewalk and the curb work well in areas with limited space, and they allow for adjacent street parking or travel.

segue

NE 21st and Sandy

SE 55th and Belmont

Rain Gardens
Where there is plenty of space, rain gardens are ideal. They can also transform awkward street intersections into safe pedestrian and bicycle crossings.

N Willamette and Denver

NE 23rd and Irving

Simple Green Street
Excavating an existing planting area behind a reinforced curb, making curb cuts for inflow and outflow, and landscaping with appropriate vegetation is a simple approach to capture and treat street runoff.

Disconnessione dei pluviali dalla rete di collettamento (Downspout Disconnection)

L'acqua raccolta dai pluviali viene indirizzata su superfici permeabili. Se la raccolta delle acque provenienti dalla copertura è interna al fabbricato la disconnessione risulta impossibile e si può ricorrere a cisterne o a tetti verdi. L'area di recapito può essere formata da prati, giardini, cespugli, ecc. Talvolta occorre trattare il terreno per aumentarne la permeabilità. Il volume d'acqua infiltrato attraverso tali aree arriva, ove possibile, direttamente alle falde alimentandole, oppure può essere temporaneamente trattenuto per essere poi recapitato agli impianti di collettamento e depurazione. Si riduce in tal modo la capacità necessaria a far fronte ai carichi di picco e si predispone la città a ridurre i rischi di inondazione dovuti agli eventi estremi.

Fasce filtro (Filter Strips)

Le fasce filtro sono aree a pendenza uniforme, completamente coperte da vegetazione permanente finalizzate a trattenere l'acqua di pioggia proveniente da superfici impermeabili, come strade, piazzali, ecc. Il passaggio attraverso tali filtri costituisce un pre-trattamento per il disinquinamento dell'acqua; i filtri fanno quindi parte della catena di trattamento che può essere conclusa attraverso infiltrazione naturale o il recapito alle condotte della rete di collettamento. Le fasce filtro funzionano bene se il suolo è sufficientemente permeabile, la superficie di scorrimento è mantenuta per tutta la lunghezza e la profondità della striscia e se il tempo di contatto consente l'infiltrazione e l'evotraspirazione dell'acqua raccolta.

Dispositivi di infiltrazione (Infiltration Practices)

I dispositivi di infiltrazione sono finalizzati ad accrescere la percolazione dell'acqua attraverso una matrice di materiali che rallenta e trattiene parzialmente il ruscellamento e ne facilita il disinquinamento. Tali dispositivi possono assumere la forma di trincee riempite di ciottoli che permettono all'acqua di filtrare sia attraverso il fondo che attraverso le pareti. Le trincee sono integrate con fasce filtro per impedire la sedimentazione e l'occlusione della capacità di drenaggio della trincea.

Vasche di laminazione (Pocket Wetlands)

Le vasche di laminazione sono progettate e localizzate per controllare i volumi di pioggia e per facilitarne la depurazione. Dal momento che si tratta di impianti artificiali essi hanno valori modesti dal punto di vista della biodiversità ma richiedono comunque il mantenimento di un flusso d'acqua per la sopravvivenza delle piante acquatiche presenti. La rimozione dell'inquinamento avviene attraverso griglie per intercettare gli elementi solidi e trattamenti per le materie organiche e anche attraverso la capacità di depurazione delle piante acquatiche. Il tempo di ritenzione è di 24 ore o meno e la profondità è non minore di tre piedi (circa 1 metro); le vasche sono talvolta dimensionate per contenere il 90% del volume del ruscellamento degli eventi temporaleschi annuali.

