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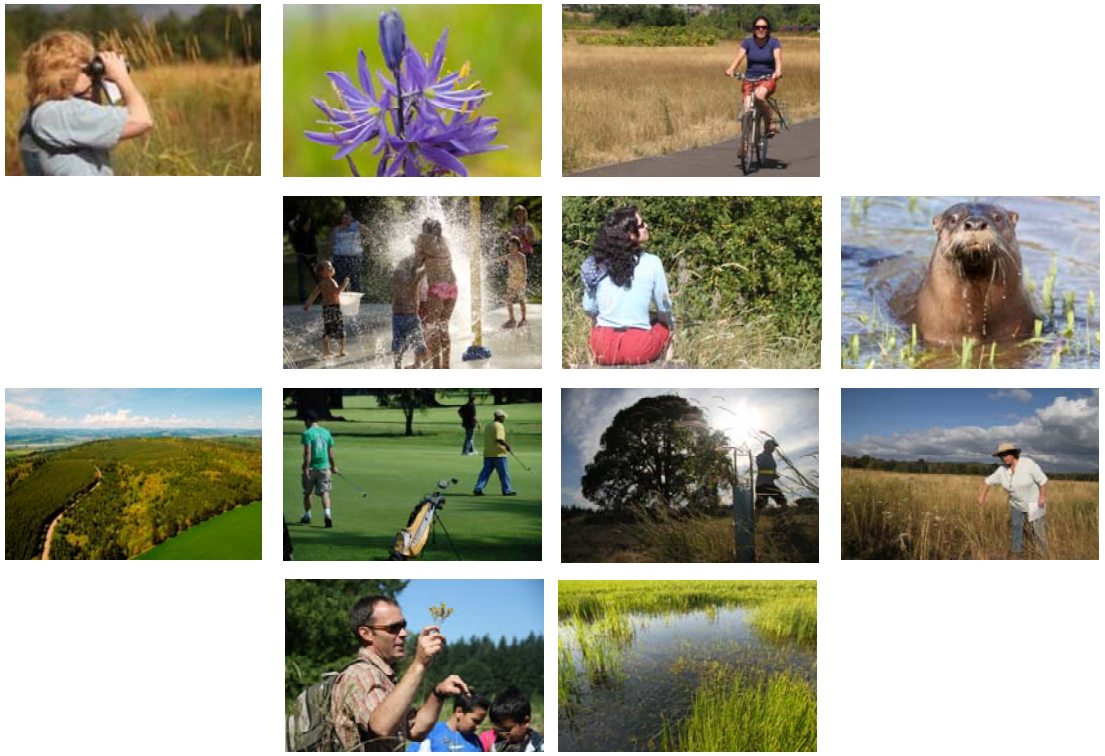

METRO'S PORTFOLIO OF NATURAL AREAS, PARKS AND TRAILS: OPPORTUNITIES AND CHALLENGES

NOVEMBER 2011

Metro | *Making a great place*

About Metro

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together we're making a great place, now and for generations to come.

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

Over the last 20 years, a vast constellation of public land has quietly taken shape across the Portland metropolitan area. Starting with the closure of the St. Johns Landfill and transfer of Multnomah County's parks and cemeteries, Metro has evolved into a major landowner and manager. Twice, the region's voters have directed Metro to acquire additional natural areas to protect water quality, wildlife habitat and opportunities for people to connect with nature. Metro's portfolio has grown to nearly 15,000 acres, and that number may reach 17,000 by the time the proceeds of the most recent bond measure have been fully invested.

Top priority was given to buying sensitive habitat, before it was developed or rose dramatically in price. As a result, Metro has increased the region's portfolio of publicly owned natural areas and parkland by some 40 percent, bringing the grand total to 43,000 acres – enough to cover the entire cities of Beaverton, Hillsboro and Gresham. Residents can exercise, commute and explore nature on the first 225 miles of a regional trail network that may someday expand to 900 miles.

The whole equals much more than the sum of its parts. This flourishing natural areas and outdoor recreation network supports Metro's broader mission: making a great place. As Metro invests in livable communities, connections with nature are as critical as homes, jobs and transportation. Metro's portfolio of land protects water quality and vanishing wildlife habitat. Parks and trails increase housing values and attract employers to the region, providing welcome access to the great outdoors for people who live in urban and suburban neighborhoods. Perhaps most importantly, Oregonians' sense of place is rooted in the forests, rivers and meadows that Metro is helping to protect.

Protecting Chehalem Ridge Natural Area near Forest Grove is a signature accomplishment for Metro's Natural Areas Program.

As this portfolio of land grows, Metro faces important questions: What is the condition of these properties? Which land offers the best opportunities for restoring valuable habitat? Which natural areas could be opened for public access and education? And what investments are needed? The answers will help lay the groundwork for future decisions about Metro's role as a regional landowner and steward of these precious lands.

Metro's portfolio has grown to nearly 15,000 acres, and that number may reach 17,000 by the time the proceeds of the most recent bond measure have been fully invested.

Relationship to Metro goals

This program directly serves several of Metro's goals

Great communities
Goal 2: Provide great cultural and recreational opportunities

Healthy environment
Goal 3: Protect and enhance the region's natural assets

Vital economy
Goal 5: Provide efficient access to jobs, services, centers and industrial areas

Goal 6: Support the development of a sustainable economy

A treasure chest of opportunities – and challenges

For good reason, the two bond measures concentrated on acquisition. Public sentiment centered squarely on securing land before it was lost to development. Investments have been focused in "target areas" designed to protect streams and rivers, rare habitat, trail corridors and iconic landscapes. Many, but not all, also presented opportunities for future public parks.

In the last five years, Metro has opened three new nature parks: Mount Talbert Nature Park near Happy Valley, Cooper Mountain Nature Park near Beaverton and Graham Oaks Nature Park in Wilsonville. Each has proven popular, and each has raised the bar for providing beautiful outdoor destinations. The parks serve as learning laboratories and enhance people's connections to nature and community. Still, only one-third of Metro's land is formally open to the public. Some properties are unlikely to ever be developed as parks, because human traffic would compromise the rare habitats and wildlife that made them worth protecting. Many other natural areas have the potential for public access, which would allow people to experience the land they've helped protect.

As the region strives to create a world-class network of natural areas, parks and trails, it heightens the need not just to open some of these places – but also to care for them and restore their ecological integrity. Although voter-approved funds have allowed Metro to assemble a growing number of natural areas and trails and tackle basic, initial restoration work, no new funding has been secured for long-term stewardship. Without more resources to support restoration, maintenance and operations, Metro will need to use limited general fund dollars to protect the public's investment in its growing portfolio.

If natural areas are not actively managed and restored, they degrade significantly over time. Invasive plants can take over; erosion can damage water quality; threatened wildlife can disappear. Putting off key restoration work can make the same project more expensive – or even impossible – in the future. And, when public access grows, so do maintenance and restoration costs.

Like all natural areas, Chehalem Ridge requires active management to deal with challenges such as illegal dumping.

Partnerships and next steps

Metro is not in this alone. By its very nature, the parks, trails and natural areas program has been a collaborative effort. The two bond measures both included funds for cities, counties and local park providers to invest in nature close to home. A few local jurisdictions are already caring for properties that Metro owns. And the trails program, in particular, depends heavily on local partners to build and maintain new corridors. Metro's role has been one of convener, technical expert and steward of the region's vision.

Like Metro, most local jurisdictions lack the resources to proactively manage their own natural landscapes. One example is Forest Park, which is owned and managed by the City of Portland. A recent study by the City Club of Portland found that a funding shortage has allowed invasive plants, unauthorized trails, transient camping and other problems to compromise large portions of the region's signature natural area.

Recognizing the importance of these challenges, local governments, private businesses, nonprofit groups and independent citizens have come together to launch an innovative coalition known as The Intertwine. This broad-based group works to create, care for and promote a world-class network of natural areas, parks and trails. Nurturing this partnership and reaching out to the community will ensure success for all.

It has been nearly 20 years since Metro and its partners created the Metropolitan Greenspaces Master Plan, engaging the public in a comprehensive dialogue about the future of the region's outdoor spaces. Many of the new natural areas, parks and trails envisioned in that document are much closer to becoming a reality. Now, Metro has the land base and experience to consider the next generation of questions: Is the agency adequately prepared to care for these sites in the long run? Can more land be opened to the public? Should some land be set aside for plants and wildlife?

Someday, the young oak tree in the protective tube will look like the "elder oak" at Graham Oaks Nature Park, where visitors see restoration in action.

This report covers the status of Metro's land portfolio and frames some policy questions for the Metro Council. In other words, it covers the "supply" side. Answering these policy questions will require a review of the "demand" side, including essential input from the public. This report, and the Council's deliberations, constitute the first steps to launch that discussion.

Relationship to Metro's desired outcomes

Protecting natural areas, parks and trails supports all six of the Metro Council-adopted desired outcomes

Vibrant communities
People live, work and play in vibrant communities where their everyday needs are easily accessible.

Economic prosperity
Current and future residents benefit from the region's sustained economic competitiveness and prosperity.

Safe and reliable transportation
People have safe and reliable transportation choices that enhance their quality of life.

Leadership on climate change
The region is a leader in minimizing contributions to global warming.

Clean air and water
Current and future generations enjoy clean air, clean water and healthy ecosystems.

Equity
The benefits and burdens of growth and change are distributed equitably.

Two decades of change

1990: Metro takes lead in managing Smith and Bybee Wetlands.

1992: Metro Council adopts Metropolitan Greenspaces Master Plan.

1992: Greenspaces bond measure fails with 44 percent approval.

1995: Voters approve $135.6 million bond measure to buy natural areas.

Mid-1990s: Natural areas, parks and trails protection is included in Metro's long-range land use plans, including the 2040 Growth Concept and the Regional Framework Plan.

2001: Green Ribbon Committee recommends priorities for park development.

2002: Metro Council establishes solid waste excise tax to help fund parks.

2004: Metro Council extends and increases solid waste tax to develop new nature parks and help foot the bill for restoration and maintenance.

2005: Metro Council launches Nature in Neighborhoods initiative to conserve, protect and restore fish and wildlife habitat.

2006: Voters approve $227.4 million bond measure to continue protecting land for water quality, wildlife habitat and outdoor recreation opportunities.

2007: Metro Council "undedicates" solid waste tax, opts to pay for park development with bond measure proceeds.

2007-2010: Mount Talbert, Cooper Mountain and Graham Oaks nature parks open.

CHAPTER 2: METRO'S EVOLUTION AS A LANDOWNER

Just over two decades ago, Metro didn't own a single park or natural area. Today, with nearly 15,000 acres in its portfolio, the agency is the largest owner of parks and natural areas in the Portland metropolitan area.

This rapid evolution has always been rooted in science. What's the best habitat? How can it be protected, for both wildlife and people? What will this mean for water quality? These are the questions that have driven Metro's land protection efforts.

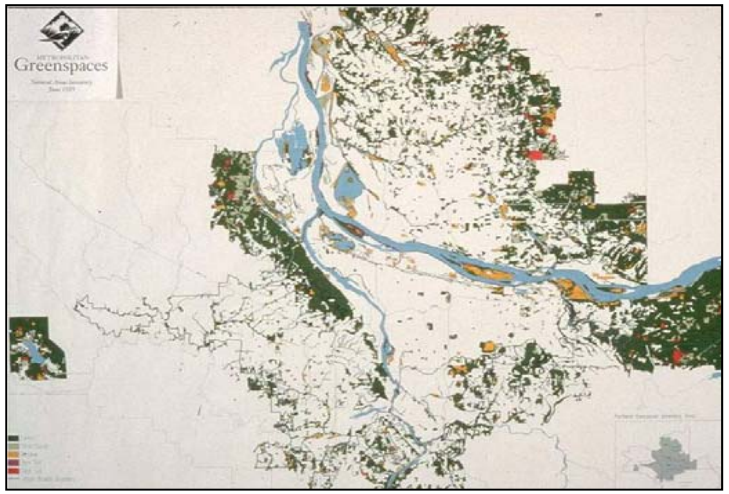
But the region's fast-developing network of natural areas, parks and trails also owes much to political will – and the public's desire to protect, enjoy and learn from the places that make Oregon, Oregon. Extensive input from experts, advocates and everyday citizens alike has helped shape Metro's land portfolio.

Metro gets into the parks business, leads regional planning effort

Like many Metro stories, the agency's entry into the parks business begins with garbage. In 1990 Metro was designated the lead agency in the St. John's Landfill closure, which established a trust for management of the landfill along with the adjacent Smith and Bybee Lakes – a 1,900-acre wildlife refuge in North Portland. Metro took the helm in implementing a natural resource plan for the wetland and managing the area for visitors. The Metro Council and the Portland City Council adopted the plan in an historic joint meeting. The area's other major property owner, the Port of Portland, also supported the plan.

Meanwhile, Metro launched a region-wide planning effort to inventory key natural areas and find a way to protect these special places. Using infrared photography, the fieldwork of local wildlife biologists and citizen input, Metro mapped the region's significant wetlands, uplands and forests. This effort, which was partially funded by a federal appropriation, revealed that some 29 percent of the 370,000-acre region in Clackamas, Multnomah and Washington counties was considered natural areas. Of that, less than 9 percent was protected.

Biologists analyzed the maps and recommended what to protect, based on ecological significance and connections that help wildlife move from place to place. More than 200 meetings were held, involving hundreds of people who identified their most important and most cherished places.



The Metropolitan Greenspaces Master Plan mapped the region's significant wetlands, uplands and forests.

A group of activists led by the 40-Mile Loop Land Trust, Audubon Society of Portland and the Wetlands Conservancy was advocating for a regionally planned and funded system of natural areas, parks and trails. They organized groups of citizens concerned about specific natural areas to form a coalition known at FAUNA, "Friends and Advocates of Urban Natural Areas." FAUNA mobilized hundreds of people to identify natural areas as part of Metro's inventory.

In July 1992, the Metro Council adopted the Metropolitan Greenspaces Master Plan. It established a vision of a cooperative regional system of parks, natural areas, trails and greenways for wildlife and people. In the process, it described a collection of bluffs, buttes, canyons, lakes, ponds, rivers, streams, creeks, marshes, forests, fens, wetlands, lowlands, hills and valleys. The plan specifically prioritized 57 of these areas and 34 trails and greenways. All three counties, more than 20 cities, two park districts and hundreds of businesses, interest groups and citizens formally endorsed the plan. As the first step to making the vision a reality, Metro councilors also placed a $200 million greenspaces bond measure on the November ballot. The bond measure, which authorized Metro to become involved in parks, would raise property taxes to buy land for a regional system of natural areas, parks and trails.

A small, grassroots campaign supported Metro's 1992 bond measure, which was not approved by voters.

The Metro Council endorsed a public awareness effort for the new master plan and ballot measure. But, weeks before the election, it was clear that the small, grassroots campaign had far to go to generate the regional support needed to pass the measure. Despite the heroic efforts of a handful of volunteers – including the construction of a human-sized birdhouse in Pioneer Courthouse Square – the measure failed with 44 percent approval.

Days after the election, an editorial in The Oregonian urged advocates to try again. "We can't save what is already gone," the editorial said. "The region must act soon to save its natural treasures before they disappear forever." Moving forward, Metro officials and their partners focused on two key shortcomings of the $200 million ballot measure: the lack of specifics in the proposal and Metro's lack of experience as a park provider.

Metropolitan Greenspaces Master Plan goals

Create a cooperative regional system of natural areas, open spaces, trails and greenways for wildlife and people in the four-county metropolitan area (Multnomah, Clackamas, Washington and Clark counties).

Protect and manage significant natural areas through a partnership with governments, nonprofit organizations, land trusts, interested businesses and citizens, and Metro.

Preserve the diversity of plant and animal life in the urban environment, using watersheds as the basis for ecological planning.

Establish a system of trails, greenways and wildlife corridors that are interconnected.

Restore green and open spaces in neighborhoods where natural areas are all but eliminated.

Coordinate management and operations at natural area sites in the regional greenspaces system.

Encourage environmental awareness so that citizens will become active and involved stewards of natural areas.

Educate citizens about the regional system through a coordinated program of information, technical advice, interpretation and assistance.

1995 bond measure

Shall Metro preserve open space for parks, trails and wildlife; protect streams for fish; issue $135.6 million in general obligation bonds?

Results: 63 percent of voters in Clackamas, Multnomah and Washington counties voted for the bond measure.

Metro goes back to the ballot

Metro began gaining experience quickly in 1995, when Multnomah County transferred ownership, responsibility and staff for its regional parks, boat ramps, historic pioneer cemeteries and Glendoveer golf facilities to Metro. Almost overnight, Metro became a regional park provider responsible for managing more than 3,600 acres of parks and natural areas – one of the largest land portfolios in the region.

Meanwhile, Metro began gearing up for a second try at the ballot. The Metro Council turned to local government representatives on the Greenspaces Policy Advisory Committee for help. Their recommendations were reviewed by a "Blue Ribbon Committee" of business and civic leaders, and a new ballot measure began to take shape.

This time, Metro Executive Officer Mike Burton also added a strategy committee to answer a critical question: "If the Open Spaces, Parks and Streams ballot measure is approved on Tuesday, what should we do on Wednesday?" The committee, which represented extensive experience in real estate, financing, property management, trail and natural resource protection, called for a public "refinement" process to define objectives in each area where land was to be purchased. This way, if the measure passed, Metro could maximize the return on the public's investment.

The Metro Council submitted to voters its repackaged proposal – a $135.6 million general obligation bond – for a special election in May 1995. The measure called for buying land in 14 "target areas" and six regional trail and greenway projects. It also authorized the distribution of $25 million to local park providers for capital projects that provided new or improved access to nature. The ballot's explanatory statement added key details, stating that the bond measure was dedicated to acquiring natural areas and that Metro was committed to taking care of them. "New funding will be needed for maintenance of future public use improvements," it said.

Although core supporters continued to play an important role, the effort grew from a grassroots crusade led by FAUNA to a professional, strategic campaign. Many of the Blue Ribbon Committee members enlisted as supporters,

Metro's 1995 bond measure was supported by 63 percent of voters.

and the campaign continued to widen the tent beyond the environmental community. The most surprising new recruit was the Home Builders Association of Metropolitan Portland, a group that had opposed the previous effort.

In the end, 63 percent of voters said yes to Measure 26-26. More importantly, the measure passed handily in all three counties. In the months following the election, Metro conducted a significant outreach and public involvement process to shape the acquisition strategy for each of the target areas approved by voters. Direct mail, community presentations, open houses and formal adoption of the plans by the Metro Council engaged thousands of people in establishing the goals and priorities for Metro's land acquisition program.

Developing the 'regional system' and building partnerships

While Metro was achieving success with the 1995 bond measure, the agency was also building a growth management strategy and vision for the future with local governments and residents. Regional leaders decided to expand the urban growth boundary as necessary, but focus on "growing up, not out" by concentrating growth in regional hubs near public transit. This philosophy was the heart of the 2040 Growth Concept, a long-range vision adopted region-wide in 1995, and the Council's 1997 Regional Framework Plan. The plan directed Metro to inventory, protect and manage a regional system of natural areas, parks, trails and greenways and, in cooperation with local governments, find long-term, stable funding to help plan, acquire, develop, manage and maintain this regional system. These policies – many straight out of the Greenspaces Master Plan – gained authority because they were integrated into the region's long-term land use vision.

Land use plans made a commitment to inventory, protect and manage a regional system of natural areas, parks, trails and greenways.

This progress triggered a new phase of partnership building, research and planning for Metro's Greenspaces Technical Advisory Committee. Members inventoried the region's parks, prioritized significant natural areas and helped the Metro Council officially define and select regional trails. During this time Metro's Quarterly Trails group, a grassroots collection of trail advocates and park and transportation professionals, met every three months to share information and resources. With their input, the Metro Council adopted a Regional Trails Plan in 2002, replacing the list of trails in the Greenspaces Master Plan and creating a conceptual map that showed their routes.

1997 Regional Framework Plan

Citizens throughout the region have demonstrated the importance of parks, natural areas, trails and recreation services through their support of funding measures, participation in recreational activities and volunteer community service and from what they have said in public opinion surveys. Metro recognizes the desire of citizens to have high-quality natural areas, trails and parks close to home. Metro is working with federal, state and local governments, non-profit organizations and citizens to address and meet the park and recreation needs of the Portland metropolitan area.

Green Ribbon Committee's charge

To select a group of Metro open space projects for development within five years; and to make recommendations on how to fund preparation and maintenance costs to enhance these Metro assets.

The "Green Ribbon" committee was made up of citizen representatives and local parks and government officials who brought passion and experience with regional parks issues to the table.

Meanwhile, a parks subcommittee of the Metro Policy Advisory Committee issued a report calling for action to elevate parks and natural areas to the same level as regional priorities such as land use and transportation planning. The so-called "Zehren report" – nicknamed for citizen committee member and parks advocate Jim Zehren – pushed Metro to seek funding beyond the 1995 bond measure.

The Green Ribbon Committee and 'four parks in four years'

Metro Councilor David Bragdon was determined to provide people with access to some of the new lands that Metro had acquired. In 2001, he encouraged the Metro Council to appoint a 17-member Green Ribbon Committee that included a mix of elected officials and business and community leaders. The Council asked the group to examine Metro's natural areas, identify priorities for development within the next five years and make recommendations to the Metro Council on how to pay for improvements and ongoing operations. In their final report, the committee proposed a $60 million package, funded through an increase in Metro's solid waste excise tax. The report identified four "anchor" sites and four trails as top priorities, with seven other sites recommended as second-tier priorities.

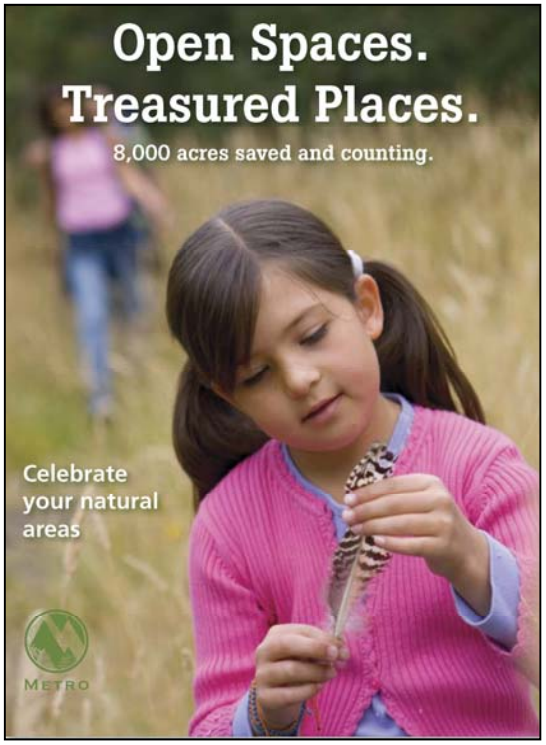
The Metro Council had promised voters to care for land protected by the 1995 bond measure. In 2002, councilors followed through with a $1-per-ton increase in the solid waste tax paid by the region's haulers. It was scheduled to end after two years. But, in 2004, the Council considered extending and increasing the funding to provide long-term support and create "four parks in four years" – a new catchphrase for the effort. In the end, the Council increased the tax to $1.50 per ton and committed to opening new parks at three of the anchor sites identified by the Green Ribbon Committee: Mount Talbert near Happy Valley, Cooper Mountain near Beaverton and Graham Oaks, then known as the Wilsonville Tract. Rather than developing a fourth site, Metro made significant upgrades at Smith and Bybee Wetlands. The money also was designed to provide for additional maintenance, restoration and renewal and replacement needs at all Metro parks and natural areas – "to take care of what we already have," as the Metro Council ordinance put it.