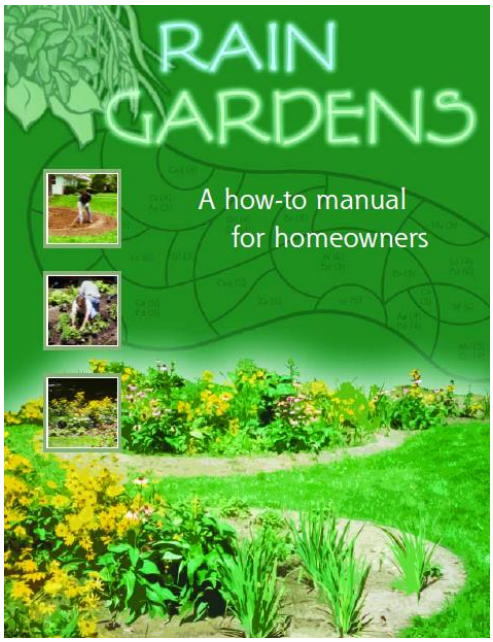
Giardini della pioggia (Rain Gardens)

I giardini della pioggia sono depressioni del terreno coperte di vegetazione che trattiene l'acqua e consente la sua infiltrazione nel sottosuolo. L'assorbimento da parte delle piante reduce il volume dell'acqua e la concentrazione degli inquinanti. .I giardini della pioggia prevedono un trattamento del terreno per aumentarne la permeabilità e sono progettati per trattenere l'acqua evitando il formarsi di polle d'acqua per oltre 24 ore. I giardini della pioggia possono assumere forme diversissime: dalla aiuola nel giardino di casa fino alla bordura continua a fianco della strada. La loro funzione, come quella degli altri dispositivi, è quella di ridurre i carichi di punta e di rallentare la velocità del loro deflusso . La depurazione fisica e microbiologica che essi rendono possibile ottiene importanti effetti di rimozione dei batteri, delle materie organiche, del fosforo e dei metalli.

DESIGN PRINCIPLES

- Literature suggests rain garden areas of about 10-20% of upstream impervious area. For GVRD, calculate rain garden area by continuous flow modelling. Optimum rain garden size is about 50sq.m. draining 250sq.m. of impervious area.
- Smaller, distributed rain gardens are better than single large scale facilities.
- Locate rain gardens a minimum 30.5m from wells, 3m downslope of building foundations, and only in areas where foundations have footing drains and are not above steep slopes.
- Provide pretreatment and erosion control i.e. grass filter strip to avoid introducing sediment into the garden.
- At point-source inlets, install non-erodable material, sediment cleanout basins, and weir flow spreaders.
- Bottom width - 600mm (Min.) to 3000mm (desirable). Length-width ratio of 2:1.
- Side slopes - 2:1 maximum, 4:1 preferred for maintenance. Maximum ponded level - 150 - 300mm.
- Draw-down time for maximum ponded volume - 72 hours.
- Treatment soil depth - 450mm (Min.) to 1200mm (desirable); use soils with minimum infiltration rate of 13mm/hr.
- Surface planting should be primarily trees, shrubs, and groundcovers, with planting designs respecting the various soil moisture conditions in the garden. Plantings may include rushes, sedges and grasses as well as lawn areas for erosion control and multiple uses.
- Apply a 50-75mm layer of organic mulch for both erosion control and to maintain infiltration capacity.
- Install a non-erodible outlet or spillway to discharge overflow.
- Avoid utility or other crossings of the rain garden. Where utility trenches must be constructed below the garden, install trench dams to avoid infiltration water following the utility trench.
- Drain rock reservoir and perforated drain pipe may be avoided where infiltration tests by a design professional show a subsoil infiltration rate that exceeds the inflow rate.