Mount Talbert, which is perched above growing communities in Clackamas County, was selected as a top priority for a new nature park.

Wrapping up a decade of work on the 1995 bond measure, Metro launched an outreach effort to report back to voters on the region's progress: 8,000 acres of new natural areas preserved, 74 miles of river and stream banks protected and more than 100 community projects supported. And, now, three new nature parks were on the way. While there had been ongoing efforts to showcase results, this was the largest public awareness campaign in more than a decade, reaching far into the community with special events, public tours of new natural areas, TV, radio and print advertising, bus ads, billboards and direct mail.

Creating a movement: Nature in Neighborhoods

Metro was building not just a natural areas and parks network, but also community awareness and stewardship. By 2004, more than 12,000 people attended Metro's special events and education and interpretation programs every year. Between 2001 and 2006, some 6,500 volunteers donated more than 100,000 hours to Metro's parks and natural areas programs. And, every year, Metro awarded more than a dozen habitat restoration and environmental education grants to community groups, nonprofits and schools, funded by the U.S. Fish and Wildlife Service.



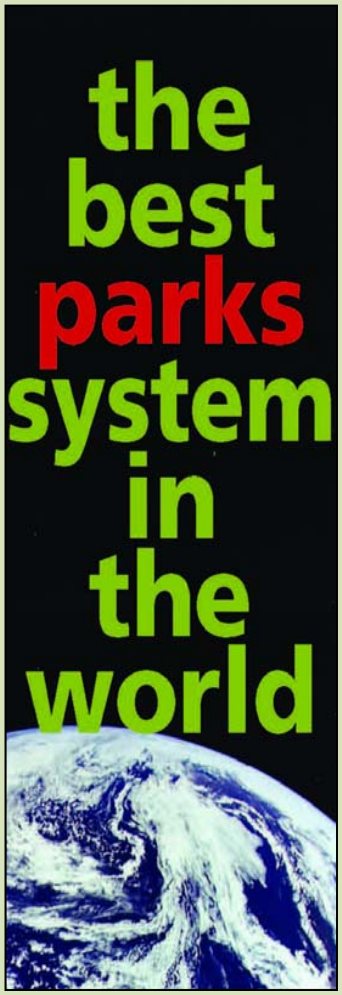
Metro reported back to the public on the results of the 1995 bond measure.

In 2004, the Metro Council also established a new, revamped Greenspaces Policy Advisory Committee, which enlisted citizens and technical experts to further the vision of the Greenspaces Master Plan and the Regional Framework Plan. This new group replaced separate technical and citizen advisory committees.

During this time, the region was struggling to agree on how to best use Metro's land use authority to protect natural resources inside the urban growth boundary. The Metro Council was responsible for implementing the State of Oregon's natural resources, scenic and historic areas and open spaces planning requirements, known as "Goal 5." Navigating a highly contentious political process, the Council in 2005 launched a broad-based initiative called Nature in Neighborhoods to conserve, protect and restore fish and wildlife habitat. Nature in Neighborhoods called for a comprehensive approach, including voluntary, incentive-based and educational elements. The Metro Council committed to monitor and evaluate Nature in Neighborhoods over a 10-year period.

Metro was building not just a natural areas and parks network, but also community awareness and stewardship.

In 2007 the Connecting Green event challenged the region to create a world-class park system.



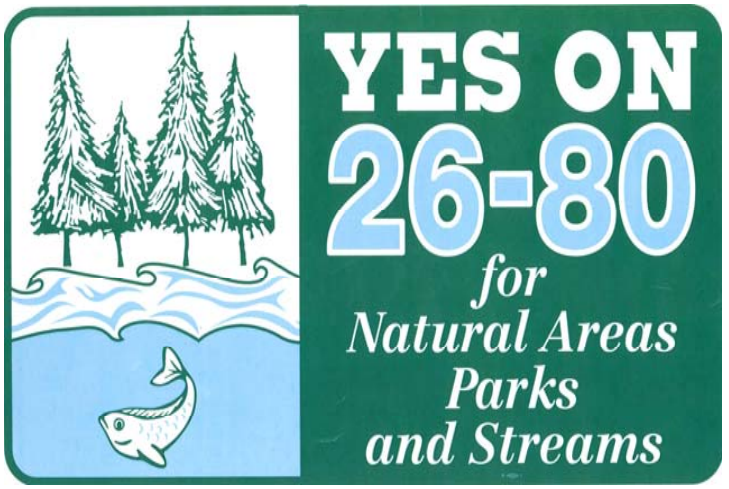
The Council also decided to continue Metro's natural areas protection effort by asking voters to support another bond measure – and established a Blue Ribbon Committee to help shape it. Like the previous measure, this one would direct Metro to buy land from willing sellers and protect it as natural areas, open spaces and parks, with some funds distributed directly to local jurisdictions. The bond issue was pegged at $135 million to $270 million, to be determined by the Council after recommendations from the Blue Ribbon Committee, the new greenspaces advisory group, local jurisdictions and the community at large. The Metro Council conducted public involvement and consulted with local government partners across the region and, ultimately, referred a $227.4 million package to voters.

Measure 26-80, "Natural Areas, Parks and Streams," passed with nearly the same strong support as its predecessor 11 years earlier. Because it appeared on the ballot in a regular November election with higher voter turnout, more than 300,000 people voted "yes" – nearly twice as many as in 1995. Metro again conducted extensive public outreach and engagement after the measure's approval, including mailings to more than 40,000 households in and around the target areas, community presentations and both actual and "virtual" open houses. The Council again adopted detailed plans for each target area, and staff began purchasing new properties for protection. By October 2011, more than 3,000 additional acres had been secured, bringing the total to 11,000 acres and counting between the two bond measures.

As envisioned, Metro has opened regional nature parks at Mount Talbert, Cooper Mountain and Graham Oaks. But the Metro Council opted to "undedicate" the $1.50-per-ton solid waste excise tax that had been set aside for park development and long-term maintenance, diverting that money to other agency priorities. Funding to develop the three new nature parks instead came from the 2006 bond measure.

As regional network grows, The Intertwine brings together advocates

While building its own portfolio, Metro has also worked to build a regional support network. In 2007, Metro Council President David Bragdon – who had focused on natural areas as a district councilor – gathered hundreds of business, government and community leaders under the banner of "Connecting Green" and challenged them to create "the best parks system in the world." This event, which featured a talk by Chicago Mayor Richard Daley, launched a new era



Voters approved a $227.4 million bond measure in 2006, continuing Metro's work to protect water quality and wildlife habitat.

of cooperation between activists and business leaders. An eclectic mix of partners committed to making the region's network of parks, trails and natural areas a calling card and competitive advantage.

Renamed and branded "The Intertwine" in 2008, the effort focuses on five initiatives: protecting and restoring the region's biodiversity, completing a network of bicycle and pedestrian trails, purchasing and protecting the most important remaining land, building and maintaining a world-class outdoor recreation network, and fostering stewardship through conservation education. The Intertwine Alliance includes public and private partners, from Travel Portland to The Trust for Public Land, from Keen Footwear to Clean Water Services. Metro continues to play a central role in the regional network, as a founding member and the largest financial contributor.

The Intertwine has collaborated on many offshoot projects. In 2008, for example, a committee of civic, business and elected leaders gathered at Metro to think big about regional trails, revisiting many of the underlying assumptions and information in Metro's 2002 Regional Trails Plan. The Blue Ribbon Committee for Trails recommended an "active transportation" strategy – an exciting and powerful new approach to address congestion, public health, climate change, fuel costs and the need to squeeze more results from limited transportation dollars. Relatively small investments in trails and other connections for bikes and pedestrians, the committee said, could put the region on a path to a new kind of transportation network: earth-friendly, community-friendly and financially feasible. Because of the committee's recommendations, The Intertwine Alliance formed an Active Transportation Council. Staffed by Metro, the group continues to pursue funding to plan and develop the system.

Metro plays a central role in The Intertwine Alliance, which brings together governments, businesses and nonprofit organizations.

This regional movement continues to grow. In 2011, The Intertwine Alliance became an official nonprofit with its first board of directors and executive director. This major step forward attracted regional attention, including an Oregonian editorial. "The Intertwine Alliance has already demonstrated, contrary to conventional wisdom," The Oregonian wrote, "that park providers are willing to think outside their own park and trail systems."

Oregonian editorial

The Intertwine Alliance has already demonstrated, contrary to conventional wisdom, that park providers are willing to think outside their own park and trail systems.

Future unfolds at Gotter Prairie

Like many natural areas, Metro's 150-acre Gotter Prairie evolved over time as staff and partners observed its natural rhythms.

Nestled along the Tualatin River between Beaverton and Hillsboro, Gotter Prairie was a neglected agricultural field when Metro bought land in 1996 as a potential canoe access site. More than a decade later, 44 acres were added.

Thanks to substantial partnerships and grants, the property is now a beautifully restored outdoor classroom. Agricultural drain tiles have been removed and thousands of native plants added to return the land to its natural state. Migratory waterfowl and amphibians returned in large numbers. School children, university students and conservation groups visit to experience lessons learned firsthand.

This dramatic transformation came about gradually, as the restoration process unfolded, volunteers "adopted" the land and grants were awarded. Gotter Prairie will continue to evolve under Metro's stewardship, as additional purchases expand opportunities to restore the Tualatin River watershed.

CHAPTER 3: AN OVERVIEW OF METRO'S PORTFOLIO

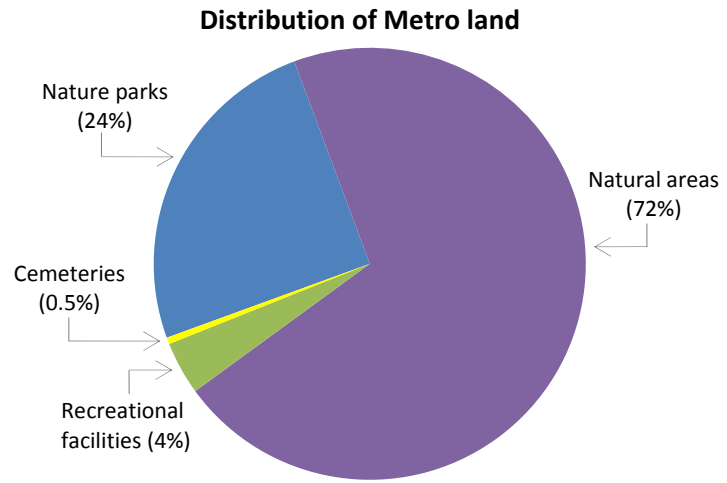
If you want to hike in an old growth forest, fish for native salmon on the wild and scenic Sandy River, celebrate a wedding in a pioneer apple orchard on Sauvie Island, play a round of golf on a tree-lined course, launch your boat on the majestic Columbia River, paddle with the eagles on one of the largest urban wetland systems in the country or bike on a trail meandering through ancient Native American tribal lands near the Willamette River, Metro has a destination for you.

Metro owns nearly 15,000 acres of natural areas, parks and cemeteries, including six active recreational sites, reaching into every corner of the Portland metropolitan area. This diverse portfolio parallels the growth of Metro and the region. As the population has increased, so has the stress on air and water quality – and the desire to protect natural treasures.

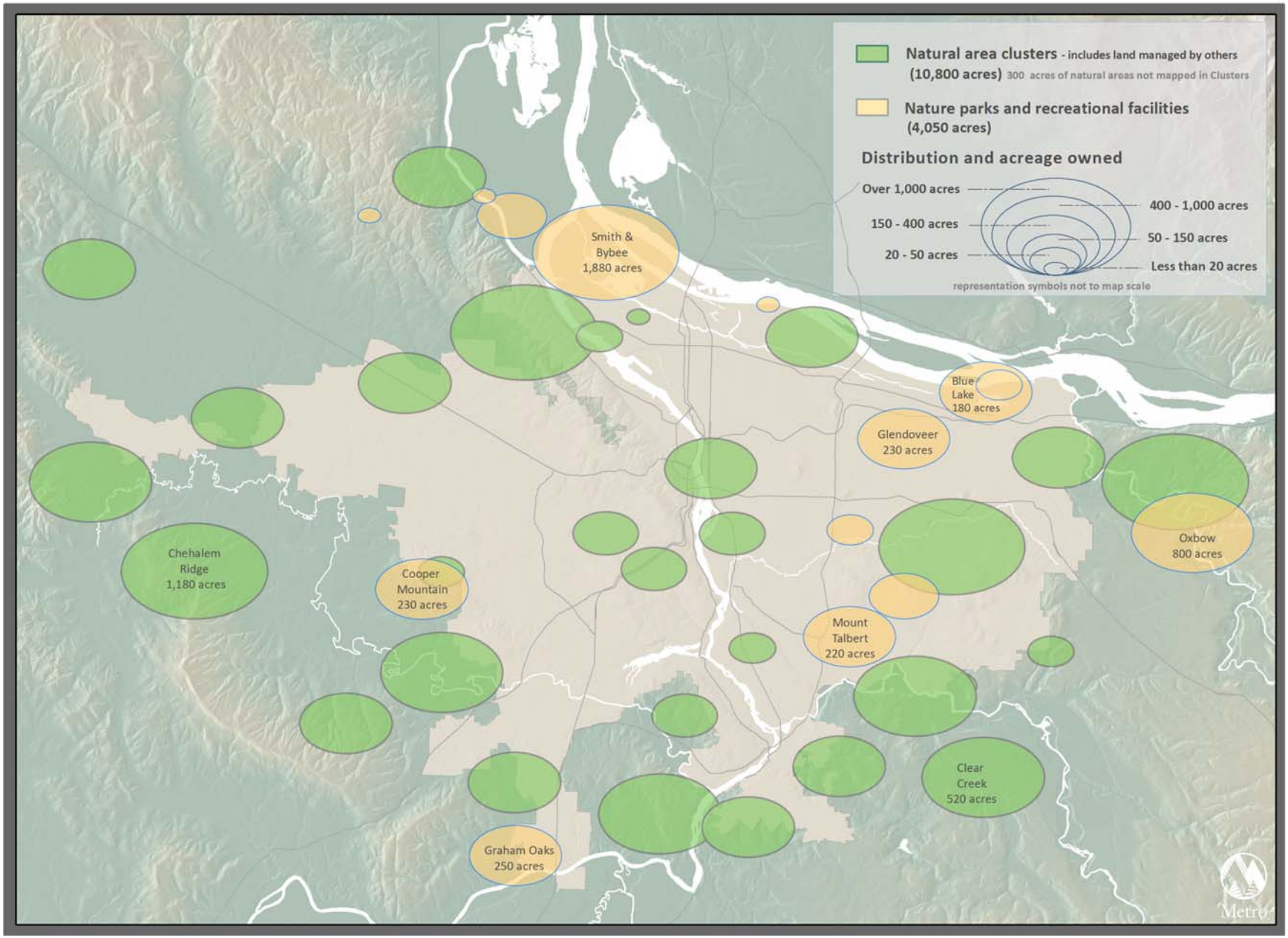
Only a handful of metropolitan areas in the United States have undertaken significant efforts to acquire natural areas, so Metro had no absolute model to follow. The 1995 and 2006 bond measures spelled out broad geographic areas of interest – 20 in the first bond measure, 27 in the second. Each target area contains more land than could possibly be acquired, given the limited resources available and the commitment to buy only from willing sellers. This gives Metro's acquisition team flexibility to negotiate for the most desirable properties and take advantage of market opportunities. Larger natural areas don't always have larger price tags, because cost per acre can vary widely from undevelopable open space to land available for residential, commercial or industrial development.

The natural areas team adheres to goals for each geographic area, follows a work plan adopted by the Metro Council and responds to recommendations from an independent oversight committee. Metro builds some natural areas a piece at a time; it can take years to determine what restoration projects will be feasible and whether the land could support public access. Elsewhere, target area plans and early acquisition successes make it clear that public nature parks are destined to develop. Cooper Mountain and Graham Oaks, for example, are both larger than 200 acres and both close to urban areas. Both recently opened as regional nature parks.

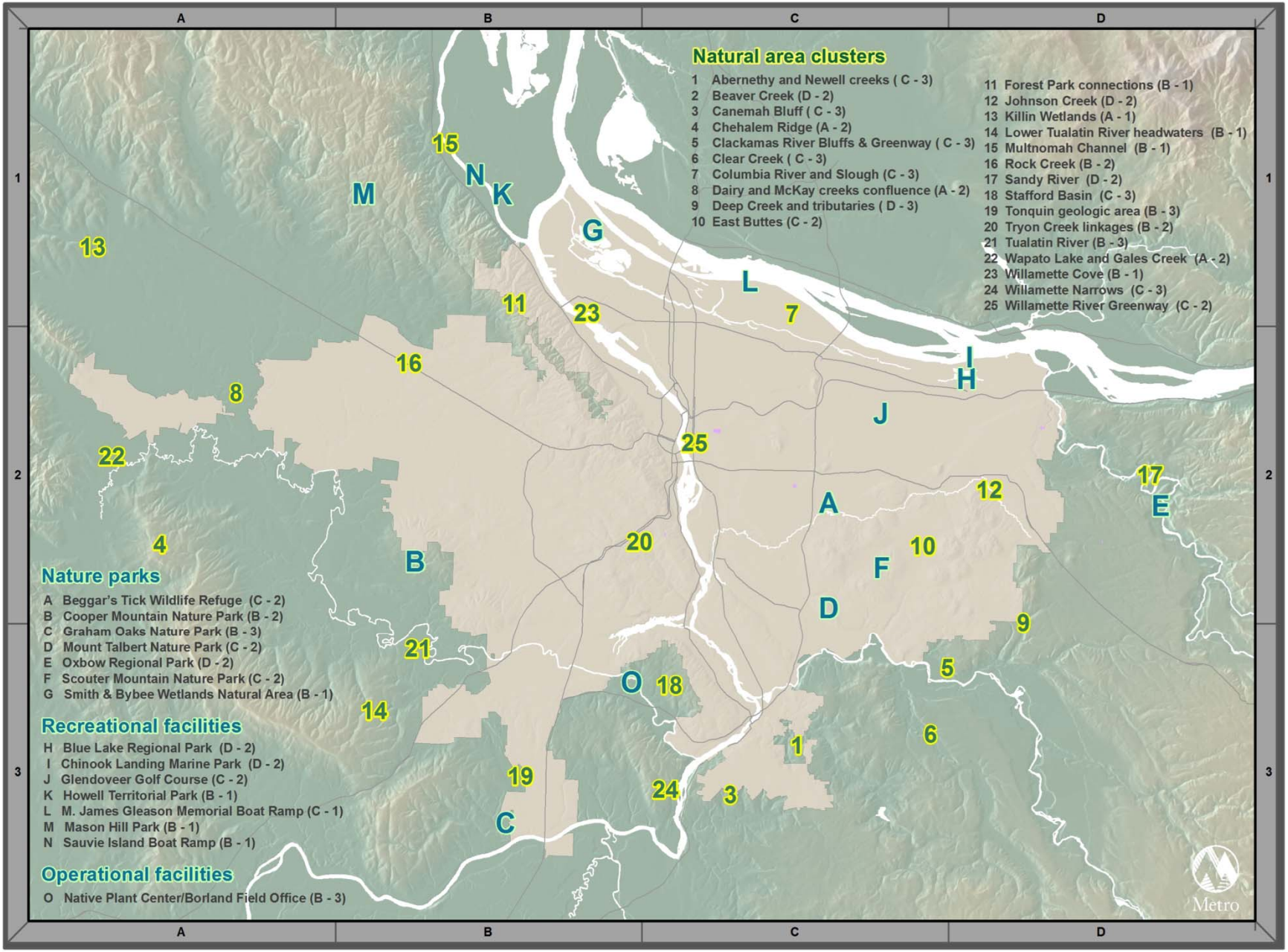
Metro's portfolio of land continues to grow, protecting the Pacific Northwest's iconic and stunning physical environment and, in many cases, giving the public opportunities to explore it.



Distribution of Metro's properties



Locator map: A guide to Metro's properties



Developed properties

Metro's developed properties are advertised to the public: "places to go," as the Metro website puts it. The nature parks and recreational facilities provide public access to a wide range of natural environments and, in most cases, visitor amenities. They are distinguished by the type of recreation: more passive at nature parks, more active at recreational facilities. Metro received most of these properties as developed sites open to the public and, over time, worked to maintain and improve their standing in the public eye as desirable places to visit. Meanwhile, Metro has created important new assets for the region by transforming Mount Talbert, Cooper Mountain and Graham Oaks into nature parks, relying on inclusive and thorough public involvement. Soon, Scouter Mountain Natural Area will become the latest destination protected and developed by the two bond measures. Collectively, these developed properties are a symbol of Metro's "Making a great place" philosophy. Attendance numbers below vary considerably, but lower attendance does not reflect a low level of importance.

Nature park	Overview	Public use	Key partnerships	Regional context
Beggar's Tick Wildlife Refuge Southeast Portland 20 acres | Map location A 	Runners, walkers and cyclists along the Springwater Corridor can stop at Beggars-Tick Wildlife Refuge in outer Southeast Portland to experience a unique urban wetland. Named for a native sunflower, the site is known for its dramatic seasonal changes and wide variety of habitats. It provides important wintering habitat for waterfowl such as wood duck and green-winged teal, while providing a permanent residence for muskrat, raccoon and many other species.	Use is primarily by bicyclists riding on the nearby Springwater Corridor trail.	The City of Portland manages this natural area.	Beggar's Tick is one of a string of amenities along the Springwater Corridor, which stretches 20 miles from central Portland east to Boring. This natural area is within walking distance to some of the less advantaged schools in outer Southeast Portland and is underutilized for education programs.
Cooper Mountain Nature Park Washington County 230 acres | Map location B 	Located on the southern edge of Beaverton, Cooper Mountain Nature Park offers spectacular views of the Tualatin River Valley. Three-and-a-half miles of trails take visitors through forest, prairie and oak woodlands. These habitats are home to rare and endangered species, including the pale larkspur wildflower and the elusive Northern red-legged frog. Cooper Mountain was protected, restored and opened through Metro's two voter-approved bond measures.	About 76,000 people visited Cooper Mountain in a year.	Tualatin Hills Park and Recreation District receives $137,000 annually from Metro to operate the active components of the park, including the trailhead and trails, a nature play area and a sustainably designed nature house that hosts classes and community events. Metro manages the natural resources but that role will be transferred to Tualatin Hills within the next 10 years. Other partners include Beaverton School District, site stewards, Tualatin Valley Fire & Rescue.	Cooper Mountain serves surrounding neighborhoods in the Beaverton area, but also serves as a regional destination. The rare oak savanna habitat found here is one of the best remaining examples in the Willamette Valley. Cooper Mountain may someday connect with the Westside Trail, tying into the region's trail system.