Istruzioni per rain gardens



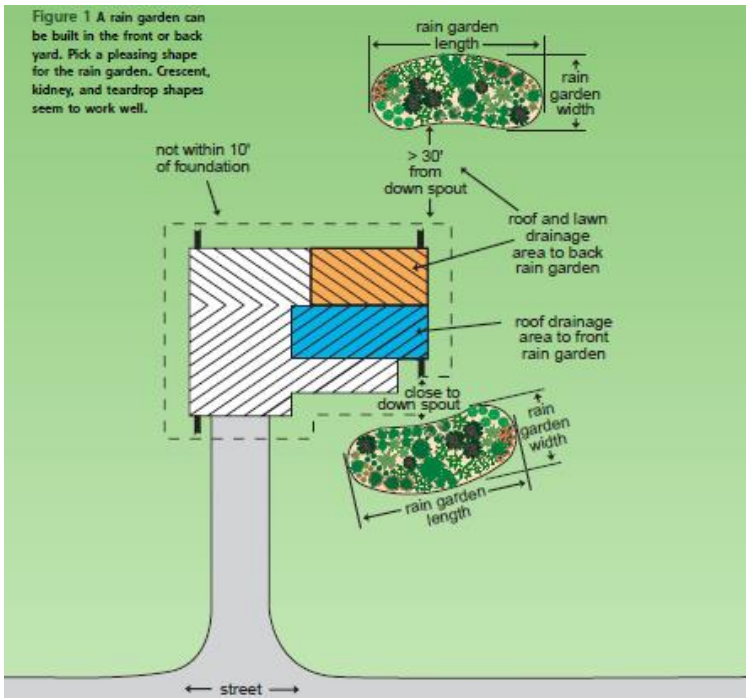


Figure 1 **A rain garden can be built in the front or back yard. Pick a pleasing shape for the rain garden. Crescent, kidney, and teardrop shapes seem to work well.**

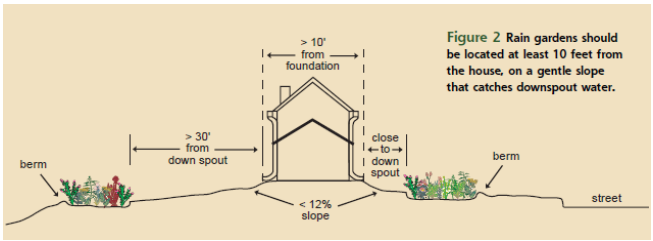


Figure 2 **Rain gardens should be located at least 10 feet from the house, on a gentle slope that catches downspout water.**

How Deep Should the Rain Garden Be?

A typical rain garden is between four and eight inches deep. A rain garden more than eight inches deep might pond water too long, look like a hole in the ground, and present a tripping hazard for somebody stepping into it. A rain garden much less than four inches deep will need an excessive amount of surface area to provide enough water storage to infiltrate the larger storms.

No matter what the depth of the rain garden, the goal is to keep the garden level. Digging a very shallow rain garden on a steep lawn will require bringing in extra topsoil to bring the downslope part of the garden up to the same height as the up-slope part of the garden. As the slope gets steeper, it is easier to dig the rain garden a little deeper to make it level.

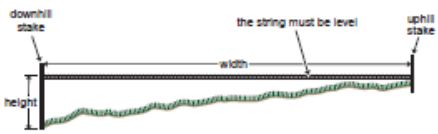


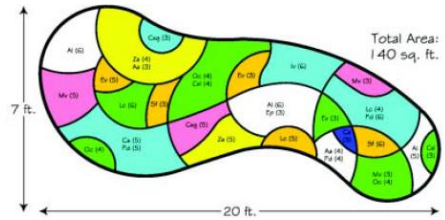
Figure 3 **The string should be tied to the base of the uphill stake, then tied to the downhill stake at the same level.**

Todd measures the length of the string between the stakes; it is 180 inches long. The height is 9 inches. He divides the height by the width to find his lawn's percent slope.

$$\frac{\text{height}}{\text{width}} \times 100 = \text{\% slope} \qquad \frac{9 \text{ inches}}{180 \text{ inches}} \times 100 = 5\% \text{ slope}$$

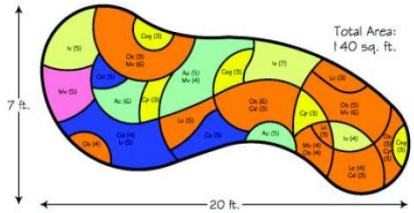
With a 5% slope, Todd should build a 6 inch deep rain garden.