Nature park	Overview	Public use	Key partnerships	Regional context
Graham Oaks Nature Park Wilsonville 250 acres | Map location C 	Once home to the Kalapuya Indian tribe, and later homesteaded by pioneers, Graham Oaks is one of three major nature parks protected, restored and opened by Metro's voter-approved Natural Areas Program. Visitors can explore more than three miles of trails, traversing a restored oak woodland, a wetland and a conifer forest. The nature park also features sustainable design and construction.	Graham Oaks Nature Park receives approximately 63,000 visitors a year.	The West Linn-Wilsonville School District operates two schools and an environmental education center next door to Graham Oaks, and students regularly use Graham Oaks as a learning laboratory. The City of Wilsonville worked closely with Metro during park design and construction. Volunteer site stewards help care for the nature park.	Graham Oaks serves busy residential communities in the heart of Wilsonville. A 1.5-mile section of the future 22-mile Tonquin Trail winds its way through the nature park and provides a safe route to school for nearby neighborhoods.
Mount Talbert Nature Park Clackamas County 220 acres| Map location D 	Perched on top of a former lava dome, surrounded by suburban neighborhoods and shopping centers, Mount Talbert Nature Park provides a forested oasis and a four-mile trail network. Visitors might encounter deer, Western gray squirrels, pileated and hairy woodpeckers, white-breasted nuthatches and Western tanager. Mount Talbert is a legacy of Metro's Natural Areas Program; land was purchased with the first voter-approved bond measure and developed with the second.	Mount Talbert Nature Park receives approximately 33,000 visitors annually. There are several access points for people entering the park on foot from nearby neighborhoods.	The North Clackamas Parks and Recreation District operates the park.	Mount Talbert is the largest of a group of extinct lava domes that stretch from Portland's Rocky Butte southward to the Clackamas River. The future 17-mile Mount Scott-Scouter Mountain loop trail will connect to Mount Talbert. Metro has invested $50,000 in natural areas work at Mount Talbert since the park opened in 2007.
Oxbow Regional Park Multnomah County 800 acres| Map location E 	Nestled in the wild and scenic Sandy River Gorge, Oxbow Regional Park offers rare access to many of the region's natural wonders and provides a variety of unique recreational opportunities. The river draws swimmers, rafters, kayakers and anglers. Fifteen miles of trails invite you to explore an ancient forest with centuries-old trees and ridges and ravines carved by volcanic and glacial flows. Campfire programs are popular with overnight campers at Oxbow.	Oxbow Regional Park attracts an average of 230,000 visitors per year. Sixty-seven sites are available for overnight camping.	Partners include the Sandy River Basin Watershed Council, and Bureau of Land Management and Oregon Department of Fish and Wildlife, who own land within the park. A variety of recreational groups and schools visit Oxbow regularly.	At the far east side of the region, Oxbow is Metro's most remote nature park. It offers one of only four public access points in the Sandy River Gorge. Every fall, people come to experience the miracle of the salmon returning to their spawning grounds to lay their last eggs before perishing in the waters where they were born. Visitors are willing to drive long distances because of the beautiful scenery and the unique recreational and wildlife viewing opportunities.

Nature park	Overview	Public use	Key partnerships	Regional context
Scouter Mountain Natural Area Happy Valley 100 acres | Map location F 	Minutes from Happy Valley neighborhoods, a steep road lined with fir trees leads to the new Scouter Mountain Natural Area. The site is tentatively slated to publicly open in 2013, when visitors will be able to enjoy a picnic shelter, restrooms, a basic loop trail and parking. On clear days, the top of the butte offers views of Mount Hood. This natural area is part of the East Butte network of ancient lava domes.	No visitor counts will be available until the site opens. Scouter Mountain will reflect the lowest level of development within the nature park category.	North Clackamas Parks and Recreation District will manage the developed facilities and public access; Metro will manage natural resources. The City of Happy Valley is paying for site improvements with its local share funds from Metro's 2006 natural areas bond measure, and will enforce city codes and park rules.	Scouter Mountain is surrounded by suburban neighborhoods; the community has long advocated for its protection. Metro continues to protect land in the East Buttes area through the 2006 bond measure.
Smith and Bybee Wetlands Natural Area North Portland 1,880 acres | Map location G 	Take the Interlakes Trail or go by boat to explore the largest protected wetlands in an American city. Either way, you might find beaver, river otter, black-tailed deer, osprey, bald eagles and Western painted turtles at Smith and Bybee Wetlands. You'll also find major restoration projects: a water control structure is restoring the network of sloughs, wetlands and forests that existed more than 200 years ago. The former St. Johns Landfill is now a meadow and an integral part of the habitat.	The natural area receives approximately 18,000 visitors a year, primarily to use the Interlakes Trail on the north shore of the wetlands.	The Smith and Bybee Lakes Advisory Committee is an active partner, advising on the restoration and use of the site. Other partners include the Port of Portland, City of Portland Bureau of Environmental Services, Portland Parks & Recreation, Friends of Smith and Bybee Wetlands, the St. Johns Neighborhood Association, the 40-Mile Loop Land Trust and the Columbia Slough Watershed Council.	One of the region's best kept secrets, Smith and Bybee is surrounded by neighborhoods, Port terminals, warehouses and commercial development. When built, the North Portland Greenway Trail and missing links in the Columbia Slough Trail will allow people to walk or bike through the natural area to jobs and other destinations. As the last big piece of floodplain wetland at the confluence of the Columbia and Willamette rivers, the site has ecological and historic significance.

Recreational facility	Overview	Public use	Key partnerships	Regional context
Blue Lake Regional Park Troutdale 180 acres | Map location H 	Twenty minutes from downtown Portland, Blue Lake Regional Park offers a wealth of ways to enjoy the outdoors, from boating, fishing and swimming to picnics, community events and special programs. The park's namesake is a 64-acre natural lake fed by underground springs, which helps visitors cool off on hot days. Amenities include a Lake House available for rentals, a spray ground, a nature-based playground, a discovery garden, boat rentals, sports facilities and a wetland area with a viewing platform and trail.	Blue Lake Regional Park receives 330,000 visitors annually. The park draws diverse ethnic groups; visitors commonly speak Spanish, Ukrainian and Russian.	The City of Fairview has been a longtime supportive partner. The City of Portland operates several groundwater wells beneath the undeveloped eastern portion of Blue Lake Park.	At one time Blue Lake Park was reportedly the Nichaqwli Village, home to Chinook Indians and noted in the journals of Lewis and Clark. A section of the 40-Mile Loop trail system travels through the park's northern boundary and provides access to a 20-mile stretch of trail between Troutdale and the Smith and Bybee Wetlands Natural Area. Blue Lake Regional Park is one of the only parks in the greater Portland area with a swimming lake.
Chinook Landing Marine Park Fairview 70 acres | Map location I 	With six launching lanes on the Columbia River, Chinook Landing is one of the largest public boating facilities in Oregon. The park offers picnic areas, wetland and wildlife habitat, disabled-accessible docks, restrooms and a seasonal river patrol station.	Chinook Landing Marine Park receives more than 180,000 visitors annually.	The Oregon State Marine Board provides periodic funding for maintenance of the boat ramp. The Multnomah County River Patrol is also a partner.	Chinook Landing Marine Park draws boaters from the greater Portland-Vancouver area.
Glendoveer Golf Course Northeast Portland 230 acres | Map location J 	Glendoveer Golf Course provides challenging play for every level, with two 18-hole courses operated by a contractor. This recreation destination, located in an underserved area of outer Northeast Portland, also features tennis courts and a restaurant. Along the perimeter, a two-mile fitness trail draws joggers and walkers to the natural setting.	Glendoveer's perimeter trail receives 177,000 users annually.	This facility is privately operated, except for the fitness trail and natural areas maintained by Metro.	Glendoveer competes with five other publicly owned and operated golf courses in the region. Golf rounds have decreased over the last few years; the trail and tennis facilities draw more users. The facility serves as a meeting place for neighborhood civic functions. In 2011, Metro began looking into needed repairs and upgrades.

Recreational facility	Overview	Public use	Key partnerships	Regional context
Howell Territorial Park Sauvie Island 100 acres | Map location K 	Located on Sauvie Island, Howell Territorial Park is a great place for picnickers, bird watchers and history buffs. The region's natural and cultural history come together in one serene, pastoral setting at this park. Attractions include a picnic shelter, a pioneer orchard, large natural wetlands and an authentically restored farmhouse built in the 1850s. Interpretive signage tells the story of Sauvie Island and the families who homesteaded and farmed here. School education programs are a popular activity at the park.	The park receives 4,600 visitors annually. Most of the visitors are there to participate in education programs.	Sauvie Island Center runs the education programs at the park and leads field trips for North Portland primary school students to the park. Sauvie Island Organics food co-operative leases land at the park to grow vegetables. Janus Youth Food Works Program involves high school students in growing vegetables at the park.	Very few historic farms are open to the public in the Portland metro area. There is untapped potential to increase programming, including providing tours of the historic home. There is also demand for agricultural education.
M. James Gleason Memorial Boat Ramp Northeast Portland 18 acres | Map location L 	Minutes from downtown Portland, the M. James Gleason Memorial Boat Ramp offers a convenient public launch on the Columbia River. Recent upgrades include a debris deflection wall, extra launch lanes, boarding docks, restrooms, river maps and a river patrol office.	Between 40,000 and 50,000 visitors use the boat ramp annually.	The Oregon State Marine Board provides periodic funding for maintenance of the boat ramp. The Multnomah County River Patrol is also a partner.	M. James Gleason Memorial Boat Ramp is the second most popular public boating ramp in Oregon.
Mason Hill Park Northwest Portland 1 acre | Map location M 	Located at the south end of the Tualatin Mountains, Mason Hill Park offers picnicking and spectacular views of the Tualatin Valley. The namesake for this small pocket park was a pioneer school established here in 1891; the original school bell is mounted on the picnic shelter. The park is dedicated to the Oregon pioneer residents of the area.	This park receives visitors who live nearby and bicyclists looking for a respite from hilly terrain.	The Jacobs Foundation helped establish and dedicate the park, along with other community members and Multnomah County.	Because much of the region's west hills area is rural, Mason Hill is one of the only traditional "urban" neighborhood parks. This one-acre plot of land at the intersection of Johnson and Munson roads has no off-street parking. The only facilities consist of a covered picnic table and an outhouse.

Recreational facility	Overview	Public use	Key partnerships	Regional context
Sauvie Island Boat Ramp Sauvie Island 6 acres | Map location N 	Sauvie Island Boat Ramp gives boaters an opportunity to enjoy the quiet waters and wildlife of the Multnomah Channel. In recent years, the site has been upgraded to include a new launch ramp, new parking lot, new restrooms, lighting and landscaping with native and salvaged vegetation.	10,000 to 15,000 people use the boat ramp annually.	The Oregon State Marine Board provides periodic funding for maintenance of the boat ramp.	The only public boat ramp on the Multnomah Channel, this facility serves all of Sauvie Island.

Operations facilities	Overview	Public use	Key partnerships	Regional context
Native Plant Center/Borland Field Office Wankers Corner, Tualatin 18 acres | Map location O 	Metro's Native Plant Center and Borland field operations office share property on the Tualatin River. The 3.5-acre Native Plant Center provides an essential supply of rare native seeds and plant stock to support Metro's habitat restoration projects. It also serves as an outdoor classroom, giving students hands-on experience and helping them understand land stewardship and conservation. The field office serves as a hub for maintenance and restoration work, housing six full-time staff and their equipment. Natural resources on this property are being actively restored and maintained.	Volunteers donate more than 5,000 hours per year collecting, cultivating and harvesting native plant seeds at the Native Plant Center.	City of Portland Bureau of Environmental Services Clean Water Services Mt. Hood Community College Northwest Regional Education District Oregon City Service Learning Academy Oregon State Parks Western Regional Functional Agricultural Biodiversity Work Group	At targeted natural areas around the region, Metro's restoration work is aimed at reestablishing rare but vital habitat types that once thrived throughout the Willamette Valley. A long-term goal of the project is to be able to share stock and seeds with other organizations working on restoration throughout the region. The Borland field offices are centrally located and convenient for access to Metro's natural areas across the region.

Cemeteries

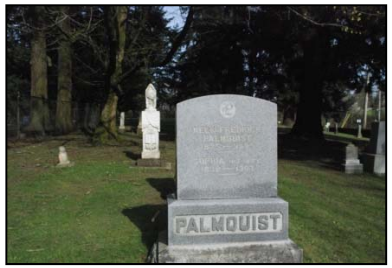
Metro's 14 pioneer cemeteries are managed as active facilities, offering scenic tranquility and a unique glimpse into history of the region. Most were established during the early homesteading period, between 1850 and 1870. The cemeteries are open to visitors and provide opportunities for picnicking and contemplation in a natural setting. The stewardship of these special places is taken very seriously, and some have active volunteer groups that plan events and help with maintenance. Each Halloween, more than 1,000 people participate in a community event at Lone Fir Cemetery. Cemeteries can play a part in trail planning, too, providing a peaceful segment for a regional trail. They are an enterprise within Metro's general fund.

Cemetery	Overview	Key facts	Context
Brainard Cemetery Northeast Portland 1.1 acres (0.99 developed) 	Set high on a crest near the intersection of Northeast Glisan Street and Northeast 90th Avenue, Brainard Cemetery is an open, airy property, full of sun on pleasant days. Situated across from Multnomah University, this cemetery boasts views of Rocky Butte Natural Area and Mount St. Helens to the north. With the feel of a neighborhood park, the property appears tidy and welcoming to nearby residents.	Established: 1867 Acquired by Multnomah County: 1953 Total number of interments: 487 Available plots in developed area: 453 (6 cremation, 447 casket) Unique markets served: Slavic and Southeast Asian	There are no internal roads; all access and parking for this site is accommodated on public streets surrounding the property on the east, south and west boundaries.
Columbia Pioneer Cemetery Northeast Portland 2.4 acres (2.09 developed) 	Located on the northeast side of Portland, this property is fairly small, but has a significant number of burial spaces available, and has potential for infill casket and cremation opportunities. Although the site is located at a busy intersection, cemetery visitors feel as though they're in a quiet neighborhood park. Area residents enjoy this green space for sunning and other passive recreation.	Established: 1877 Acquired by Multnomah County: 1951 Total number of interments: 812 Available plots in developed area: 557 (14 cremation, 543 casket)	This site has no defined paved roads or parking; however, there is a "U" shaped grass drive with access to Northeast Sandy Boulevard. Most visitor parking routes are through the adjacent neighborhood to the east, with access to the site from Northeast 99th Avenue. The cemetery is frequently used by neighbors who want a place to relax or enjoy a picnic; it serves as the only "park" for the area, with the next closest open space at the Grotto.

Cemetery	Overview	Key facts	Context
Douglass Cemetery Troutdale 9.1 acres (6.33 developed) 	Located in central Troutdale, this property has more available land for future development than any other Metro cemetery. Surrounded by quiet neighborhoods, it features large swaths of open lawn. A prominent grove of Douglas fir trees in the middle separates the old and newer sections. This grove instills a woodland feel and provides shelter for visitors to pause and reflect on their loved ones. Neighbors use the cemetery as a quiet respite to picnic and reflect.	Established: 1914 Acquired by Multnomah County: 1957 Total number of interments: 3,460 Available plots in developed area: 646 (24 in ground cremation, 622 casket) Unique markets served: A small Jewish section in Block 10 has 120 grave spaces, with an option for another 330.	Douglass Cemetery is surrounded by dense residential housing developments and a church to the north end of the property. The nearest main roadways are Cherry Park Blvd. and Troutdale Road. East Side Jewish Community has a strong presence in the cemetery and there is a small friends group developing to help maintain the site. There is a network of internal roads, which can accommodate all parking for services.
Escobar Cemetery Gresham 0.5 acres (0.4 developed) 	Escobar Cemetery is nestled in a corner where Johnson Creek intersects with the Springwater Corridor Trail, the southeast segment of the 40-Mile Loop. The cemetery is highly visible from the corridor and receives visits from trail users pausing to rest. Often one sees families taking a break at Escobar, stopping to sit, reflect and learn about history. While not large in size, the cemetery is a pleasant park-like space that benefits from its orientation to the trail and the adjacent Gresham Cemetery.	Established: 1914 Acquired by Multnomah County: 1957 Total number of interments: 78 Available plots in developed area: 26 casket	This site has no road access or parking. Visitors share the one-lane dirt access road with Gresham Cemetery to the north, which is also used for parking for small processional events. Larger events overflow into a church parking lot to the north or a school parking lot to the west.
Grand Army of the Republic Cemetery Southwest Portland 2.0 acres (all developed) 	Grand Army of the Republic Cemetery appears as a large clearing in the woods, on a hillside in Southwest Portland. The cemetery is primarily a single, large, open lawn area that slopes to the north, with graves laid out in a formal, semi-circular pattern that harkens back to Victorian times. The property is adjacent to River View and Greenwood Hills cemeteries, and very near Beth Israel and Ahavai Sholom cemeteries.	Established: 1889 Acquired by Multnomah County: 1971 Total number of interments: 796 Available plots in developed area: 235 (2 cremation, 233 casket)	Fourteen Civil War veterans formed the Grand Army Cemetery Association and purchased the cemetery in 1882. The Daughters of Union Veterans of the Civil War took over management and administration at that time. This site has no defined paved roads or parking; however, there is a network of gravel drives throughout the site. Visitors park on the paved drive separating this cemetery from Greenwood Hills Cemetery.

Cemetery	Overview	Key facts	Context
Gresham Pioneer Cemetery Gresham 2.0 acres (1.81 developed) 	Gresham Pioneer Cemetery is perched above the banks of Johnson Creek at the edge of town. Its natural setting and mature vegetation help create a peaceful, intimate feel throughout the property.	Established: 1851 Acquired by Multnomah County: 1957 Total number of interments: 1,031 Available plots in developed area: 179 (3 cremation, 176 casket)	This site has a one-lane dirt access road on the north side of the property which is also used for maintenance and parking for small processional events. Larger events overflow in the church parking lot to the north and the school parking lot to the west. Miyo Iwakoshi, believed to be the first Japanese person to live in Oregon, is interred here.
Jones Cemetery Southwest Portland 3.25 acres (3.01 developed) 	Tucked away in the Sylvan area, near the intersection of Southwest Scholls Ferry Road and Highway 26, Jones Cemetery has the feel of a secret garden. The northern portion provides a dense canopy of mature deciduous and conifer trees, and the south area opens into a lawn and a central park planted with dogwood trees. The Chehalem Mountains are visible to the southwest. Families seeking an intimate final resting place in this part of the Portland metropolitan area often gravitate to Jones Cemetery.	Established: 1854 Acquired by Multnomah County: 1872 Total number of interments: 407 Available plots in developed area: 298 (13 cremation, 285 casket) Unique markets served: The Jewish community, specifically the Havurah Shalom. There has also been a recent influx of Romanian burials due to a large Romanian church nearby.	There is one internal loop road that accommodates most processional parking. However, for large services, the parking lot of an adjacent church is used.
Lone Fir Cemetery Southeast Portland 30.5 acres (29.04 developed) 	Lone Fir Cemetery is often referred to as one of Portland's richest outdoor history museums and botanic gardens. The cemetery reads like a good book, telling the story of the many eras of settlement and development of the Portland area. This 30-acre property also acts as a valuable arboretum and contains a wide variety of coniferous and deciduous trees and shrubs of notable sizes, species and histories. Nestled into an active neighborhood in close-in Southeast Portland, the cemetery provides a venue for historical and cultural events, as well as much-needed park space for visitors and area residents.	Established: 1855 Acquired by Multnomah County: 1928 Total number of interments: 20,575 Available plots in developed area: 847 (73 cremation, 774 casket) Unique markets served: Slavic, pioneer families	A heritage and memorial garden is planned for the early Chinese workers and Hawthorne Asylum patients buried here, who will be honored at the garden site now known as Block 14. There is a network of internal roads, and all parking for services can be accommodated internally. There is also ample street parking in the surrounding neighborhood. National Geographic recently named Lone Fir one of the world's must-see cemeteries.

Cemetery	Overview	Key facts	Context
Mountain View Cemetery – Corbett Corbett 2.0 acres (1.9 developed) 	This rural cemetery is set atop a small hill overlooking the many fruit and vegetable farms, vineyards and orchards off of Southeast Smith Road, just south of Corbett. While surveying breathtaking views of Mount Hood to the east and the Washington Cascades to the north, visitors can envision what this intimate cemetery looked like when it was first established.	Established: 1880 Acquired by Multnomah County: 1949 Total number of interments: 579 Available plots in developed area: 90 (5 cremation, 85 casket)	This site has no internal roadways or parking. People access the cemetery from a small roadway that connects Southeast Smith and Evans roads; this small access road also provides parking, but it is steep and suffers from rainwater runoff. The cemetery is surrounded by agriculture on all sides.
Mountain View Cemetery – Stark Gresham 0.75 acres (0.51 developed) 	This cemetery is situated on a bluff along Southeast Stark Street, the historic east-west route connecting the Sandy River to Southeast Portland. Located just north of Mt. Hood Community College, the property is surrounded by mature Douglas fir trees and provides neighborhood residents a quiet park area for passive recreation.	Established: 1886 Acquired by Multnomah County: 1957 Total number of interments: 179 Available plots in developed area: 230 casket	There are no internal paved roads or parking areas. A short road enters the site from the southwest corner.
Multnomah Park Cemetery Southeast Portland 9.25 acres (8.87 developed) 	Multnomah Park Cemetery was founded by O.P. Lent, who settled the historic Lents neighborhood. This property provides important greenspace in a busy urban area in Southeast Portland. It is located along Holgate Boulevard, at Southeast 82nd Avenue.	Established: 1888 Acquired by Multnomah County: 1944 Total number of interments: 9,556 Available plots in developed area: 317 (15 cremation, 302 casket) Unique markets served: Slavic	There is a network of internal roads, and all parking for services can be accommodated internally. In general the site is well maintained, with a clean and tidy appearance.

Cemetery	Overview	Key facts	Context
Pleasant Home Cemetery Gresham 2.0 acres (1.15 developed) 	This rural cemetery provides a pastoral setting for the families it serves, reminiscent of the pioneer era when it was established. Located at the intersection of two early thoroughfares in Gresham, it is adjacent to a church with small farms and clusters of rural housing nearby. While the north end is open and provides space for burial plots, the south end of the property slopes to Johnson Creek, providing visitors the opportunity to cool off under a rich riparian canopy.	Established: 1884 Acquired by Multnomah County: 1960 Total number of interments: 58 Available plots in developed area: 182 (3 cremation, 179 casket)	This site has no internal roadways or parking. All parking is shared with an adjacent church lot to the north.
Powell Grove Northeast Portland 1 acre (0.8 developed) 	Similar to other Metro pioneer cemeteries, Powell Grove is located along an historic route – in this case, Northeast Sandy Boulevard at the intersection with busy 122nd Avenue. Today, the cemetery appears as a small remnant landscape in the middle of a traffic circle at the intersection of these two busy roads. While somewhat challenging to access, it provides the final resting places for the Powell and Reynolds families, who settled the Parkrose area of Portland.	Established: 1848 Acquired by Multnomah County: 1951 Total number of interments: 177 Available plots in developed area: 136 (5 cremation, 131 casket)	There are no internal paved roads or parking areas. Parking and access are available on the north side of the site, within the Northeast Sandy Boulevard right-of-way. The site is surrounded by major public roadways.
White Birch Cemetery Gresham 0.5 acres (0.5 developed) 	White Birch Cemetery, one of three adjacent pioneer properties in west Gresham, features a number of early Japanese interments and several beautiful, historic headstones. Located between the Springwater Corridor trail and West Gresham Elementary School, this small cemetery is visible from and easily accessed from Southwest Walters Drive. Similar to the adjacent Gresham Pioneer and Escobar Cemeteries, this property presents an intimate burial choice for families in the area.	Established: 1888 Acquired by Multnomah County: 1965 Total number of interments: 139 Available plots in developed area: 149 (5 cremation, 144 casket) Unique markets served: at one time, Japanese	This site has no road access or parking. Visitor and processional parking is shared with the school to the north.

Natural areas

In the early 1990s Metro inherited approximately 300 acres of natural areas from Multnomah County, including three islands in the Columbia River, a forested corridor on Larch Mountain and a small riverfront property on Sauvie Island. Over the course of 16 years and two bond measures, Metro has acquired another 11,000 acres of natural areas – most of it undeveloped. The habitat types, sizes and locations of these properties vary dramatically, from the large and forested Chehalem Ridge Natural Area on the west side of the region to a collection of properties along the Sandy River Gorge on the east side.

Partner agencies manage Metro-owned land in 16 target areas. These properties effectively became part of another provider's portfolio, often satisfying the public's desire to expand a park, provide better access or protect more stream frontage. For example, the City of Portland manages land that Metro has protected in and around Forest Park. This mutually beneficial collaboration allows Metro and its partners to better serve the public by sharing costs.

The table below introduces Metro's natural areas and lays out the most critical information needed to evaluate future investment options. Clusters of natural areas reflect places as they exist today, and do not always mirror target areas defined by Metro's bond measures. Natural areas that have been developed into nature parks are not included, because they are represented in the developed properties table. Potential public access levels listed here reflect a staff analysis of each site's "carrying capacity," or the most intensive use it could support. "Nature parks" feature signage, parking, trails, restrooms and other amenities; "natural areas" welcome visitors with more basic facilities; "habitat preserves" offer only limited or guided access to protect sensitive plants and wildlife. Decisions about which sites to actually develop will require the Metro Council to weigh in, analyze context and available funding, and engage the public in robust discussion. Chapter 5 provides a detailed discussion of public access.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Abernethy and Newell creeks Clackamas County 390 acres | Map location 1 	Historically, oak woodlands, prairie and old-growth Douglas fir forests covered this watershed. Metro has protected land along Newell Creek, which supports native Coho salmon, cutthroat trout and steelhead. More recently, efforts expanded to Abernethy Creek, a Willamette River tributary with cedar, fir, maple and alder trees along its banks. Despite nearby development, this is the largest undeveloped natural area on the region's south side.	**Nature park and habitat preserve** A nature park could be supported along Newell Creek, where the public has established informal trails and a high level of foot traffic is evident. Other land should be protected as a habitat preserve.	Clackamas Community College Greater Oregon City Watershed Council Oregon City Sabin-Shellenberg Professional Technical Center (North Clackamas School District facility) SOLV	Newell Creek Canyon was a success story of the 1995 bond, with a large block of habitat for wildlife and potential to support a regional trail. Since then, illegal use has increased management challenges and costs. Appropriate public use may help deter transient camping that is damaging natural resources. Highway 213 runs through portions of the area where Metro is working to protect habitat.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Beaver Creek Troutdale 110 acres | Map location 2 	Beaver Creek, a major tributary to the Sandy River, flows through rural, residential and commercial neighborhoods as well as Mt. Hood Community College. Metro's nearby natural area contains wetlands, floodplain, a diverse riparian forest and a beech tree estimated at 120 years old. This rich complex of habitats provides homes for wildlife such as black-tailed deer, American beavers, great horned owls and red-tailed frogs.	**Natural area** The City of Troutdale plans to use a portion of the site to develop a park and nature trail using local share funds from Metro's 2006 bond.	City of Troutdale East Multnomah Soil and Water Conservation District Mt. Hood Community College Multnomah County	The linear shape of Metro's land doesn't allow much buffer for habitat. The partially built Beaver Creek Canyon Trail, which is part of the 40-Mile Loop, will pass near this natural area. A greenway is envisioned to connect the trail to Oxbow Regional Park.
Canemah Bluff Oregon City 270 acres | Map location 3 	Formed by ancient lava flows and carved by the force of the Missoula floods, Canemah Bluff overlooks the Willamette River in Oregon City. Metro began protecting land here in 1996 and built a natural area piece by piece. Visitors enter through Oregon City's Canemah Neighborhood Park, then use unpaved trails to explore rare Oregon white oak and Pacific madrone trees, as well as Douglas fir, maple and alder.	**Nature park** Neighbors have used Canemah for years. In 2011, Metro developed an interim plan to protect natural resources and minimize impacts. Today, the site is formally open as a natural area but could support a nature park in the future.	Canemah Cemetery Association Canemah Neighborhood Association City of Oregon City Confederated Tribes of Grand Ronde	Along with the Willamette Narrows area across the river, Canemah is part of a regionally important site for oak and prairie. High demand by neighbors led to interim strategies to accommodate their use. Lack of a formal master plan and funding to manage public use present challenges.
Chehalem Ridge Forest Grove area, Washington County 1,180 acres | Map location 4 	Perched above Gaston, the forested Chehalem Ridge Natural Area overlooks Tualatin Valley farmland and five Cascade peaks. It is the largest property Metro has bought. On a tour, you might spot deer tracks or visit a beaver pond. You'll see a rare oak-madrone woodland and streams that flow to the Tualatin River. With generations of careful management, young Douglas fir trees will mature into old-growth forests that support diverse wildlife and clean water.	**Nature park** Chehalem Ridge could offer recreational uses that are limited or unavailable elsewhere, such as mountain biking or horseback riding.	City of Forest Grove City of Gaston Gaston School District	Metro science staff have discovered regionally significant wildlife and several oak groves on the site, which could someday connect both people and animals with the Wapato unit of the Tualatin River National Wildlife Refuge.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Clackamas River Bluffs and Greenway Clackamas County 720 acres | Map location 5 	A string of Metro natural areas traces the Clackamas River on its path through rare habitats, stretching from Barton Park to the confluence with the Willamette River in Gladstone. Protected land helps safeguard water quality and wildlife in rapidly developing portions of Clackamas County while providing access to the river, which supports threatened salmon and steelhead.	**Nature park and habitat preserves** The 174-acre Parsons property, which is used by people rafting, tubing and fishing, has potential to support a nature park. Most other properties have sensitive habitat, and are recommended as habitat preserves.	Clackamas County Parks and Recreation Clackamas Soil and Water Conservation District Clackamas Watershed Council Oregon Department of Fish and Wildlife Oregon State Parks Portland General Electric	Other public agencies own and manage hundreds of acres in the area, with high levels of access. Changes in the river related to historic gravel mining and the 1996 floods are creating significant management challenges, which will require a multi-partner solution and substantial funding. Several Metro properties present significant restoration opportunities.
Clear Creek Carver area, Clackamas County 520 acres | Map location 6 	Beyond Oregon City and Carver, nestled among Christmas tree farms, Metro's Clear Creek natural area serves as a haven for wildlife. Named for the creek that snakes through this canyon, the natural area is home to endangered Coho and Chinook salmon, as well as deer, coyote, beaver and otter. Brilliant purple camas bloom in the spring; fungi can be found in the fall. Extensive restoration has improved the health of the site, where continued work could support salmon and prairie habitat.	**Nature park** Clear Creek was targeted as a potential nature park during the first bond measure, due to its spectacular scenery and environmental education potential. Sensitive habitat will require careful planning to balance access with natural resource protection.	Clackamas River Watershed Council Clackamas Soil and Water Conservation District Oregon Department of Fish and Wildlife Oregon Wildlife Heritage Foundation Portland General Electric Metro has an active restoration partnership with an adjacent charter school.	Clear Creek is the single most important tributary to the lower Clackamas River for salmon. Other public agencies manage large parks in the area, including Milo McIver State Park and Barton Park. Ongoing acquisition efforts may affect options for potential future public use. The Clear Creek prairie is an important anchor habitat for regional conservation.
Columbia River and Slough Multnomah County 330 acres | Map location 7 	Off the shores of the Columbia River, Metro natural areas span three islands between Interstate 205 and Corbett: 50-acre Gary Island, 15-acre Flagg Island and 220 acres on the eastern tip of Government Island. The islands provide habitat for fish, deer, beaver, otter and birds – and a spot for boaters to fish, eat lunch or walk in the shade of large cottonwood trees. Metro also owns land along the Columbia Slough, a rich network of waterways and wildlife.	**Natural areas and habitat preserves** The nearby Columbia Slough Trail provides the primary access in this area. Lands protected for their habitat value and water quality benefits are less likely to provide access.	City of Portland Columbia Slough Watershed Council Friends of Smith and Bybee Wetlands Lower Columbia River Estuary Partnership Oregon Department of Fish & Wildlife Oregon State Parks Smith and Bybee Wetlands Management Committee	The Columbia Slough, a 19-mile network of remnant lakes, wetlands and slow-moving channels, stretches from Fairview Lake to Kelley Point Park, where the Willamette and Columbia Rivers meet. The slough and its banks provide valuable habitat for plants, fish and wildlife, including deer, beaver, river otter, 25 fish species and 175 bird species. Metro has protected land that provides habitat connections and water quality benefits along the Slough.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Dairy and McKay creeks confluence Washington County 220 acres | Map location 8 	Between Hillsboro and Cornelius, Dairy and McKay creeks converge at the interface of farmland and urban development. By protecting land along these major tributaries to the Tualatin River – as well as nearby wetlands – Metro has helped improve water quality throughout the watershed. Other Metro acquisitions expanded Jackson Bottom Wetlands Preserve in Hillsboro.	**Natural areas and habitat preserve** Part of Metro's land lies along the proposed Council Creek Trail, providing options for a public natural area. The isolated Wetter property along Dairy Creek is suited to a habitat preserve.	City of Cornelius Clean Water Services	These creeks provide a key conservation corridor between the growing communities of Cornelius and Hillsboro.
Deep Creek and tributaries Boring area, Clackamas County 20 acres | Map location 9 	For wildlife, Deep Creek is the equivalent of a freeway, making connections between the Clackamas River and the Cascades, the East Buttes area of Gresham and the urbanized Johnson Creek watershed. Frequent travelers include Coho and spring Chinook salmon, wild winter steelhead, cutthroat trout and lamprey eel. Because Deep Creek and its tributaries flow into the Clackamas River, they have a significant effect on water quality.	**Habitat preserves** Deep Creek and its tributaries provide significant habitat for Coho and spring Chinook salmon, wild winter steelhead, migratory and resident cutthroat trout, and lamprey eel.	Oregon State Parks	Metro's Deep Creek and Cazadero Trail target areas are intertwined, with the trail focusing on access and Deep Creek focusing on habitat. Deep Creek is a significant tributary to the Clackamas River, and the sub-watershed offers forest that serves as a wildlife corridor.
East Buttes Clackamas, Multnomah counties 790 acres (excludes Mount Talbert, Scouter Mountain) | Map location 10 	Ancient lava domes that make up the East Buttes look out on spectacular valleys, rich farmland and sparkling Cascade peaks. Far below, thousands of residents live in quickly growing communities on the east side of the region. Metro natural areas include trail opportunities, regionally important swaths of upland forest and creek headwaters, which protect threatened fish and other wildlife. Mount Talbert Nature Park and Scouter Mountain Natural Area are both located in this target area.	**Nature park, natural areas and habitat preserves** East Buttes land north of Butler Road, including the property known as Gabbert Hill, could sustain a nature park. Other properties can support only lower levels of access, due to sensitive habitats.	City of Damascus City of Gresham City of Portland Johnson Creek Watershed Council North Clackamas Parks and Recreation District	The area south of Butler Road provides particularly important wildlife habitat and connectivity. Metro continues working to connect parcels. High neighbor demand led to interim strategies to plan and accommodate use. Lack of a formal master plan and funding to manage public use present challenges.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Forest Park connections Portland, Multnomah County 1,020 acres | Map location 11 	Forest Park stretches nearly eight miles along the northeast slope of the Tualatin Mountains, covering 5,000 acres and earning distinction as the nation's largest natural urban forest reserve. Visitors can explore 70 miles of trails and see an abundance of wildlife. There are opportunities to provide a buffer for wildlife and improve visitors' experience at this signature park, which is owned and managed by Portland. Metro has protected trailheads, surrounding land and "missing" pieces in the park.	**Nature park and habitat preserves** Metro could provide formal access to hikers, horseback riders and cyclists who use Metro's 330-acre Agency Creek property, north of Forest Park. Low access is appropriate on sites with sensitive habitat.	Audubon Society of Portland City of Portland Forest Park Conservancy West Multnomah Soil and Water Conservation District	This area serves as a regional icon for upland forest and connects to the Coast Range. High demand for use and partner funding shortages present challenges. The large size of Metro properties affords opportunities to accommodate uses such as single-track biking that are not appropriate elsewhere. Some Metro sites are already managed by the City of Portland as part of Forest Park.
Johnson Creek Gresham to Portland 180 acres | Map location 12 	Flowing 26 miles from its headwaters near the Sandy River to its meeting point with the Willamette, Johnson Creek passes through Gresham, Happy Valley, Milwaukie and Portland. It once hosted many native fish, which might thrive once again with partners collaborating to protect and restore habitat. Metro's patchwork of natural areas includes clusters of land near Gresham.	**Natural areas and habitat preserves** The 42-acre Ambleside property could serve as a wayside along the Springwater Corridor near Gresham, as could sites upstream on the route toward Boring. Other sites are recommended as habitat preserves.	City of Gresham City of Portland Johnson Creek Watershed Council	This is a multi-partner success story with three major elements: enhancing the Springwater Corridor, acquiring land and restoring a creek corridor. Illegal use is straining staff capacity and threatening natural resources in some places. Partners' capacity limits efforts in some areas.
Killin Wetlands Banks area, Washington County 380 acres | Map location 13 	Tucked along Highway 6 on the way to the Oregon coast, Killin Wetlands is known as a haven for elusive marsh birds. One of the Willamette Valley's largest remaining peat soil wetlands, it represents the last 2 percent of scrub-shrub marsh in the region and supports a rare assemblage of plants and animals. These ecologically significant wetlands improve water quality, provide wildlife habitat and store floodwater.	**Natural area** Killin is popular with birders, but has no parking or amenities. Formally supporting use could alleviate safety concerns and impacts on both the wetlands and neighboring farmers.	If access were developed, birding organizations would likely become partners.	The natural area's reputation as a site for regional bird watchers has led to challenges in managing human use from a safety perspective.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Lower Tualatin River headwaters Washington County 210 acres | Map location 14 	Flowing from the Chehalem Mountains, headwaters of the Tualatin River provide significant wildlife habitat and safeguard water quality. Though it traverses urban areas of Sherwood, Cedar Creek supports many fish. Chicken Creek provides wetland, riparian and upland habitat for migratory birds, endangered fish and other wildlife. And, nestled in forests of fir, maple, alder and cedar trees, Baker Creek is home to sensitive wildlife such as Northern red-legged frogs.	**Habitat preserves** Public access is not compatible with the goal of improving water quality in this target area.	Tualatin Riverkeepers U.S. Fish and WIldlife	This target area includes the headwaters of streams that feed the Tualatin River at the Tualatin River Wildlife Refuge. Acquisition is in early stages; future opportunities will depend on what land Metro can protect.
Multnomah Channel 15 miles northwest of Portland 330 acres | Map location 15 	Along the Multnomah Channel, Metro turned back the clock to mimic historical flooding patterns that nurtured wildlife and plants. Control structures hold water each winter and spring and allow wetlands to drain slowly each summer, as they did before farming and development disrupted the ecosystem. Metro and partners planted tens of thousands of native trees and shrubs. Now, it's common to see Northern red-legged frogs, bald eagles and great blue heron.	**Natural area** The site offers opportunities for low-impact wildlife viewing.	Bonneville Power Administration Ducks Unlimited Oregon Department of Fish and Wildlife	Multnomah Channel is a spectacular example of restored wetlands, including both capital projects and the integration of science and management.
Rock Creek headwaters Washington, Multnomah counties 230 acres | Map location 16 	The health of the Tualatin River is greatly influenced by headwater and tributary streams like Abbey and Rock creeks. If water is kept cool, clear and clean, benefits will flow downstream. Nestled between Portland and the newly developing Bethany urban area, Metro properties offer people and wildlife a refuge from development pressures. This area is home to bobcats and elk, as well as steelhead, trout and Coho salmon.	**Habitat preserves** Sensitive habitat precludes high levels of access on these properties. Public use will be provided on the nearby Rock Creek Greenway trail, which is described in the trails section of this chapter.	City of Hillsboro Clean Water Services West Columbia Land Trust Multnomah Soil and Water Conservation District	Metro is actively working on trail easements in this area with the City of Hillsboro, using the city's local share funds. See trails table for a description of Metro's involvement in the Rock Creek Greenway.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Sandy River East Multnomah County 1,120 acres (excludes Oxbow Regional Park) | Map location 17 	Metro is leaving its mark on a 12.5-mile stretch of the Sandy River Gorge, where the river winds its way through 800-foot-high basalt and sandstone canyons. Protecting tributaries to the Sandy River provides healthy habitat for native salmon and steelhead and a wildlife corridor for bear and elk traveling the 55-mile path from Mount Hood to the Columbia River. Visitors to Metro's Oxbow Regional Park can enjoy river access and old-growth forest.	**Habitat preserves** Metro's Oxbow Regional Park, which is listed with nature parks, provides high access in this area.	Bureau of Land Management City of Portland Water Bureau East Multnomah Soil and Water Conservation District Portland General Electric Sandy River Basin Partners Sandy River Connections Working Group The Nature Conservancy Western Rivers Conservancy	Partners, including the Bureau of Land Management and Western Rivers Conservancy, have also protected hundreds of acres of habitat in this area. Metro and partners have made significant progress completing a trail in the Sandy River Delta area where the Sandy and Columbia rivers meet. The Sandy is one of the most important salmon refuges in the lower Columbia River.
Stafford Basin Clackamas County 90 acres | Map location 18 	Metro is enhancing water quality and floodplain health and providing future trail connections in the Stafford Basin triangle between Lake Oswego, West Linn and Tualatin. A natural area north of Interstate 205 expands a wildlife corridor along Wilson Creek, a tributary of the Tualatin River. Metro's remaining land in the area is a forest nestled along Pecan Creek, where restoration work has helped remove invasive species.	**Natural area and habitat preserve** Trail and community advocates have proposed creating the Stafford Trail, which would cut though the area from the Tualatin River (near Stafford Road) south to the Willamette River.	City of Lake Oswego City of West Linn	Acquisition is in early stages; future opportunities will depend on what land is protected. Existing holdings provide anchors of habitat in an area with an uncertain future.
Tonquin geologic area Clackamas, Washington counties 260 acres (excludes Graham Oaks) Map location 19 	Unique geologic features left by ancient floods shaped the Tonquin geologic area near Wilsonville, Sherwood and Tualatin. Protecting rocky outcrops that frame these former lake bottoms provides rich, complex wildlife habitat and preserves rare geologic features. Metro developed Graham Oaks Nature Park, which includes 1.5 miles of the Tonquin Trail. Further north, 165 acres of rich Coffee Creek bottomlands will allow for an expansion of the Tonquin Trail.	**Natural areas** Any additional access is likely to be concentrated around the Tonquin Trail, which will connect the Willamette and Tualatin rivers and the cities of Wilsonville, Sherwood and Tualatin.	City of Tigard City of Tualatin City of Sherwood City of Wilsonville The Wetlands Conservancy U.S. Fish and Wildlife Service	This area combines rapid growth with several areas included in future urban reserves. Floodplain work depends partly on future acquisition of key linkage properties. There are opportunities to develop the Tonquin Trail, which weaves through this target area, in a way that supports important wildlife corridors. See trails table for details.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Tryon Creek linkages Southwest Portland 60 acres | Map location 20 	Partners are working together to improve habitat at the mouth of Tryon Creek, which provides some of Portland's highest quality habitat for native fish. Upstream, Metro acquisitions have been folded into local natural areas such as Maricara and Foley-Balmer. Other Metro land was added to Tryon Creek State Park, an impressive natural area with diverse forests dominated by Douglas fir and Western red cedar.	**Natural areas** The area known as Tryon Cove in Lake Oswego has the potential to link the Willamette River Greenway with Tryon Creek State Park and future trails from Lake Oswego and Hillsdale to Portland.	City of Portland Friends of Tryon Creek Oregon State Parks Tryon Creek Watershed Council	Metro has played a relatively minor role, but can help reconnect Tryon Creek to the Willamette River by integrating transportation and conservation planning. Active acquisition is under way to close key trail gaps.
Tualatin River Washington County 400 acres | Map location 21 	The Tualatin River is home to an abundance of fish and wildlife. Washington County's only river is also important to human health – it provides drinking water to 200,000 homes and businesses. Metro's protected land includes potential river access points and property next to the Tualatin River Wildlife Refuge. At Gotter Prairie, restoration has transformed a farm field into a wetland with thousands of native trees, shrubs and plants.	**Nature parks and natural areas** While floodplain and riparian protection are critical, nature parks could be supported at five sites: Gotter, Munger, Farmington, Morand and Borland. Water access would be a key feature.	City of Tualatin Natural Resources Conservation Service Tualatin Riverkeepers U.S. Fish and Wildlife Service	Multiple sites protect Tualatin River water quality and wildlife through riparian, floodplain, forest and prairie restoration and provide potential river access. Metro Council directed natural areas staff to identify a river access site that will facilitate a water trail; additional acquisitions may present opportunities to expand on this project.
Wapato Lake and Gales Creek Forest Grove area, Washington County 650 acres | Map location 22 	Every winter, rich floodplains along Gales Creek and the upper Tualatin River provide habitat for waterfowl and store floodwater. Upland areas help plants and wildlife connect with Metro's Chehalem Ridge Natural Area, and floodplains stretch toward the Tualatin National Wildlife Refuge. The threatened Nelson's checkermallow thrives in wet prairies; Oregon white oak and ash line streams. Near Forest Grove, ash and willow trees enhance the setting for an adjacent trail.	**Natural areas and habitat preserves** A portion of the Lovejoy site could accommodate modest access, if it provided parking. Other portions of Metro's holdings in the area are better suited to habitat preserves.	Natural Resource Conservation Service U.S. Fish and Wildlife Service	The U.S. Fish and Wildlife Service is developing the Wapato Unit of the Tualatin Refuge here. Metro supports these efforts, and is collaborating to build connections to Chehalem Ridge Natural Area. Metro's Lovejoy site supports the streaked horn lark, a candidate for listing under the Endangered Species Act.