20 feet wide; full to partial shade with silty & sandy soils



Symbol	Species Name	Common Name	No. of Plants
Aa	Arisaema atrorubens	Jack-in-the-pulpit	7
Al	Aster lateriflorus	Side-flowering aster	17
Ca	Campanula americana	Tall bellflower	8
Cxg	Carex Grayi	Bur sedge	8
Cxl	Carex lupulina	Hop sedge	7
Ev	Elymus virginicus	Virginia wild rye	11
Ep	Eupatorium purpureum	Purple Joe-Pye weed	3
Iv	Iris virginica-shrevei	Wild blue flag iris	6
Lc	Lobelia cardinalis	Cardinal flower	15
Mv	Mertensia virginica	Virginia bluebells	11
Oc	Osmunda claytoniana	Interrupted fern	12
Pd	Phlox divaricata	Woodland phlox	15
Sf	Solidago flexicaulis	Zig zag goldenrod	9
Za	Zizia aurea	Golden Alexander	14
		Total Plants Needed	143

20 feet wide; full to partial shade with clay soils



Symbol	Species Name	Common Name	No. of Plants
Ac	Acorus calamus	Sweet flag	16
Cp	Caltha palustris	Marsh marigold	9
Ca	Campanula americana	Tall bellflower	5
Cxg	Carex Grayi	Bur sedge	9
Cxl	Carex lupulina	Hop sedge	15
Iv	Iris virginica-shrevei	Wild blue flag iris	21
Lc	Lobelia cardinalis	Cardinal flower	15
Mv	Mertensia virginica	Virginia bluebells	25
Os	Onoclea sensibilis	Sensitive fern	25
		Total Plants Needed	140

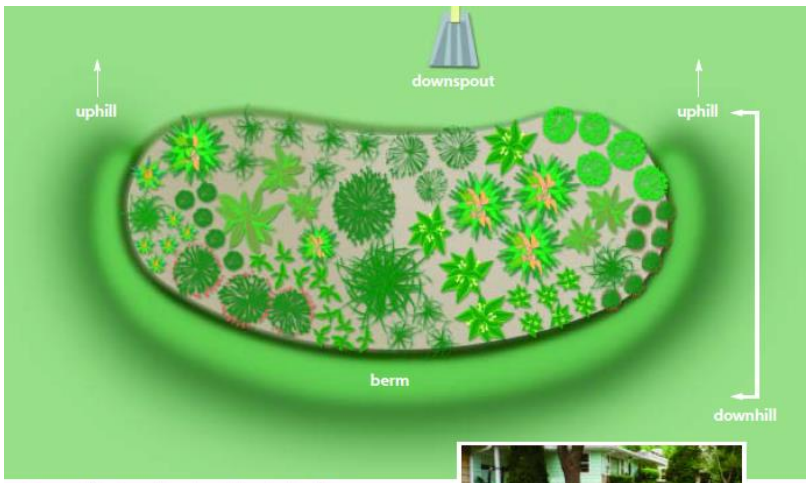


Figure 5 The top of the downhill part of the berm should come up to the same elevation as the entry to the rain garden at the uphill end.

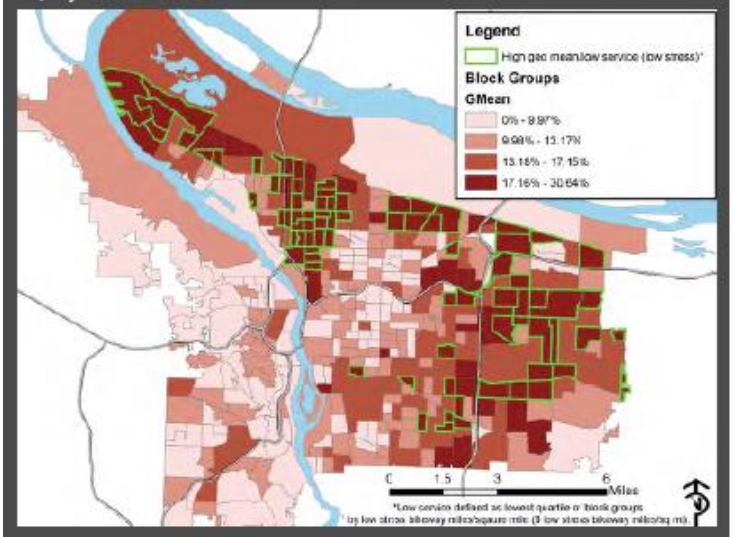
On a gentle slope, soil from digging out the garden can be used to create the berm. This rain garden is 4 inches deep.