Natural area cluster	Overview	Potential public access level	Key partnerships	Regional context
Willamette Cove North Portland 30 acres | Map location 23 	Someday, visitors may experience unique oak-madrone habitat and river views at Willamette Cove natural area in North Portland. Willamette River frontage provides an ideal spot to enhance salmon habitat. Neighbors have long supported protecting Willamette Cove, one of Metro's earliest natural area purchases. It is envisioned as a pivotal piece of the North Portland Greenway trail. But plans may be delayed by cleanup of the Portland Harbor Superfund site.	**Nature park** The North Portland Greenway trail is planned to traverse Metro's property. Alignment planning is complete, and environmental conditions are addressed. The City of Portland is conducting a trail alignment study.	City of Portland Port of Portland	Challenges around the Portland Harbor Superfund Site have delayed potential for trail or park development. In the meantime, transient use poses a significant challenge.
Willamette Narrows West Linn area, Clackamas County 540 acres | Map location 24 	South of West Linn, the Willamette River flows through a stretch of steep cliffs and rocky islands called the Willamette Narrows. Upland bluffs offer trees, huge basalt rocks and river views, while lower portions offer river access. Minutes from town, the area can feel untouched and remote. Metro land along the river, including several small islands, is home to deer, coyote, frogs, osprey, owls, heron and songbirds – as well as woodlands, upland prairies and an unusual wetland called a fen.	**Nature park and habitat preserves** The Weber property, which is leased to a farmer, could offer a challenging but enjoyable walk to the Canby Ferry below. Metro's remaining land in the area, which features sensitive and rare habitats, is suitable for habitat preserves.	City of Portland Oregon Department of Fish and Wildlife Oregon Parks and Recreation Department Oregon Watershed Enhancement Board	This is probably the single most important regional site for conserving oak woodlands, which have declined dramatically in the Willamette Valley. Limited physical access to these sites poses a significant challenge for any potential public use. Islands present a management challenge for illegal use.
Willamette River Greenway Wilsonville to Multnomah Channel 170 acres | Map location 25 	The Willamette River serves as Portland's unofficial backdrop, popping up on postcards and national news shows. This signature waterway snakes through dozens of communities between Wilsonville and the Multnomah Channel, where Metro concentrates efforts. Unique habitats such as islands, oak woodlands, prairies and wetlands support fish and wildlife and provide opportunities to connect with nature.	**Natural areas** Goals for this Metro and state effort are to protect, conserve, restore, enhance and maintain the river's ecological, natural, scenic, historical, agricultural, economic, cultural and recreational qualities and resources.	East Multnomah Soil and Water Conservation District West Multnomah Soil and Water Conservation District Willamette Riverkeeper Local jurisdictions	The Willamette River offers excellent opportunities for water- and land-based recreation and active transportation. Many previous Metro holdings along the river, such as Multnomah Channel and Willamette Cove, have splintered from the target area and developed their own identities. Acreage reported here is primarily the River View natural area protected by Metro and the City of Portland.

Trail projects

Metro typically doesn't own or maintain regional trails, but the agency's leadership has made many of those trails possible. Metro has fostered regional partnerships for long-range trail planning, spearheaded the development of a regional trails plan and map, and provided and secured funding for design, engineering and construction. Through its two natural areas bond measures, Metro has also built 11 miles of trail at three large nature parks and secured the rights to build many more miles of trail, filling gaps that force runners, walkers and bicyclists onto public streets.

Metro dedicates a full-time real estate negotiator to closing trail gaps and working with groups such as the 40-Mile Loop Land Trust and The Intertwine Alliance. This investment has put Metro in the forefront of the effort to plan and build a model regional trail system.

Acquiring rights to close trail gaps can be deceptively difficult. The transaction cost for an easement is generally low, but filling a gap often requires agreements with many individual landowners and takes just as much staff time, planning and paperwork as any other deal. And, eventually, filling the gap requires extensive planning and collaboration with partners. In some cases, Metro owns the underlying land or trail easement even though local partners build and manage the trail. The Springwater Corridor is a good example: Metro owns easements on a three-mile stretch along the Willamette River, a soon-to-be-built section through the Sellwood neighborhood and the Three Bridges area in Southeast Portland, but the City of Portland handles construction and maintenance.

The table below reflects regional trail projects where Metro plays a major role and could make additional investments.

Regional trail	Overview	Public use	Key partnerships	Context
Cazadero Trail (Boring to Estacada State Trail) Boring area, Clackamas County 	One hundred years ago, trains chugged along Deep Creek, transporting timber from Cascade forests to the Portland riverfront. Soon, nature lovers will traverse a four-mile stretch of that journey between Boring and Barton by foot, bike or horseback. The former rail line is being reinvented as the Cazadero Trail, an extension of the Springwater Corridor. Metro helped fund development of Boring Station Trailhead on the north, and purchased land for a trailhead on the south.	The Cazadero Trail runs from Boring south to Barton. Someday, it could extend beyond Barton through Eagle Creek, Estacada and the Faraday, Cazadero and Promontory Park areas on up the Clackamas River corridor, eventually connecting to Mount Hood and the Pacific Crest Trail.	Clackamas County Parks Oregon Department of Fish and Wildlife Oregon State Parks	Metro's Deep Creek and Cazadero Trail target areas are intertwined, with the trail focusing on access and Deep Creek focusing on habitat. Oregon State Parks recently constructed the trail from Boring to the north fork of Deep Creek. The Cazadero Trail will connect to Sandy via the new Tickle Creek Trail.

Regional trail	Overview	Public use	Key partnerships	Context
Columbia Slough Trail Gresham, Fairview, North and Northeast Portland 	The Columbia Slough begins in Fairview and meanders west for 19 miles to Kelley Point Park, where it empties into the Willamette River. Half of the Columbia Slough Trail through this area is built and being used. Completed sections include multi-use paths and pedestrian-only paths. Approximately three-fourths of the completed trail will provide bicycle access. Future sections will connect to Metro's Smith and Bybee Wetlands Natural Area and Blue Lake Regional Park.	120,000 trips in 2010 When complete, the Columbia Slough Trail will connect to a network of existing and proposed regional trails. It will link people to nature, jobs, schools and transit. Canoe launches are located at Kelley Point Park and Whitaker Ponds Natural Area.	40-Mile Loop Land Trust Cities of Portland, Gresham and Fairview Columbia Slough Watershed Council Multnomah County Drainage District Port of Portland Smith and Bybee Wetlands Management Committee	The Columbia Slough Trail is part of the northern portion of the 40-Mile Loop trail network (which is actually closer to 140 miles). Once completed, it will provide access to the I-205 trail, public transit stops and other regional trails.
Fanno Creek Greenway Trail Portland, Beaverton, Tigard, Durham, Washington County 	The Fanno Creek Greenway Trail will traverse 15 miles, weaving through Beaverton, Tigard, Durham and Tualatin and ending at the shores of the Willamette River in Southwest Portland. The trail, which is about half built, will connect to schools, parks and other community destinations. Metro's purchases have helped to secure rights to build portions of the trail, and to restore water quality and protect wildlife habitat in this developed portion of the Tualatin River watershed. Great blue heron and groves of Oregon ash trees are just a few of the things to see on the trail.	220,000 trips in 2010 The trail serves as a commuter and recreational trail. Numerous community parks are along or near the trail, including Gabriel, Fanno Creek and Cook parks, community centers and golf courses.	Cities of Portland, Beaverton, Tigard, Durham and Tualatin Oregon Department of Transportation Tualatin Hills Park and Recreation District Washington County	Metro has acquired 56 acres to support the greenway. Other jurisdictions manage trail and recreation uses on some Metro-owned land. The trail is mostly complete in Beaverton, about half complete in Tigard and partially complete in Portland. In Tualatin, the trail will connect to an existing bike/pedestrian bridge and the future 22-mile Tonquin Trail.
Gresham-Fairview Trail Gresham, Fairview 	The Gresham-Fairview Trail provides a north-south connection between the Springwater Corridor and Marine Drive trails, linking neighborhoods, schools, businesses, parks and natural areas along the way. Most of the trail has been built, and Metro is collaborating with Gresham and Fairview to help finish the job by securing rights to build a missing northern section that will connect to Blue Lake Regional Park. The trail will improve commuting and recreation options.	40,000 trips in 2010 This trail serves as a major north-south commuter and recreational trail, connecting to multiple neighborhoods and light rail.	City of Fairview City of Gresham Multnomah County Oregon Department of Transportation Portland General Electric	Metro regional flexible funds, a Congressional appropriation and a state transportation grant helped build a bike/pedestrian bridge over Southeast Powell Valley Road. The trail connects to light rail and provides a key alternative transportation option in the East Metro Connections Plan.

Regional trail	Overview	Public use	Key partnerships	Context
Marine Drive Trail North and Northeast Portland, Fairview, Troutdale 	The Marine Drive Trail is a 20-mile section of the 40-Mile Loop trail system that extends from Kelly Point Park at the confluence of the Columbia and Willamette rivers to Troutdale. The bike path features stunning views of Mount Hood. It connects five major Metro sites: Smith and Bybee Wetlands, the Expo Center, Gleason Boat Ramp, Blue Lake Park and Chinook Landing Marine Park. Metro has recently acquired several trail easements to help close four remaining gaps.	155,000 trips in 2010 The trail provides recreation and off-street commuting options. There is also a connection from the trail to Portland International Airport.	Cities of Portland, Gresham, Fairview and Troutdale Multnomah County Multnomah County Drainage District Port of Portland	The 40-Mile Loop system is actually closer to 140 miles; this trail makes up the northern portion and includes connections to the Columbia Slough, Columbia Gorge and Vancouver, Wash. over the I-205 bridge.
Peninsula Crossing Trail North Portland 	Open since 1998, this recreation and commuting trail serves a highly populated urban area in North Portland. It connects schools, businesses and shopping areas to homes and apartments – and connects Willamette Boulevard bike lanes to Smith and Bybee Wetlands Natural Area, the Columbia Slough and Kelley Point Park.	92,000 trips in 2010 Trail users can access three bus lines. The University of Portland and Roosevelt High School's running teams and other students use the trail. A diversity of ethnic groups, income levels, and ages also use the trail.	40-Mile Loop Land Trust Oregon Department of Transportation Portland Bureau of Environmental Services Portland Bureau of Transportation Portland Parks and Recreation	The trail is owned and maintained by the City of Portland and is part of the 40-Mile Loop trail system.
Rock Creek Greenway Beaverton, Hillsboro, Washington County 	Residents in this growing part of the region will soon be able to enjoy an 8-mile trail that stretches across Hillsboro and Beaverton. The developing trail meanders along scenic Rock Creek. Metro has protected land along the creek and continues to help the City of Hillsboro secure rights to build the trail. The Tualatin Hills Park and Recreation District is building missing sections within its district, including a connection to Portland Community College's Rock Creek campus.	150,000 trips in 2010 From the Tualatin River at Rood Bridge Park in Hillsboro, this trail parallels Rock Creek and heads northeast through Hillsboro, eventually connecting to the Westside Trail. Several segments are complete. Metro has acquired property for the trail under the 1995 and 2006 bond measures.	City of Hillsboro Clean Water Services Columbia Land Trust Tualatin Hills Park and Recreation District Washington County West Multnomah Soil and Water Conservation District	The greenway connects Hillsboro with employment areas, Orenco, Amber Glenn, Tanasbourne, the Westside Trail, the Tualatin River, Forest Park, Bethany and Portland Community College's Rock Creek campus.

Regional trail	Overview	Public use	Key partnerships	Context
Springwater Corridor Trail Portland, Milwaukie and Gresham 	The region's premier trail, the Springwater Corridor Trail serves three cities, two counties and the community of Boring. The trail links to schools, the region's central business and industrial districts, and dense residential areas. Trail users can explore Oaks Bottom Wildlife Refuge, Powell Butte, Sellwood Riverfront Park, Johnson Creek and Gresham's Main City Park. Metro purchased rights to build a three-mile section along the Willamette River, and recently filled part of a prominent gap in the Sellwood neighborhood.	1.2 million trips in 2010 The trail is built on a former railroad bed and is very flat, which makes it popular with seniors and those less able to navigate hills.	40-Mile Loop Land Trust Cities of Portland, Milwaukie and Gresham Clackamas County Multnomah County Oregon Department of Transportation	While Metro owns fee and trail easements in certain sections, the trail is mostly owned by the City of Portland. Portland, Gresham and Clackamas County maintain the trail. The trail will be connected to the Milwaukie MAX line's Tacoma Street station, which will open in September 2015.
Tonquin Trail Clackamas, Washington counties 	The Tonquin Trail will connect the Willamette and Tualatin rivers and the cities of Wilsonville, Sherwood and Tualatin. This 22-mile pathway traverses a landscape with visible marks from ancient floods that shaped the region. The trail will connect neighborhoods, schools, town centers, transit and natural areas, including Metro's Graham Oaks Nature Park. Metro is leading the Tonquin Trail master planning process, in partnership with jurisdictions that will build and maintain the trail. A master plan will be complete in spring 2012.	330,000 trips in 2010 The Tonquin Trail will serve commuters and recreational users. Connections to surrounding homes and businesses will make this a highly used trail.	Cities of Wilsonville, Tualatin and Sherwood The Wetlands Conservancy Washington County	Portions of the Tonquin Trail are built in Metro's Graham Oaks Nature Park, the Villebois community, Tualatin's Community Park, and Stella Olsen Park in Sherwood. When completed, the trail will connect to three other regional trails and possibly to Champoeg State Park over the proposed French Prairie Bridge in Wilsonville.
Trolley Trail Milwaukie to Gladstone and Oregon City 	A former streetcar line is being transformed into an urban trail between Milwaukie and Gladstone, with a connection to Oregon City. The Trolley Trail is adjacent to residences, businesses, shops, schools and parks. Starting in 2015, it will also connect with Park Street Station along the new Milwaukie light-rail line. The trail is under construction, thanks in part to right-of-way acquired with funds from Metro's 1995 natural areas bond measure.	42,000 trips in 2010 When the trail is complete, thousands of people are expected to use it for commuting and recreation.	City of Gladstone City of Milwaukie Friends of the Trolley Trail North Clackamas Parks and Recreation District Oregon Department of Transportation	The trail is owned and operated primarily by the North Clackamas Parks and Recreation District and the City of Gladstone. Future plans will tie the trail to the Springwater Corridor's Three Bridges area, via Southeast 17th Avenue.

Regional trail	Overview	Public use	Key partnerships	Context
Tualatin River Water Trail **Tualatin River Greenway Trail** Tualatin, Durham, King City, Hillsboro, West Linn 	Someday, people will be able to explore the Tualatin River by boat, bike or foot on two sister trails: a greenway trail along the banks and a water trail in the river itself. Metro has acquired five sites along the river that could serve both trails, but none has been developed yet. Partners have built sections of the six-mile greenway trail in Browns Ferry Park and Cook Park, and developed nine launch sites for the 40-mile water trail.	310,000 trips in 2010 Metro Council directed natural areas staff to identify a river access site that will facilitate a water trail; additional acquisitions may present opportunities to expand on this project. Existing launch sites are at Rood Bridge Park, Eagle Landing, 99W Bridge, Jurgens Park, Cook Park, Tualatin Community Park, Browns Ferry Park and River Grove Boat Ramp.	Cities of Tualatin, West Linn, Tigard and Hillsboro Tualatin Riverkeepers Washington County	The water trail and the greenway trail will connect to the future Westside Trail and Tonquin Trail, where those two trails meet at the Tualatin River. The greenway trail will provide access to Brown's Ferry Park, Tualatin Community Park, Cook Park, Durham Park, Jurgens Park and the Tualatin River National Wildlife Refuge.
Westside Trail Multnomah and Washington counties 	The partially built Westside Trail follows a power line corridor along a north-south path through eastern Washington County. When complete, it will serve thousands of residents and scores of businesses, shops and schools along its 26-mile route. The trail connects with many regional and neighborhood parks, including the Tualatin Hills Nature Park, King City Park and Forest Park. It will also meet up with eight other regional trails.	60,000 trips in 2010 Most of the trail is relatively flat and easily accessible to all levels of users. It is anticipated that the trail will serve as a major commuter and safe-routes-to-school corridor.	Cities of Portland, Beaverton, Tigard and King City Multnomah, Washington counties TriMet Tualatin Hills Park and Recreation District	Sections have already been built or are being designed to be built by Tualatin Hills Park and Recreation District. A master planning process will begin in early 2012 to determine the trail route for unbuilt sections. The trail may offer an opportunity to create a pollinator corridor.

Even as the portfolio changes, the goal remains the same: to honor the trust that citizens of the region invested in Metro by approving two natural areas bond measures.

Today's portfolio raises questions about the future

The opportunities and challenges ahead are as diverse as Metro's portfolio. Some properties, such as a rare wetland in the Willamette Narrows, would be compromised by human access. Privately owned properties where Metro has a conservation easement are not appropriate for public access, either. Other natural areas, such as Chehalem Ridge and Gotter Prairie, regularly host tours, volunteer events or education programs, although they don't yet have master plans. And some properties have been tapped to fill immediate needs, such as an operations field office and Metro Native Plant Nursery in Tualatin. Ten sites have been identified as good candidates for future nature parks, and more than 20 could support public natural areas; these opportunities are described in Chapter 5.

With land acquisition continuing, this report provides a snapshot of Metro's holdings at this point in time. However, even as the portfolio changes, the goal remains the same: to honor the trust that citizens of the region invested in Metro by approving two natural areas bond measures.

A special event participant reflects on the landscape at Scouter Mountain Natural Area, which is expected to open to the public in 2013.

CHAPTER 4: RESTORATION AND LAND MANAGEMENT

For Metro, buying a new natural area isn't an ending; it's an opportunity to begin the often complex process of protecting and restoring some of Western Oregon's most important natural treasures.

As the region accommodates more and more people, there's less and less wildlife habitat – and the remaining patches of green are increasingly isolated. Natural processes like winter flooding, fires and grazing are disrupted, and animals have trouble getting from place to place. It's no wonder one-sixth of the region's wildlife species are considered sensitive or declining.

Good stewardship is necessary to preserve the best remaining habitat and, in many cases, help important plants and animals make a comeback. It is also critical to the region's water quality. As the region's largest natural areas landowner, Metro takes this responsibility seriously.

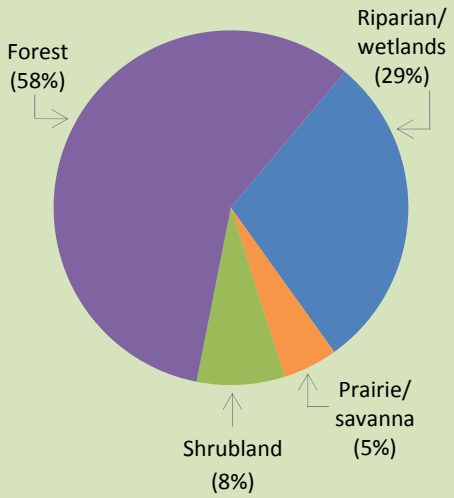
Many sensitive species depend on large habitats such as Metro's Chehalem Ridge, Cooper Mountain, East Buttes, Willamette Narrows and Clackamas River Bluffs and Greenway natural areas. Others depend on rare or declining native habitats such as oak, prairie, wetlands and riparian forests – the heart of Metro's portfolio of land. Oregon's biggest remaining population of Western painted turtles lives at Smith and Bybee Wetlands Natural Area in North Portland. The world's largest population of the endangered pale larkspur flourishes at Cooper Mountain. A natural area near Forest Grove provides habitat for Nelson's checkermallow plants, as well as a rare penstemon that prompted visits from prominent botanists. And Metro owns one of the Willamette Valley's last examples of an unusual wetland called a fen, nestled in the Willamette Narrows near West Linn.

Peach Cove fen is the best remaining example of a sphagnum swamp in the Willamette Valley.

Many of Metro's properties were strategically purchased or restored to provide important connections to other protected land – highways of sorts for bugs, fish, birds and mammals, and even plants. They also help form networks that strengthen the value of each individual site. Just as computer networks and back-up systems make your desktop more powerful and protect it from data loss, well-connected networks of natural areas help maintain the health of animal and plant populations. And, if a sensitive species temporarily disappears from a natural area, protected corridors give them a safe route to return.

Many of Metro's properties were strategically purchased or restored to provide important connections to other protected land – highways of sorts for bugs, fish, birds and mammals, and even plants.

Habitats in Metro's portfolio

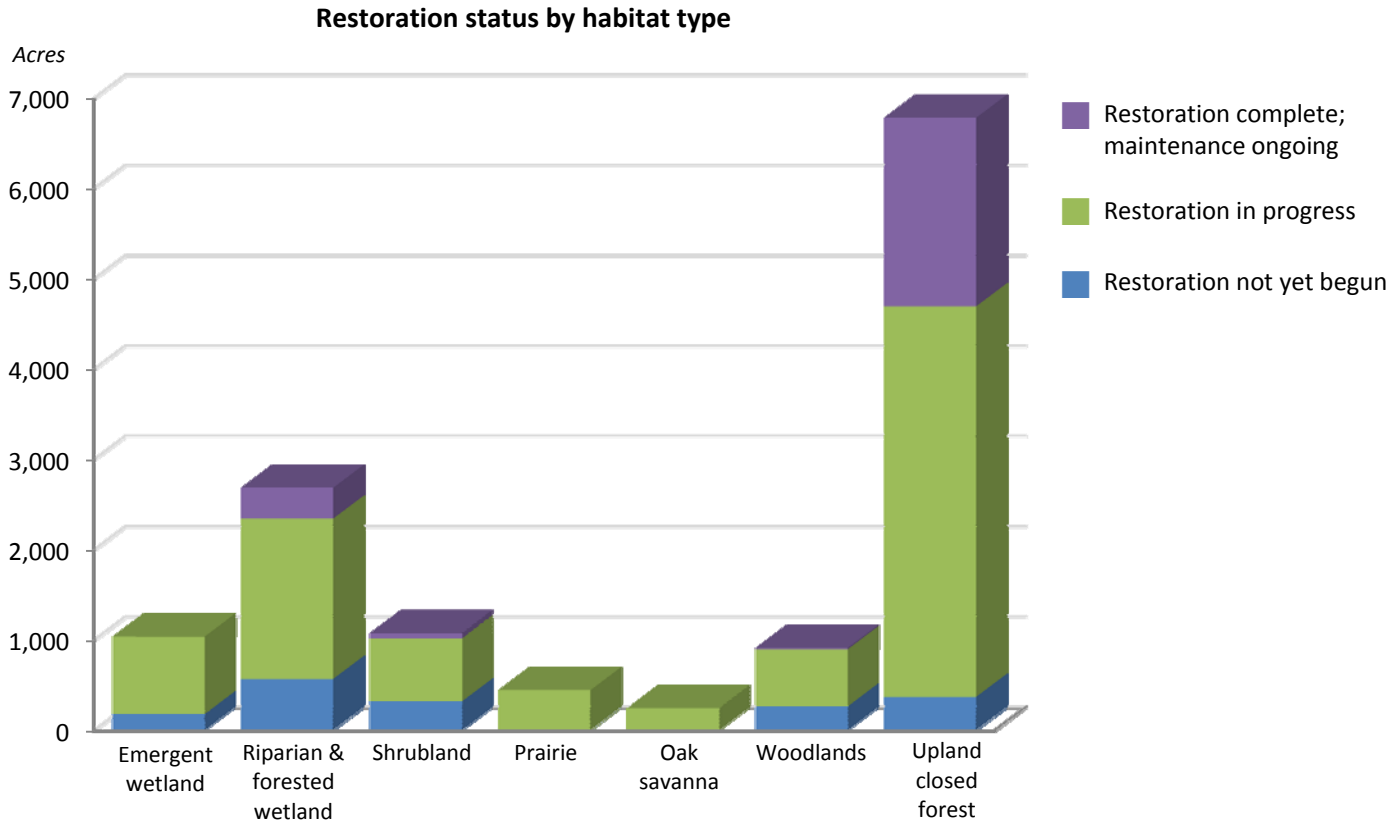


1,700,000

Number of trees and shrubs Metro has planted over the course of 16 years

These natural areas don't get healthy, or stay healthy, just because they're in public ownership. To protect voters' investment, Metro's science team devises a short-term and long-term plan for every property, exploring alternatives for the future based on ecology and available resources. Needs can be as simple as controlling invasive plants, or as complicated as installing water control structures to restore historical flooding patterns. The results are tangible: native plants return and streams are shaded, Northern red-legged frogs or Coho salmon thrive. Over the course of 16 years and two bond measures, Metro has planted 1.7 million trees and shrubs.

But management and restoration require expertise, time and money. As Metro's land base grows, the agency must decide which properties to restore, how aggressively to restore them and how to care for them over time.



Restoration at Metro's natural areas: how it works

When Metro's natural resource scientists look out over a field of scotch broom or an abandoned dairy farm, they see the oak savanna or Geyer willow marsh that thrived there hundreds of years ago. Each natural area presents a unique challenge, but generally the approach is the same: take the land back toward its roots by restoring the natural processes and native species that once characterized the site. Metro aims to improve water quality, wildlife habitat and biodiversity at every natural area – in many cases, while giving human visitors a chance to experience the landscape.

Before Metro even buys land, a scientist tours the potential natural area to take notes on valuable plants and animals, restoration opportunities and challenges. After a natural area is signed up for purchase, the staff sets priorities for the first weeks and months.

The transformation starts with a short-term strategy to stop any deterioration of natural resources and put land on the path toward success. This "stabilization" period, which typically lasts about two years, is the only on-the-ground work funded by Metro's voter-approved natural areas bond measures.

Some tasks are nearly universal. Metro almost always fights invasive plants, for example, replacing them with species that better support wildlife and improve water quality. Other tasks are property-specific, and many require specialty contract crews to ensure that Metro moves nimbly and keeps pace with all its properties. At a minimum, eroding stream banks need to be planted with native species. At a maximum, the stream may need to be reshaped and have large logs added. Metro also thins densely planted trees, which compete for food and light if they all grow into old age.

Metro natural areas provide a haven for wildlife, including the Chalcedona checkerspot butterfly.

When a property is on the right track, it transitions to restoration and long-term management paid for by Metro's general fund. The land management team continues day-to-day maintenance, while scientists consider the big picture. To determine what the landscape looked like hundreds of years ago, the team studies soils, old survey data, native and rare species and historical photos. Conversations with landowners, neighbors and regional experts help fill in gaps. There also are hints on the landscape itself – remnant native plants, evidence of changes in hydrology.

Typical restoration activities

Project design and coordination

Native plant propagation

Erosion control

Site preparation for plantings

Native tree, shrub and ground cover plantings

Maintenance (watering, weeding, mulching)

Invasive plant removal

Restoration progress monitoring

Special restoration projects

Creating off-channel salmon habitat

Installing water control structures

Re-meandering streams to improve habitat

Staging controlled burns and removing conifers in oak-savanna habitat

Life cycle of a natural area

Metro's stewardship classification system defines five phases, helping prioritize restoration and estimate costs.

Pre-initiation
Restoration necessary, but not yet begun

Initiation
Beginning steps, including actions taken during stabilization

Establishment
Restoration in progress; may take a decade or more

Consolidation
Restoration moving further along

Long-term maintenance
Keeping the site moving toward its desired future condition

Scientists carefully analyze the site's conditions, and the opportunities and limitations for restoration. Can the original hydrology be restored without affecting neighbors? Can farming practices help restore or maintain the site? Does the natural area integrate into a larger ecological landscape? How will the site and the surrounding area be used in the future? Will floods or trail users reintroduce invasive plants? How much will restoration cost, and what funding is available? From the answers to these questions, a strategy emerges and the team goes to work – often with the help of partners, grants and volunteers.

Metro's scientists and land managers use an "adaptive management" approach, learning from successes and mistakes to improve results on complex projects. At Graham Oaks Nature Park, Metro has spent a decade transforming a farm field into the sort of oak savanna where Native Americans once harvested acorns. Graham Oaks is a success story, and the Metro team learned much that can be applied to similar projects in the future. Complex projects span the region and its habitat types. Along the Clackamas River, for example, Metro and its partners moved 40,000 cubic yards of earth and placed hundreds of huge logs and boulders to recreate a former side channel, providing vital habitat for young salmon.

Even when a sensitive species returns or a nature park opens, the job continues. Ongoing care is necessary to protect the gains made with successful restoration projects. Metro needs to control weeds on most sites every few years; and, in forests, create openings or introduce standing dead trees, called snags, to mimic old-growth conditions. Densely planted trees prevent other native plants from thriving and occasionally need to be thinned; in other areas, targeted planting can help when weeds get out of hand. Most prairie and oak savanna sites require periodic fire, mowing or grazing, as well as supplemental seeding to maintain open conditions, reduce fire danger and maintain healthy populations of native plants.

What's done, what's needed, what it costs

Metro's natural areas vary in habitat type, condition, connectivity to other protected lands and proximity to development. Some were acquired in good shape and require only periodic maintenance, while many others need extensive restoration. Metro must always choose which projects to move forward and which to delay until additional funds are available.

Native Plant Center coordinator Marsha Holt-Kingsley collects a rare penstemon plant for propagation.

Through thoughtful planning, financial leveraging and adaptive management, Metro is part way through restoration on 9,000 acres of natural areas. The goal: maintain ongoing projects, while initiating restoration on the remaining 2,000 acres and counting, and protect additional lands not yet in Metro's natural areas portfolio. Whether this happens, and how fast, will depend on funding and staff capacity.

Current restoration and maintenance budgets – about $400,000 per year for on-the-ground actions, paid through Metro's general fund – prioritize the most pressing needs. At this funding level, Metro will continue to make choices about which projects are feasible, which are the most time-sensitive and which must wait.

Metro would need to spend a total of $12-45 million over several decades to reach restoration goals on all its properties, according to a 2010 analysis of the cost per acre to restore and manage natural areas in each habitat type. While much of the needed funding could be spent in the first decade or two, some projects, such as restoring old-growth forest or oak savanna, by their very nature will take three or more decades to begin maturing. With restoration largely complete, Metro would need to spend about $830,000 per year for ongoing maintenance to keep properties in their ideal state.

Estimates do not include additional resources to open and manage new parks. Estimates also exclude staff salaries and special – often expensive – projects such as building water control structures or rerouting and restoring stream channels to improve salmon habitat. However, such major transformations have been funded primarily through grants and partnerships; Metro's contribution comes in the form of staff time and matching funds. Since 1995, Metro's natural areas work has leveraged $7.6 million in grants. Unfortunately, the future climate for grants is uncertain, especially in an era of shrinking government resources.

Common camas is the characteristic wildflower of Willamette Valley wet prairie.

Volunteers may seem like an attractive solution to lower restoration costs, but managing their work often takes more time and money than hiring a contractor for the same task. Of course, the strategic use of volunteers provides other important benefits: engaging people in the land they've helped protect and building a stewardship ethic. But Metro is already pushing its capacity to effectively engage volunteers with existing staff levels. And volunteers cannot perform all of the tasks contractors can, such as strategic herbicide application, forest thinning or prescribed burns.

Voters' investment in nature

Metro has paid about $168 million for 11,000 acres of natural areas. The cost of restoring and maintaining that land is comparatively small.

Expense	Amount	% of asset cost
Current annual budget for maintenance and restoration	$400,000	0.2%
Restoring all 11,000 acres over several decades	$28.5 million (midpoint of range)	17%
Annual cost of appropriately maintaining all land after restoration	$830,000 (midpoint of range)	0.5%

Restoration and maintenance costs

The price of restoring and caring for land varies dramatically, depending on the habitat type and stage of restoration. By relying on data from completed projects and likely scenarios for the future, the natural areas team documented the condition of Metro's natural areas and estimated future costs. Cost per acre was calculated for "easy," "typical" and "difficult" projects in each habitat type and stage, assuming the mix of property will remain similar over time. Typical project costs are shown below.

	Total restoration cost per acre	Annual maintenance cost per acre following restoration
Prairie	$7,970	$300
Closed canopy forest	$5,680	$50
Riparian forest	$5,500	$50
Shrubland	$4,700	$50
Woodland	$1,900	$100
Savanna	$1,370	$300
Emergent wetland	$630	$25

Putting off maintenance and restoration comes at a cost – financial and human. Like waiting too long to fix a leaky roof, keeping weeds at bay for years at a degraded site ultimately takes more money than planting trees now to shade out the weeds. In rare cases, restored habitats actually require more ongoing work than a degraded site. But, as with a home remodel, the region doesn't get the benefits – improved water quality, better wildlife habitat, human enjoyment – until the restoration project is completed. The longer restoration is deferred, the longer fish, wildlife and people have to wait for good habitat. If Metro allows a field to become infested with blackberries, scotch broom and tansy, nearby farmers and homeowners have more weed trouble. Poorly maintained sites can also diminish visitors' experience, hurting Metro's credibility. People get the idea that Metro lacks the money, knowledge or will to properly manage land bought on the public's behalf.

A proactive approach to maintaining and restoring Metro's portfolio, on the other hand, minimizes costs and maximizes long-term results. Restoration projects create living-wage jobs that bolster the local economy, since most of Metro's operating budget pays for crews and contractors to work at its sites. And a healthy environment and opportunities to explore it are major attractions for drawing businesses to the region.

As climate change affects the Pacific Northwest, larger, healthier and better connected habitat areas will be more resilient. While some species will respond by moving, nobody knows which ones – or where they will go. A network of protected natural areas is the best defense against an uncertain future.

Metro's natural areas provide important benefits, known as ecosystem services, which will multiply as the agency restores degraded habitat. Healthy natural areas supply clean water. They regulate climate, flood control, groundwater recharge, pollination and disease. They allow nutrients to move through an ecosystem. And they provide cultural amenities such as outdoor education, scenic getaways, historical preservation, recreation and tourism.

There are no widely accepted tools to calculate the value of most ecosystem services on Metro property. What's the financial benefit to farmers when pollinating insects fly from a nearby natural area to fertilize their crops, or the value of cleaner rivers and additional water in late summer, thanks to wetland restoration? Nobody can put a dollar figure on how good we feel breathing the air in an old-growth forest or seeing a deer beneath the trees. It is clear, however, that engineered solutions to problems like poor water quality and flooding rarely produce the same strong results as a natural approach. It's also clear that these services are important to the public; they said so when they voted in favor of Metro's two bond measures.

CASE STUDIES: SCIENCE AND RESTORATION

By rewinding the clock, Metro brightens the future for Multnomah Channel natural area

Along the twisting path of the Multnomah Channel, you'll find a story of shared vision and partnership, science-based management and the power of listening to the land and the creatures that dwell on it. You'll also find a dramatically transformed wetland at the northern tip of the Willamette River Greenway, where Metro has focused on protecting fish and wildlife habitat, water quality and scenic resources.

Historically, the Multnomah Channel was part of a major river and floodplain complex just west of Sauvie Island. It stored water that overflowed the banks of the Willamette River during winter and spring, slowly releasing it back to the river throughout the year. When Metro purchased a natural area along the channel, however, it was an old dairy site covered by reed canary grass and 10-foot blackberry brambles. Large portions were graded for future development.

What a difference one-and-a-half decades can make. The site has been transformed from mostly dry land with small remaining areas of Oregon ash and cottonwood, to a complex of Columbia sedge meadows, wetlands and floodplain hardwood forest, with re-created side channel streams to rear threatened salmon. It is now much closer to what it once was, and what it should be.

The site's transformation was achieved through intensive planning and adaptive management, which leveraged funding and partners – including Ducks Unlimited, the U.S. Fish and Wildlife Service and the Natural Resources Conservation Service. Metro spent about one dollar on restoration for every four invested by partners.

First, Metro and its partners planted thousands of trees and shrubs on the 300-acre site. Then they installed two water control structures, which restored more natural patterns of seasonal wet and dry conditions. In 2008 the natural area's primary stream was restored, supporting wetland improvements and making it easier for fish to move throughout the site.

Restoration has expanded wetland habitat at Metro's Multnomah Channel natural area from four acres to more than 100, attracting a rich diversity of wildlife.

Partners have also battled reed canary grass, an aggressive, non-native plant that covered three-fourths of the property in 1999. A turning point came when a Portland State University graduate student studying Northern red-legged frogs recommended holding water a month longer, which would give tadpoles time to mature. The advice worked, and came with a remarkable bonus: water killed the canary grass. Vegetation shifted dramatically in a single year, and red-legged frogs now breed throughout much of the site. Without water control structures, such a change would have taken years of herbicide treatment and planting and required intensive ongoing care.

As Multnomah Channel shows, documenting animals' response to land management can be a powerful tool. Metro launched its volunteer monitoring program at this site in 2002, when there were just two small beaver ponds where red-legged frogs and other amphibians could breed. Water control structures and other restoration efforts have increased wetland habitat from four acres to more than 100 acres, leading to significant growth in amphibian eggs found each winter by the volunteer monitors.

There's still work to do. The natural area is threatened by erosion, unauthorized access, livestock grazing and invasive species such as the persistent reed canary grass. Metro is also working with partners to enhance fish passage and connect wetlands to the Tualatin Mountains to the west and the Multnomah Channel to the east. The natural area will always need management, including maintenance on the water control structures.

But salmon are using new side-channel habitats. A new heron rookery and native turtles showed up. Beavers, otters and a wide variety of other wildlife are now at home in Metro's Multnomah Channel natural area.

Control structures regulate water levels, allowing Metro to mimic historical flooding patterns.

Restoration has made Metro's Multnomah Channel natural area more hospitable to wildlife such as river otters.

Clear Creek provides a haven for wildlife – and restoration lessons

Clear Creek Natural Area is one of the region's jewels. Its terraces and canyon slopes, wet and dry prairies, diverse wetlands, ponds and towering conifer forests make homes for more than 100 species of wildlife, including coyotes, cougar, blacktail deer, elk and many amphibians and birds. Among runs, riffles and riparian-forested back channels, this 500-acre former ranch in rural Clackamas County contains some of the most important salmon habitat in the Clackamas River watershed.

On a clear spring day, you can see Mount Hood through the lupine at Metro's Clear Creek Natural Area.

As one of Metro's earliest land purchases, Clear Creek affords an opportunity to reflect on – and, in some cases, re-evaluate – restoration choices. To protect this special place, the natural areas team removed several homes, outbuildings and fences and improved roads and gates. With more than $300,000 from partners, Metro restored two side channels to Clear Creek to benefit threatened salmon. And, with help from a neighboring charter school, Metro removed invasive plants and planted native species in prairie and Oregon white oak savanna areas. Another 100 acres have been planted with conifers.

While this progress is significant, it has been shaped by constraints as well opportunities. Metro decided to plant primarily Douglas fir trees because, of all the region's habitats, closed-canopy conifer forest is the most affordable to maintain. In contrast, prairie and oak require substantial ongoing effort – fire, flooding, mowing, grazing, herbicides, supplemental seeding – to stay open and rich with native species. Working with partners interested in securing carbon credits, Metro was able to get others to pay for planting trees and doing early care. In return, Metro promised to maintain them for 60 years.

A decade later, those trees are beginning to look like young forests. But a seemingly elegant solution is now a dilemma of its own. To make the new trees a real forest rather than a plantation, Metro needs to thin them and plant native shrubs. Furthermore, the importance of prairie and oak are now well established and called out in the Oregon Conservation Strategy, and Clear Creek is one of the best places in the region to protect that habitat. While some areas have "told us" they would stay prairie – trees simply would not grow – many acres are now well-stocked young conifer plantations that Metro has pledged to maintain.

Fifteen years of ownership and land management has taught Metro a great deal about the complex landscape at Clear Creek. A site conservation plan describes its possibilities and challenges and divides the natural area into multiple habitat units, each with unique attributes, threats and management needs. But the biggest challenge remains: making strategic investments in this special place, even with a limited budget.

At Chehalem Ridge Natural Area, Metro takes the long view

It was late summer on Chehalem Mountain when Metro staff visited a potential new natural area to gauge its ecological value. This wasn't a typical Metro site – owned by Stimson Lumber, the property was a hilltop patchwork of recently replanted clear-cuts and tightly packed, 20-year-old fir trees that needed a good thinning.

But this would be the largest property ever protected by the Metro Natural Areas Program, at more than 1,100 acres. It connected to the Wapato Lake wildlife refuge and other key habitats. It was the starting point for a network of streams that flow to the Tualatin River. And it looked out over Tualatin Valley farmland and five Cascade Mountain peaks: Rainier, St. Helens, Adams, Hood and Jefferson.

The Metro Council gave the go-ahead to buy the land in early 2010, helping meet goals of protecting water quality, wildlife habitat and connections, and public access opportunities in the area.

Going in, it was understood that the new Chehalem Ridge Natural Area would need to transition from young trees to old-growth forests – likely while providing outdoor recreation not possible on smaller sites. As it turns out, Chehalem Ridge is even more complex than anybody anticipated. There have been happy surprises, including pockets of native oak, rocky patches, spring-fed streams and wetlands and some outstanding native shrub habitat. The site harbors two of the rarest birds in the region: yellow-breasted chat and olive-sided flycatcher, which are exciting to any birdwatcher. Chehalem Ridge is also home to woodpeckers and thrushes requiring expansive forests, regionally rare reptiles like alligator lizard and rubber boa, lots of deer, bobcat, raptors and a great mix of songbirds.

A tour group explores the habitat at Chehalem Ridge Natural Area.

Such complexity is exciting, but it deepens the challenge for land managers. Metro's science team is shaping a management plan to thin the young forest and protect oak patches, while conserving critical native shrub habitat that draws these rare species. It won't be quick, easy or cheap, but with generations of careful management, the young trees will mature into old-growth forests.

Old logging roads could serve hikers, and possibly even horseback riders or mountain bikers – tradeoffs that Metro staff will analyze, with public input. Given the strong potential for outdoor recreation and education at Chehalem Ridge, Metro is planning for a future that supports both wildlife and people.

CHAPTER 5: ACCESS TO METRO'S PROPERTIES

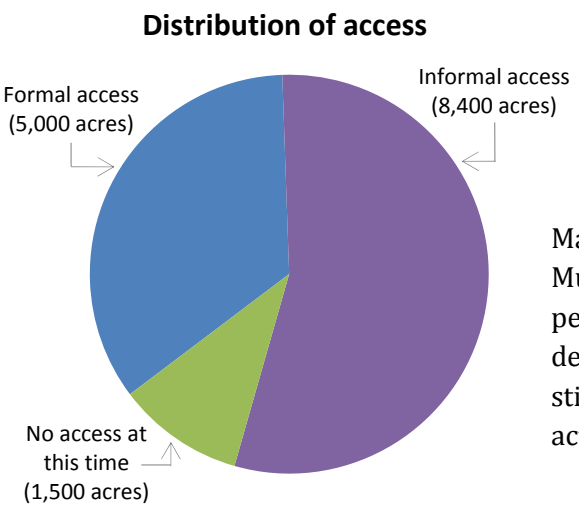
Connecting with nature provides physical, mental and spiritual benefits for the Portland metropolitan area's 2 million residents, giving them a respite from urban life. Studies show that parks and natural areas make neighborhoods more desirable and increase home values. They also help young people get outdoors, exercise and appreciate the natural world, combating the trend of "nature deficit disorder."

But visitors to Metro's natural areas share some of the best remaining habitat in the region with wildlife that depends on it. Public access, especially if it isn't properly planned and managed, can harm water quality and wildlife habitat.

With this tension in mind, Metro carefully balances humans and habitat at public destinations such as Cooper Mountain Nature Park, Smith and Bybee Wetlands Natural Area and Oxbow Regional Park. For thousands more acres, the future is uncertain. Metro will have to decide where to provide public access, how much, how soon, how to manage it and how to pay for it.

Today's public access scenarios – a broad spectrum

Access to Metro property today is as varied as the properties themselves. People may visit a Metro property to go boating, play golf, bike on a trail, watch wildlife, take a guided walk in the woods or wander through a pioneer cemetery. The spectrum of current access spans from recreation facilities and nature parks with high use to undeveloped habitat areas with little access by people. Out of nearly 15,000 acres, a little more than one-third are formally accessible and many of the rest have informal access to varying degrees.



Some Metro property is accessible because other jurisdictions manage it. In this scenario, Metro typically buys and owns the property, while a partner manages the land and provides information and access as part of its park system.

Many of Metro's highest-traffic destinations were inherited from Multnomah County. Blue Lake Park hosts about 330,000 visitors per year, and Glendoveer Golf Course hosts 350,000. Both are designed and managed to handle large numbers of visitors and still offer a relaxed outdoor experience, along with social activities such as picnicking.