"If you can make a city move by bicycling, it will be a more human and egalitarian city."

- Enrique Peñalosa, former mayor of Bogotá, Colombia

Part ONE

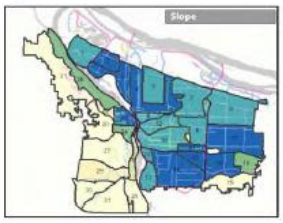
Equity GAP ANALYSIS:



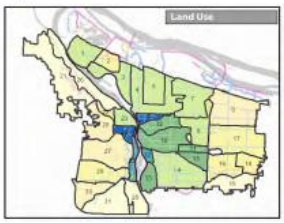
Service gaps compared to indicators of disadvantage for existing bikeway network. (Darker areas are higher disadvantaged population; outlined boxes are low service areas with high disadvantaged population).

FIGURE 5-1: Equity Gap Analysis

Map 5

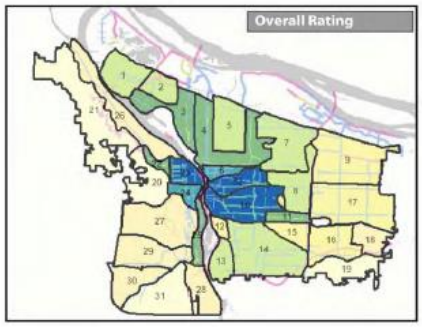


Map 6

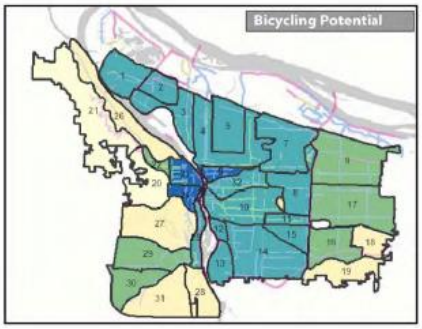


Darker areas on each map represent zones with higher scores for each index. Lighter areas on each map represent zones with lower scores for each index.

Map 7



Map 8



283 Built Bikeway Miles in 2009

303 Existing Bikeway Miles (as of March 2011)

341 Existing and Funded Bikeway Miles

430 Existing, Funded and In-Planning Bikeway Miles

Al 2030 il 90% degli abitanti di Portland avrà a disposizione una rete ciclabile sicura entro ½ miglio e il 71% entro ¼ di miglio. Un terzo di questa rete correrà lungo Greenways.

Portland's BIKEWAY MILES					PORTLANDERS LIVING NEAR IOW-STRESS BIKEWAYS - Number / (%)	
Year	Neighborhood Greenways	Separated In-roadway	Off-street Trails	Total	Within 1/2 Mile	Within 1/4 Mile
2009	30	175	78	283	277,300 / (51%)	159,700 / (29%)
Existing (March 2011)	46	179	78	303	342,200 / (62%)	212,800 / (39%)
Existing & Funded	71	187	83	341	399,600 / (73%)	268,200 / (49%)
Existing, Funded & In-Planning	149	198	83	430	493,900 / (90%)	390,900 / (71%)

PERFORMANCE measures:

Themes	Performance category	Performance measure
Bicycle mode share	Bicycle share of all trips	Percent bicycle mode share for all trips (citywide / by district)
	Bicycle share of commute trips	Bicycle share of all commute trips / mode share targets by district
Bikeway network	Network completion	Percent of residents within a quarter mile of an existing improved bikeway / percent of bikeway miles completed
	Network connectivity	Bikeway network density: miles of bikeway per square mile / percent of missing links (total miles of gaps) in in the active bikeway network improved
	Attractiveness of bicycling for short trips	Bicycle share of all trips less than three miles
	Access to transit stations and centers	Percent of transit centers / stations with direct links to bikeway network from all directions
	Access to low-stress bikeway network	Percent of households within a quarter mile of a low-stress bikeway
	Quality of bicycle facilities (comfort / maintenance)	Percent of residents who feel safe and comfortable on bikeways / percent of residents satisfied with bikeway conditions

FIGURE 5-4: Performance measures (CONTINUED on next page)