2010 visitor counts at selected parks and facilities

Blue Lake Regional Park: 330,000

Oxbow Regional Park: 230,000

Chinook Landing: 180,000

Cooper Mountain Nature Park: 76,000

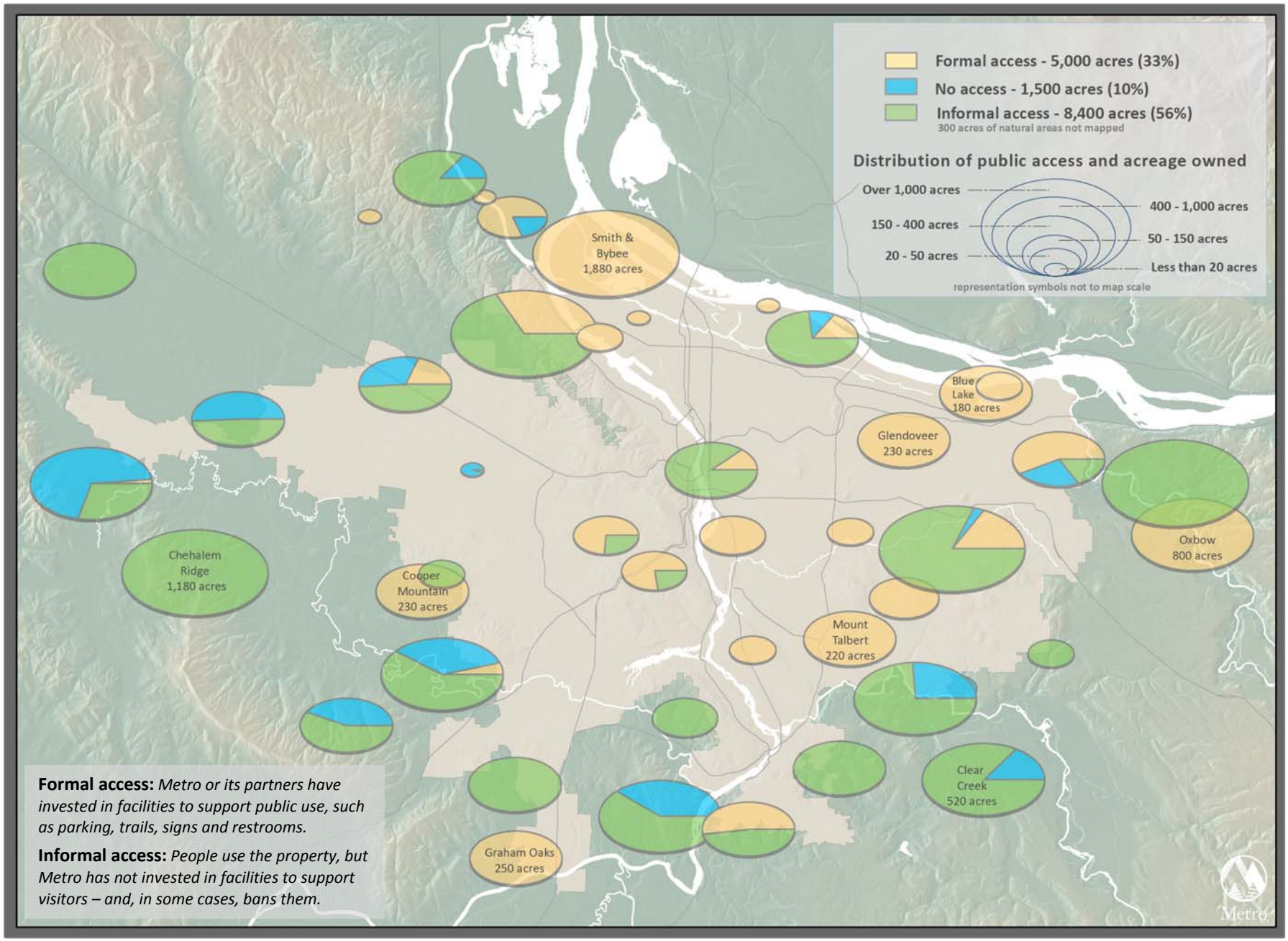
Graham Oaks Nature Park: 63,000

Mount Talbert Nature Park: 33,000

Smith and Bybee Wetlands Natural Area: 18,200

Howell Territorial Park: 4,600

Public use at Metro's properties



The boat ramps also attract crowds, including 181,000 people per year at Chinook Landing. Generally, the highest traffic destinations offer more facilities and amenities – and less high-quality habitat. On the other hand, the bucolic Howell Territorial Park draws fewer than 5,000 people per year, including school groups.

Regional trails within Metro's portfolio also have a lot of visitors, according to official counts – 1.2 million per year on the Springwater on the Willamette section of the Springwater Corridor managed by the City of Portland, for example, and 150,000 on the Rock Creek Trail managed by the City of Hillsboro. Wildlife share many of these trail corridors, although people dominate.

In the middle of the spectrum, nature parks welcome people to enjoy a place while maintaining an emphasis on its natural resource and habitat values. As soon as nature parks open, use is fairly constant. Some 35,000 people visit Mount Talbert Nature Park in a typical year, for example, and 18,000 visit Smith and Bybee Wetlands. The outlier is the more heavily developed Oxbow Regional Park, which attracted an average of 230,000 visitors in 2010 with its spectacular Sandy River beaches, fishing, boat ramp, picnic areas, camping and hiking.

Metro owns 14 pioneer cemeteries, representing a total of 66 acres. In addition to traditional burials, the cemeteries provide a place for walking, doing historical research and enjoying the trees, plants and birds. These low-impact activities are similar to what parks offer, and the trees and unpaved areas provide wildlife habitat and protect water quality. Historic monuments and markers help visitors learn about the settlement and early growth of the greater Portland area. Eleven of Metro's cemeteries are listed with the State of Oregon Historic Cemeteries Commission as notable contributions to Oregon history.

At 30 acres, Lone Fir Cemetery in Southeast Portland is the largest in Metro's portfolio.

While all the cemeteries welcome visitors, the 30-acre Lone Fir Cemetery in Southeast Portland receives the most attention. An active volunteer group collaborates with Metro to provide special historic, cultural and artistic programs. Lone Fir in particular is considered an arboretum and has more than 600 species of trees and shrubs within its boundaries.

Regional trails visitor counts

Springwater Corridor: 1.2 million

Tonquin Trail: 330,000

Tualatin River Greenway Trail: 310,000

Fanno Creek Greenway Trail: 220,000

Marine Drive Trail: 155,000

Rock Creek Trail: 150,000

Hillsdale to Lake Oswego Trail: 135,000

Columbia Slough Trail: 120,000

Peninsula Crossing Trail: 92,000

Westside Trail: 60,000

Trolley Trail: 42,000

Gresham-Fairview Trail: 40,000

Mount Scott Creek Trail: 35,000

Sometimes, even when Metro doesn't invite people to use a property, they come anyway. More than 8,000 acres of Metro land has informal access.

Informal access presents challenges, opportunities

Sometimes, even when Metro doesn't invite people to use a property, they come anyway. More than 8,000 acres of Metro land has informal access – typically via existing roads or trails. In some cases, people create new, unplanned trails and damage sensitive or rare habitats. Sites with informal access typically don't feature signs banning visitors; in some cases, there are signs posting Metro rules or no signs at all. Parking is not provided, but visitors may use a nearby road or pull-out. Metro land management staff work with regular visitors and neighbors to make the informal access as sustainable as possible. On occasion, regular visitors are enlisted as site stewards who send reports to Metro staff and conduct basic maintenance.

Informal trails along historical or existing roads are often fine, and can even provide a benefit: extra eyes and ears to identify problems and discourage unwanted activity, much like a volunteer site steward who helps monitor Metro land. However, informal trails are problematic in some situations:

- near fragile soil types, unique habitats such as bogs or fens, rare plants and animals or in critical wildlife areas
- on steep slopes that will easily erode
- in wet areas, which are prone to muddiness and widening or too close to streams, creeks or rivers
- anywhere that threatens sensitive, irreplaceable cultural and archaeological resources

The impacts of informal access are monitored and managed by natural areas staff through site visits and partnerships with volunteer site stewards. While many properties have unique informal access situations, three typical scenarios follow.

On a nice summer weekend, more than 50 cars full of people eager to go rafting, tubing or fishing on the Clackamas River can line the road at a 174-acre Metro natural area. Visitors use a road system developed by the former property owner, along with short, unplanned trails to the river. Informal access at the site, known as the Parsons property, has not had a severe effect on soils and plants. Sensitive habitat is limited, and it's isolated from this high-traffic area.

Cars line the road at a Metro natural area (shaded in purple) near the Clackamas River, which attracts people who want to raft, tube or fish.

A less acceptable example of informal access is Newell Canyon, a 280-acre natural area in Oregon City. The property gets a lot of use by transient and homeless campers, which affects headwaters of the salmon-bearing Newell and Abernethy creeks. To address the habitat impacts, Metro staff have posted rules signage at informal entrances where people use unplanned trails. Staff have also partnered with the Oregon City Police Department, the Clackamas County Sheriff's Office and Oregon City Code Enforcement to address transient camping in the canyon – so far, without managing to end the problem. Metro and its partners will soon begin working on a plan to formalize some trails and eliminate others in an effort to protect natural resources.

North of Forest Park, dog walkers, hikers, horseback riders and cyclists regularly use Metro's 330-acre Agency Creek property. At times, motorcyclists and other drivers find their way around the gate or manage to break the lock. Many visitors loop the natural area on a road system developed by foresters, who logged the property before Metro owned it. Unplanned trails off the main road system are generally limited, as is habitat damage. But significant illegal dumping over the years has proved costly in terms of clean-up and habitat destruction. Metro staff regularly inspect the property, and have developed relationships with hikers who report what they've seen.

Volunteer, environmental education programs enrich visitors' experience

On any given weekend, you might find volunteer work parties, field trips, public tours, events and special group programs such as teacher trainings at Metro properties. These programs allow visitors to experience both public nature parks and undeveloped natural areas they couldn't otherwise see.

More than 2,500 people volunteer at Metro parks and natural areas every year, helping restore land and building a sense of stewardship.

More than 2,500 people volunteer at Metro parks and natural areas every year, often participating through a business or nonprofit group. Sauvie Island Center, SOLV, Tualatin Riverkeepers, Johnson Creek Watershed Council, schools and neighborhood organizations have all joined in stewardship activities, from planting trees to supporting events at Lone Fir Cemetery to checking wetlands for amphibian eggs on cold winter days. Demand for volunteer opportunities exceeds the capacity of one Metro coordinator, and staff are analyzing the program.

Volunteers donate more than 5,000 hours per year at the Native Plant Center and 7,000 hours helping Metro restore and maintain the region's natural areas.

2010 programming highlights

Volunteer work parties drew 2,500 participants to 31 sites, including Beaver Creek, Gotter Prairie and Lone Fir Cemetery.

14,000 people participated in Metro-sponsored conservation education programs, including school field trips, public tours and events, special group programming and volunteer naturalist interactions at Oxbow Regional Park. All told, these programs represent more than a dozen sites.

Thousands more adults and youth participated in self-led conservation education programs at Metro sites through an educational special use permit program.

Metro's naturalist programs connect people with the places they are visiting. Storytelling is frequently used to help explain what was, give context to what is and make tangible what is to be. Across the region, people are deepening their relationship with nature in new ways:

A shy 13-year-old listens quietly as a volunteer naturalist tells stories about oak galls and then disappears, only to reappear a short time later with a gift. "I saw you didn't have any leaf galls," she murmurs to the volunteer, "so I got one for you."

After witnessing spawning salmon, inspecting the Sandy River's edge for water bugs and exploring a tree blindfolded during a field trip at Oxbow Regional Park, a second grader excitedly approaches a Metro naturalist. "This is the best day of my whole life!" he exclaims before disappearing into the bus.

Across the region at Cooper Mountain Nature Park, families gather in the August twilight for a star party. For the next hour a naturalist weaves stories of the myths and legends of the stars for enchanted audience members, who pause and ponder the gift of a dark sky on the edge of the metropolis.

Metro's education programs heighten people's ties with their surroundings to create familiarity out of the unfamiliar and wonder out of the seemingly ordinary. In so doing, these programs draw a powerful connection between visitors and the natural areas they are visiting. This connection in turn inspires stewardship and involvement.

Metro naturalists target more than half their outreach to elementary school children. Today's students are tomorrow's stewards – a role that becomes even more important given the rising tide of "nature deficit disorder" and childhood obesity. In Metro's expanding portfolio of natural areas and nature parks, staff naturalists see the potential to engage more youth in healthy outdoor learning that enriches their minds, bodies and hearts, creating a better future for the region.

However, Metro's youth education programs are heavily concentrated in the northern and eastern parts of the region, as they have been since Multnomah County transferred its properties to Metro. The youth programming capacity has not kept pace with the growth of nature parks and natural areas in the western and southern parts of the region.

Students explore Smith and Bybee Wetlands with Metro naturalist James Davis.

Defining future access levels: How much public use can each natural area support?

As Metro's portfolio of property grows, so does the potential to let people explore these special places. Both partners and the general public have embraced public access. Demand hasn't been quantified, and many of Metro's natural areas are close to state and local parks. But this much is clear: When Metro has opened parks, people use them. Cooper Mountain Nature Park attracted approximately 76,000 visitors in 2010, the first full year it was open.

Moving toward the next generation of outdoor destinations, Metro can now draw on 20 years of experience as a land manager. It is possible, with thoughtful planning, to protect most natural resources while giving people opportunities to connect with nature.

Metro's field staff, scientists, planners and educators have worked together to define levels of access and determine the right fit for each collection of properties – in other words, their "carrying capacity." Staff framed appropriate types of facilities for each level, then considered each place in light of potential access. Discussions were lively and sometimes tense, as staff care deeply about this land. The team considered unique habitats, sensitive species and pressure from existing informal use, as well as the opportunity for people to experience special landscapes and environments. Surrounding recreational opportunities were not considered.

Some properties are recommended for a single access level, while others are a patchwork of levels that reflect their complexity. Using experience and judgment, Metro can protect habitats as people enjoy them.

Graham Oaks Nature Park provides opportunities to explore a special habitat.

Nature parks

On the spectrum of use, this level anticipates the largest number of people and greatest impacts to habitat and wildlife. Facilities include multiple trails, restrooms and parking with bus capacity for schools. Depending on the site, amenities can also include camping, cabins, access for a wide variety of boats, regional trails, horseback riding, mountain biking and facilities for special events. Classes and field trips are easily accommodated. Nature parks are heavily publicized.

It is possible, with thoughtful planning, to protect most natural resources while giving people opportunities to connect with nature.

Nature parks

Examples: Cooper Mountain Nature Park, Graham Oaks Nature Park, Mount Talbert Nature Park, Oxbow Regional Park, Scouter Mountain Natural Area (in development)

Estimated capital costs: $2.8 million to $7.4 million per site

Typical annual operations and maintenance: $150,000 to $250,000

Potential sites: Agency Creek (Forest Park connections area), Canemah Bluff, Chehalem Ridge, Clear Creek, portions of East Buttes target area north of Butler Road, Newell Creek Canyon (Abernethy and Newell creeks area), Parsons property on the Clackamas River, several Tualatin River sites, Weber farm in the Willamette Narrows area and Willamette Cove

Natural areas

Examples: Canemah Bluff Natural Area, Parsons property on the Clackamas River

Estimated capital costs: $500,000 to $2.3 million per site

Typical annual operations and maintenance: $70,000 to $150,000

Potential sites: Beaver Creek, Johnson Creek (Ambleside property and others), Killin Wetlands, Multnomah Channel, Tonquin geologic area, Willamette River Greenway; portions of the Columbia River and Slough, Dairy and McKay creeks, East Buttes, Stafford Basin, Tryon Creek linkages, Tualatin River and Wapato Lake/Gales Creek areas

Habitat preserves

Examples: Fen in the Willamette Narrows area, Pratt property in the Clackamas River Bluffs and Greenway area

Estimated capital costs: $90,000 to $200,000 per site

Typical annual operations and maintenance: $32,000 to $60,000

Potential sites: Deep Creek, Lower Tualatin Headwaters, Rock Creek Headwaters, Sandy River; selected properties within the Abernethy and Newell creeks, Clackamas River Bluffs and Greenway, Columbia River and Slough, Dairy and McKay creeks, East Buttes, Forest Park, Johnson Creek, Stafford Basin, Wapato Lake/ Gales Creek and Willamette Narrows areas

Natural areas

This level of access has fewer facilities, but still allows people to comfortably find and walk the property. A simple sign marks the entry; trails are clear and well-maintained. Restrooms may or may not be available, and parking may be on-street or in a small lot. Boat access would be non-motorized, and interpretive signage may or may not be included. A regional trail connection may be on the property or nearby. Sites selected as natural areas would be well known in the neighborhood, in the immediate community and by avid hikers. They would be publicized by Metro and could host small classes and volunteer events.

Habitat preserves

On a number of properties, sensitive species and fragile habitats preclude all but the lightest use by people. Trails may be present, but are fenced off and gated. People may experience the site in a group with an educator or as part of a volunteer work party. Seasonal access may be possible based on wildlife patterns of use. A peripheral pathway may be included, avoiding sensitive areas. Sometimes other parks are located nearby, so Metro's holdings are not needed for public access. These sites are generally not publicized, except as conservation areas without access.

The Peach Cove Fen in the Willamette Narrows, for example, is one of the only remaining fens in the Willamette Valley and hosts fragile plants and wildlife. At the Pratt property in the Clackamas Bluffs area, people could disrupt nesting birds or sensitive species in caves or injure themselves on the sheer dropoff along the bluff.

Next steps: Public engagement is critical

Potential access levels reflect Metro's properties themselves, but not regional context. Metro could use the suggested levels to frame a discussion about priorities with partners and the public. This could be done on a geographic basis, with involvement from park providers, their boards and citizens. While communicating the relative sensitivity of habitats, Metro and its partners could agree on the appropriate strategy for access, prioritize investments and determine who would manage a site.

Most of the Willamette Narrows area is recommended for light use, to protect sensitive habitat and wildlife.

Metro can further clarify access opportunities by drawing on other agency projects. The Active Transportation Action Plan, for example, will work with partners across the region to establish regional trail priorities. The Southwest Corridor and East Corridor plans provide opportunities to coordinate priorities for investment.

While helping people connect with nature is exciting, it also presents challenges. Public conversations often require Metro to balance competing desires: In some cases, neighbors want to limit "outsiders" from the property, and in others they want a higher level of access than the site can reasonably sustain. There may be cases when, after access is established, research shows that people are affecting wildlife and habitats more than expected. One potential approach is opening areas incrementally to allow study, then moving forward with additional access where it's appropriate.

Metro has a chance to provide moderate access on properties that are already being used or present few complications. In these circumstances, development costs are relatively low and the public well-served – as long as resources are available to maintain the land properly. This approach can also help alleviate some of the problems associated with informal access, such as homeless encampments and unwanted trails in sensitive areas. Properties recommended as natural areas could be analyzed to identify these early opportunities.

Metro could also strategically expand environmental education and volunteer programs, balancing resource protection with the opportunity to provide additional access. Targeted natural areas near Forest Grove and along Johnson Creek offer excellent opportunities for teacher trainings and school field trips coordinated by partner organizations.

Metro's portfolio ranges from high-access destinations such as the Springwater Corridor (above) to remote natural areas.

To plan the next generation of public natural areas, Metro must answer many important questions. Under what circumstances would Metro manage public natural areas and parks, versus handing over management to a local jurisdiction? How will Metro pay to develop facilities and maintain them? How should priorities for funding be determined? When and how should Metro proceed with a public discussion?

The path to a nature park

Creating a park that welcomes visitors is a long journey.

Site analysis: Landscape architects "listen" to what the land says. What views are noteworthy? What is the best way to access a site? Which areas are sensitive and need to be protected?

Context: Park planners look at what else is going on in the area. What services are nearby? Are there underserved populations? What are the demographic and recreation trends?

Public outreach: Outreach takes many forms to address peoples' values, concerns and aspirations. Neighbors and other potential visitors have opportunities to weigh in throughout the process.

Options and cost estimates: A number of potential site designs are developed to spark specific input. Ultimately, the best design emerges from elements of each option. Analyzing capital and long-term maintenance costs can also influence design.

Phasing plan: When available funding falls short, a phasing plan ensures that important elements are built while Metro works toward the long-term vision. Often, park planners apply for grants that could supplement budgets.

Final design and construction: Park planners work with consultants to prepare for construction. The project is competitively bid to secure the best price and contractor. Planners oversee construction and coordinate with local jurisdictions.

CASE STUDIES: ACCESS

At Cooper Mountain, human visitors share the landscape with many other species

Perched at the nexus of suburban Aloha and the rural Tualatin Valley, Cooper Mountain Nature Park is a unique mosaic of oak woodlands, prairie and conifer forest where sensitive habitats and human visitors coexist.

After acquiring the 230-acre site during the late 1990s, Metro worked with community volunteers to begin reversing the impacts of logging and gravel extraction through aggressive restoration, from prescribed burns to herbicide applications to the planting of nearly 60,000 trees. The resulting balance of open meadows, wetlands, pockets of oak trees and mixed conifer forests is now home to nine state or federally designated plant and wildlife species, including a beautiful, rare delphinium and the Western bluebird, which had not been seen in the area for many years.

In 2003, as Metro looked toward the future, the team was challenged to continue protecting the habitats these sensitive species call home while satisfying people's desire to hike the old logging roads and enjoy spectacular views of the Tualatin Valley and Chehalem Mountains. A master plan integrated the need for both habitat protection and public access, resulting in sensitive design solutions and a mission to educate visitors. Metro continues using fire to burn the prairies, which supports native grasses and forbs and helps control invasive species, reducing the need for chemical treatment. While these practices pose hazards in a publicly used area, they also provide a unique opportunity to share the ecosystem's natural dynamic. Signs educate visitors throughout the site, while parking, play areas and an environmental education center are located close to roads to contain the most intense uses.

The Nature House at Cooper Mountain hosts classes and events.

Trail design required more thoughtful consideration. While a number of wildflowers, birds, amphibians, reptiles and mammals thrive in prairies, few were observed at Cooper Mountain. Existing logging roads and informally created trails had splintered the habitat. Park development relocated trails to the edge of the prairies, minimizing fragmentation and creating a fireline to improve safety during prescribed burns.

At Cooper Mountain Nature Park, visitors are an important part of the landscape – but they realize that they share the park with many other species.

Trails aren't just for people; sometimes they help plants and animals, too

In the process of getting people from place to place, trails sometimes disrupt plants and animals – but, in appropriate locations, trails can actually serve as a catalyst to improve habitat.

The regional Tonquin Trail, which will someday connect Wilsonville, Tualatin and Sherwood, got its start last year at Graham Oaks Nature Park in Wilsonville. As the third major park developed by Metro's Natural Areas Program and the home of a major regional trail, Graham Oaks was destined to attract thousands of walkers, joggers and bicyclists.

As construction got under way, Metro's parks planner noticed that the paved trail would run between two seasonal wetlands likely to host amphibians after restoration. Amphibians are slow-moving, tend to travel in large groups for breeding and are vulnerable to bicycle and pedestrian traffic. Working together, Metro's science and planning staffs, the civil engineer and contractors installed three 12-inch pipes beneath the trail at slightly different elevations, to allow movement for threatened red-legged frogs and other sensitive amphibians as water levels change. This quick, simple project, which cost about $1,700, would have been far more expensive after trail construction.

Metro has an opportunity to take a similar approach – making people-focused trails work for wildlife, too – farther north, where the Tonquin Trail will run through Sherwood. The community envisions a special section called the Cedar Creek Trail, which will trace its namesake creek between Stella Olsen Park and the Tualatin River National Wildlife Refuge.

Cedar Creek Canyon is one of the last remaining habitat connections between Chehalem Ridge and the Tualatin Wildlife Refuge. But for now, two major barriers impede that connection: Highway 99W and Edy Road. Small box culverts under the roads allow water and fish – but not wildlife – to pass. Like many of the habitat areas Metro helps protect, this one shows how infrastructure can impede wildlife. A trail through the canyon would further fragment this narrow passage. By working together, Metro, the City of Sherwood and other partners could combine trail construction and meaningful wildlife passage through these two barriers – resulting in a win for both people and nature.

At Graham Oaks Nature Park, pipes pass beneath the Tonquin Trail, allowing safe passage for wildlife.

Of course, the impact of trails goes beyond concrete. Trails splinter habitat, bringing light, erosion and the noise and scents of people and their dogs. They also attract non-native species, from weeds to starlings to rats. With this in mind, Metro and Sherwood will look at design alternatives such as locating the trail at the edge of the canyon as much as possible, restoring the floodplain and avoiding crossing the creek.

Birds, birders both flock to Killin Wetlands, adding pressure to plan for access

At Metro's Killin Wetlands, high-quality habitat attracts a rare assemblage of plants and animals – which in turn attracts human visitors. Without facilities or staffing to support this access, Metro struggles to make sure that visitors, neighbors and wildlife all have their needs met.

Nestled near the small town of Banks along Highway 6, Killin Wetlands is one of the largest peat soil wetlands remaining in the Willamette Valley. It represents the last 2 percent of scrub-shrub marsh that was present before pioneers settled the area in the 1850s. This ecologically significant, 380-acre site provides excellent wildlife habitat, floodwater storage and water quality improvement by filtering agricultural runoff.

Known to local birders for years as Cedar Canyon Marsh, it is the place to see – or at least hear – three elusive marsh birds: the American bittern, sora and Virginia rail. Although the natural area is not open to the public, its long-established reputation as a must-see destination for birders means that it is widely publicized by blogs, online tour maps and birding guides. With no designated parking area, visitors leave their cars along the narrow shoulders of Highway 6, presenting a real safety problem for themselves and other drivers. Neighboring farmers are negatively impacted, too. During prime birding season, dozens of people park along the highway at once.

Recognizing this issue, Metro staff have investigated the feasibility of installing some basic facilities such as signage and a gravel parking lot along Cedar Canyon Road. Unfortunately, state land use laws for rural areas, combined with traffic safety issues such as sight distance, mean that there is no easy fix. A workable solution would require tens of thousands of dollars worth of traffic studies, land use permits and staff work.

Long-term dreams for this property include installing not just basic safety improvements, but also some simple trails and a bird blind. Improvements will need to wait until a funding source is identified to plan this natural area and carry out the vision.

At Killin Wetlands, birders typically park along the surrounding narrow roads and Highway 6.

CHAPTER 6: DEFERRED MAINTENANCE AND CAPITAL PROJECTS

As Metro inherited and developed parks over the last two decades, their scenic trails, picnic shelters and campgrounds came with a big dose of responsibility. Metro committed to taking care of its parks over time – a job that entails everything from painting buildings to cleaning graffiti, from fixing leaks to replacing signs, and just about every other imaginable upkeep task.

Metro's park system has two bookends. Glendoveer Golf Course, Oxbow Regional Park, Blue Lake Regional Park, Howell Territorial Park, three boat ramps and 14 pioneer cemeteries were aging when Metro took over management from Multnomah County, and they're nearly two decades older now. Just as homeowners with historic houses have to budget more for repairs, so do park owners with old facilities. Storage sheds at Oxbow Regional Park eventually will have to be replaced; the irrigation system at Glendoveer Golf Course needs major work; bathrooms at Blue Lake Regional Park are deteriorating.

Blue Lake Regional Park, a popular destination on summer days, is one of the older parks in Metro's portfolio.

On the other end of the spectrum, Metro's new Mount Talbert, Cooper Mountain and Graham Oaks nature parks feature state-of-the-art design. They're light on buildings and heavy on nature, which limits the price tag of caring for them.

In 2001, the Metro Council adopted capital asset management policies, which established replacement and renewal procedures that help catch up on needed repairs at the agency's older facilities and make sure the new ones don't wind up with backlogs of work. This approach ensured many needed repairs are made, but it doesn't cover the cost of totally replacing old buildings and structures or address how park development will be funded if Metro expands its growing outdoor recreation network.

Studies have shown that good stewardship improves public and employee safety, increases visitor use, reduces ongoing maintenance costs and bolsters a park operator's reputation. When park systems decline, so does community pride – and it can show when voters are asked to invest more money in parks and trails.

Just as homeowners with historic houses have to budget more for repairs, so do park owners with older facilities.

52

Age of oldest facility in the system
(M. James Gleason Memorial Boat Ramp)

Maintenance 101

Metro divides its parks maintenance into three categories.

Planned maintenance: Metro policy is to maintain its physical assets in a manner that protects the public investment and maximizes their useful life. Metro uses the best available management techniques, including electronic data processing.

Preventive maintenance: Periodic inspection, adjustment, cleaning, minor repair, reporting and data recording to minimize breakdowns and maximize efficiency of building equipment and utility systems. Work is scheduled to anticipate wear, tear and change.

Emergency maintenance: Repairs or replacements that require immediate attention because a critical system is impaired or because health, safety or lives are endangered.

Renewal and replacement helps catch up on nuts-and-bolts needs

Sometimes, budget constraints force park operators to put off projects, creating a backlog of deferred maintenance. In Metro's case, about $20 million in parks projects have been identified through the renewal and replacement program. Each year, jobs are scheduled based on the biggest needs – typically about $500,000 to $1.5 million of work per year. Metro updates signage, roads, boat ramps, trails, roofs, boat docks and other major equipment.

This year, Metro is investing a little more than $1 million in renewal and replacement at its parks and cemeteries, primarily at older facilities with more wear and tear. Big-ticket items include improving the parking lot at the Gleason boat ramp for about $338,000 and replacing the boat rental docks at Blue Lake for $60,000. Smaller expenses include $14,000 for signage at Lone Fir and Brainard pioneer cemeteries, a $25,000 roof for the Bybee-Howell House on Sauvie Island and a $10,000 roof for the pump house at Oxbow. Metro can sometimes apply for grants that help supplement renewal and replacement funding, so more of a facility can be improved. At the Gleason boat ramp, for example, Metro has secured grants from the Oregon State Marine Board and the Oregon Department of Fish and Wildlife totaling more than $1 million.

Bit by bit, Metro is catching up on needed work at its older parks and cemeteries. Because the policy is relatively new, Metro staff continue to evaluate needs and ensure cost estimates are realistic.

The goal: avoid falling behind on upkeep in the future. Metro has found a cautionary tale in ongoing deliberations about Glendoveer, where a contractor operates two golf courses and a tennis center and Metro maintains a popular fitness trail. After decades with little investment by Metro, the to-do list for this 230-acre facility has mushroomed to include repairing a degraded irrigation system, making the site comply with the American with Disabilities Act and updating worn buildings.

Renewal and replacement funds typically don't pay for routine maintenance. In many cases, though, upkeep costs are reduced when Metro replaces deteriorating equipment. For example, if Metro puts a new roof on a picnic shelter, workers don't have to keep patching the old one.

Metro is evaluating needed upgrades at Glendoveer Golf Course.

This funding doesn't replace major capital assets such as buildings, either. During the next few decades, Metro will have to decide how to handle deteriorating or outdated facilities. For example, work crews have repainted and replaced fixtures on the bathrooms at Blue Lake Regional Park multiple times, but the old plumbing system, outdated architecture and worn façade might eventually call for a new building.

In some cases, Metro may need to do a new master plan or update a previous one at an old park or cemetery, which would lead to large-scale reconstruction. Additionally, renovation and replacement funds pay for only "one for one" or "like" replacement, rather than upgrades. In other words, a roof would have to be replaced with a similar product rather than a sustainable alternative that may cost more.

Even Metro's newest parks pose important questions, such as whether to provide financial support to partners who manage Metro properties. Metro turned over day-to-day operations of Mount Talbert Nature Park to the North Clackamas Parks and Recreation District, for example, without providing resources to help meet Metro's standards. Across the region, the Tualatin Hills Park and Recreation District receives nearly $137,000 per year, for up to five years, to manage Metro's Cooper Mountain Nature Park. While Metro provides significant investment at both sites to help with renovation and replacement work in the future, the day-to-day management relationships create a disparity in service levels.

Not all jurisdictions have the capacity to partner with Metro on maintaining parks and natural areas. At Graham Oaks Nature Park, for example, Metro staff handles day-to-day care of built amenities, natural areas restoration and enhancement, and long-term renovation and replacement. Reasons for the lack of capacity vary from one jurisdiction to the next. However, it is clear that Metro cannot count on handing over property management to many jurisdictions, even if funding is provided.

Sustainable features at Graham Oaks Nature Park include a green roof on the picnic shelter.

Park and recreation districts nationally struggle to pay for upkeep. Metro has been proactive in maintaining, updating and enhancing its facilities – an effort that will require continued vigilance to ensure a safe, high-quality experience for visitors. If the Metro Council recommends additional park development, renewal and replacement will be a key to the success of the growing regional park system. Long-term costs will depend on a number of factors, including intensity of development, standards of care and administrative policies.

The three prongs of maintenance

Like all Metro departments, parks are required to have an annual maintenance plan focused on three areas.

Organization: A scheduled plan of maintenance updated annually and monitored at least monthly.

Measurement: An established system to determine progress in meeting the maintenance plan.

Control: A plan to monitor the system to ensure compliance and take remedial actions as necessary.

Metro sets aside about 2 percent of asset value for renewal and replacement. In other words, if $5 million of improvements were constructed, $100,000 would be put toward renewal and replacement.

Unlike heavily developed parks with sports fields and swimming pools, which are typical in many local park jurisdictions, Metro's parks emphasize the natural setting.

Capital projects: Updating and expanding the system

Although Metro has a basic capital improvement plan to help guide the renewal and replacement program, there is no traditional master plan to guide the development of a regional park system. The 1992 Metropolitan Greenspaces Master Plan designates a long-term vision and broad goals, but does not cover the vast majority of properties that Metro has acquired in the ensuing two decades. Further, no dedicated long-term funding source has been secured to develop or maintain parks. Put another way, there is no one document that says a new nature park will go in location "x," with dedicated funding for capital and operation. A typical park master plan, whether at a local or regional level, is updated every five to seven years and provides clear direction in such areas.

Capital or replacement projects not covered by the renewal and replacement program are funded through a variety of sources, including bond funds, grants, donations and solid waste excise tax. The $3 million capital budget for Graham Oaks Nature Park, for example, included a $500,000 state grant and a $250,000 contribution from the City of Wilsonville's local share of Metro's natural areas bond measure.

Unlike heavily developed parks with sports fields and swimming pools, which are typical in many local park jurisdictions, Metro's parks emphasize the natural setting. At Graham Oaks, visitors can use a picnic shelter and restrooms and explore three miles of trails. Fewer buildings translate to less painting, repairing and cleaning – and smaller budgets – over time. Like any relatively new park system, Metro is still developing its approach to creating and caring for new facilities. But, compared with many park providers, Metro has a less maintenance-intensive system to oversee.

$2,700,000

Restoration and renewal projects scheduled through fiscal year 2015-16

However, capital expenses don't apply just to new parks. Metro's portfolio contains a number of more active facilities with significant financial needs.

Howell Territorial Park, which features the historic Bybee-Howell House and a recently constructed barn, hosts a number of special events and visitors each year. Although the renovation and replacement fund pays for items such as roof replacement, the home will need a costly complete renovation and upgrade in the future.

The Bybee-Howell House will need a costly renovation and upgrade in the future.

Blue Lake Regional Park hosts tens of thousands of visitors every year. Renovation and replacement dollars typically help replace roofs, gates, signs and other basic features. However, there is no funding source available to help reconstruct aging restrooms or maintenance facilities or remodel the Lake House.

The subject of a recent planning process, Glendoveer Golf Course was studied extensively with a number of high-dollar renovation needs identified. None of the options considered are included in the renovation and replacement program.

This mausoleum at Lone Fir Cemetery illustrates repairs needed at Metro's 14 pioneer cemeteries.

Metro's 14 pioneer cemeteries are a valuable part of the regional park system, but operating them is an ongoing challenge. There is no long-term, dedicated funding source for upgrades, renovation and new construction.

Proper funding will help provide the highest quality experience for visitors to Metro's growing system of parks and natural areas.

Income from Metro's portfolio

Metro doesn't seek out houses or farm fields; sometimes they simply come with natural areas that are worth protecting. More than 40 houses and 700 acres of farmland are leased, generating income for the general fund. In some respects, having a "caretaker" renter or a farmer is a good thing: it provides an extra set of eyes and ears to monitor the natural area and help take care of it. Future opportunities for income may include selective timber harvest, which promotes a healthy forest when trees are planted too densely for all of them to thrive.

57

Number of buildings on Metro properties

CHAPTER 7: REGIONAL CONTEXT AND RELATIONSHIPS

With some 15,000 acres, Metro owns one-third of the region's publicly protected parks and natural areas. That portfolio connects – sometimes literally – with thousands more acres of protected land, managed by dozens of other landowners.

In many cases, the relationship is clear. Metro coordinates with local park jurisdictions on nearly all its properties, and sometimes turns over management of a natural area to a local park provider. Partners work together to organize volunteer projects and environmental education and to fight weeds and replace them with native trees and shrubs. That collaboration extends to nonprofit groups and volunteer site stewards, who can be instrumental in caring for protected land.

But Metro also shares less tangible challenges and opportunities with partners across the region. Although residents consistently support protecting natural areas and opening more parks and trails, resources are limited. The downturn in the economy has squeezed government budgets, and there's no stable, long-term funding source to ensure good stewardship of the region's growing network of parks, trails and natural areas over time.

Regional context will be critical as Metro considers future investments. For example, restoring one natural area could improve habitat in a key wildlife corridor with strong partner support; restoring another property, while still valuable, wouldn't produce the same results. One potential nature park might serve a part of the region without many places to hike or bird-watch, while another might protect similar natural values but duplicate amenities provided at a nearby destination.

15,000
Acres of natural areas, parks and cemeteries in Metro's portfolio

43,300
Acres of publicly owned parks and natural areas in the greater Portland region

A regional snapshot: public parks, trails and natural areas

Our region takes pride in nature close to home. Living in a beautiful valley surrounded by national forests, long-term residents and newcomers alike describe the landscape as a core value that shapes their sense of place and quality of life. Undeveloped natural areas now make up 25 percent of the seven-county area, down from 40 percent in 1991 – and a drastic change from the 1850s, when natural habitat

At the City of Portland's Oaks Bottom Wildlife Refuge, visitors get a glimpse of the downtown skyline.

covered virtually the entire region. Although the amount of land with important natural resources has declined, the amount that's protected has grown. Collectively, the greater region has put more than 43,000 acres of parks and natural areas in public ownership and built 655 miles of trails. This network has grown each decade since the 1850s, and accelerated since voters approved Metro's natural area bond measures. In less than two decades, the region's network of protected land has grown by some 40 percent.

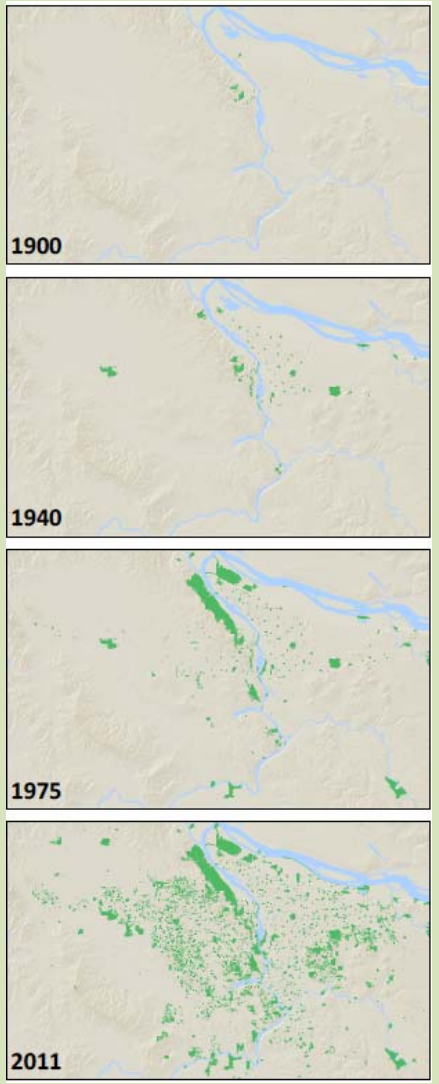
Parks are generally well distributed around the region, with notable gaps east of Interstate 205, in Beaverton, in the Bull Mountain and Aloha areas and in northern Clackamas County. The network of regionally significant trails – which support higher use and make important transportation and recreation connections between communities – grows every year, albeit slowly. Of 900 miles planned, approximately 225 miles of regional trails have been constructed.

Today, this flourishing network of parks, trails and natural areas is known as The Intertwine – and supported by a diverse coalition of governments, businesses, nonprofits and other nature lovers. Part branding exercise, part innovative collaboration, The Intertwine has the backing of an increasingly organized group of supporters and funding partners. Now supported by a nonprofit organization known as The Intertwine Alliance, this movement brings members together to work on five key areas, known as "petals": protecting and restoring the region's biodiversity; completing a network of bicycle and pedestrian trails; purchasing and protecting the most important remaining land in the region; defining, building and maintaining a world-class outdoor recreation network; and fostering stewardship through education.

The region's network of natural areas, parks and trails is known as The Intertwine and is supported by a broad coalition of partners.

Thanks to the two voter-approved bond measures, Metro has played a major role in helping The Intertwine grow. Metro protects the most significant remaining natural resources and, in some cases, helps provide access for people. About one-third of this portfolio is within the urban growth boundary. In some cases, Metro's natural areas are the only protected land in the vicinity. In other cases, experienced park providers manage a variety of nearby destinations where people can experience nature.

Although the amount of land with important natural resources has declined, the amount that's protected has grown – illustrated by the green areas below.



Selected partnerships

An agreement allowed the City of Forest Grove to build a new trail through a Metro natural area.

The City of Troutdale plans to use its local share funds to develop a section of the 40-Mile Loop trail and a wetland overlook at a Metro-owned natural area.

A collaborative group led by The Nature Conservancy won a grant for weed treatment across public and private lands in the Sandy River Gorge.

In the Willamette Narrows area, Metro manages Oregon State Park lands adjacent to regional holdings; in exchange, the state manages Metro holdings on Government Island.

Metro secured rights for the City of Tigard to extend the Fanno Creek Greenway from Main Street to Woodard Park.

Metro, the City of Happy Valley and the North Clackamas Parks and Recreation District teamed up to protect Scouter Mountain.

The Tualatin Hills Park and Recreation District manages an addition to Tualatin Hills Nature Park that was purchased with Metro bond funds.

Metro bought right-of-way and secured federal funding to complete the Three Bridges section of the Springwater Corridor. The City of Portland took over ownership, built the trail and maintains it.

While local park jurisdictions often target park-deficient areas for their acquisitions, Metro buys land primarily to protect natural resources, take advantage of opportunities for regional natural areas and help close regional trail gaps. Metro sometimes helps communities provide neighborhood-scale connections to nature; for example, by assisting with land acquisitions for the Rock Creek Trail in Hillsboro. But a dozen miles away, perched above the small town of Gaston, Metro's Chehalem Ridge Natural Area will serve as a regional destination rather than a neighborhood hub. The grant program and the local share portions of the bond measures support community efforts to offer access to nature close to home.

Metro's property relationships across the region

Every property in Metro's diverse portfolio is located within another jurisdiction. On most sites, Metro's scientists and day-to-day land managers regularly interact with partners.

But on 2,000 acres, the relationship is more closely intertwined; another jurisdiction manages land that Metro owns. There are two general types of agreements: development, construction and maintenance of a public facility, and natural areas maintenance. Often, the relationships have been formalized with an intergovernmental agreement, particularly if any development or construction is necessary. Agreements are typically renewed every 10 years.

Some local jurisdictions agree to manage Metro-owned natural areas within their boundaries, even on sites with no public use and no plans for it. For the past few years, however, as local park agency budgets have been cut and staffing reduced, partners have found it increasingly difficult to honor these commitments. With limited time and resources, they struggle to care for their own park lands, let alone Metro's. In addition, most local jurisdictions do not have dedicated natural resource staff, nor do they have that expertise available to them. Metro staff play an important role in offering technical support and assistance to local providers. And, increasingly, Metro takes responsibility for properties that other jurisdictions have agreed to manage to ensure that weeds are controlled and voters' investments are maintained.

Like her colleagues on the Metro Council, Kathryn Harrington often participates in community events to support the region's natural areas, parks and trails.

While investing the proceeds of its two bond measures, Metro has found ways to leverage its abilities with its partners' to get projects on the ground. From the B Street Trail in Forest Grove to a wetland overlook in Troutdale, Metro-owned natural areas are providing places for cities to expand their park systems.

Metro has also opened three large nature parks. All three provide access to nature in communities that needed it and provide opportunities for conservation education. And visitor traffic demonstrates that all three have become popular in the short time they have been open. But, when it comes to management and operations, each park is different.

At Mount Talbert Nature Park, Metro entered into an agreement with North Clackamas Parks and Recreation District to maintain and manage the park, which falls within district boundaries. Metro offers nature programs and continues to play a role in natural resource management, working collaboratively with the parks district.

Cooper Mountain Nature Park is managed by the Tualatin Hills Park and Recreation District under an agreement with Metro. Because the park is outside the district boundary, Metro reimburses the cost of a ranger to staff the park. Metro's natural areas team leads habitat management and restoration for the first five years of the agreement. After that, all management transitions to the park district.

Graham Oaks Nature Park is operated and managed by Metro, like the older parks in Metro's portfolio. The City of Wilsonville and Metro mutually agreed on this arrangement.

North Clackamas Parks and Recreation District handles day-to-day management at Mount Talbert Nature Park, which was protected by Metro's bond measures.

Metro's role extends beyond managing physical places, to offering environmental education and volunteer programs, lending technical expertise to partners and helping develop a regional trail network. Metro builds relationships with local jurisdictions by facilitating long-range trail planning, developing trails master plans, acquiring right-of-way and easements and securing construction funds. Although Metro typically doesn't own or maintain regional trails, the agency plays a major role in their completion. In some cases, Metro does own the land or an easement on it, even though all trail improvements are managed by a local partner.

15%

Portion of Metro's land managed by other jurisdictions

60+

Number of agencies and nonprofit organizations Metro regularly partners with

It is unlikely that one single model or strategy will solve everyone's problems at the regional scale.

Metro, partners face similar hurdles

Metro is not alone in restoring and maintaining the region's network of parks, trails and natural areas and giving people a chance to explore it. Staff regularly share ideas, knowledge and resources with local park providers across the region, who face many of the same challenges and opportunities – often with fewer resources.

With such a broad range of capacities and interests at the local level, it is unlikely that one single model or strategy will solve everybody's problems at the regional scale. Metro is working to achieve true collaboration by protecting and restoring the integrity of natural areas and parks while honoring and respecting local needs.

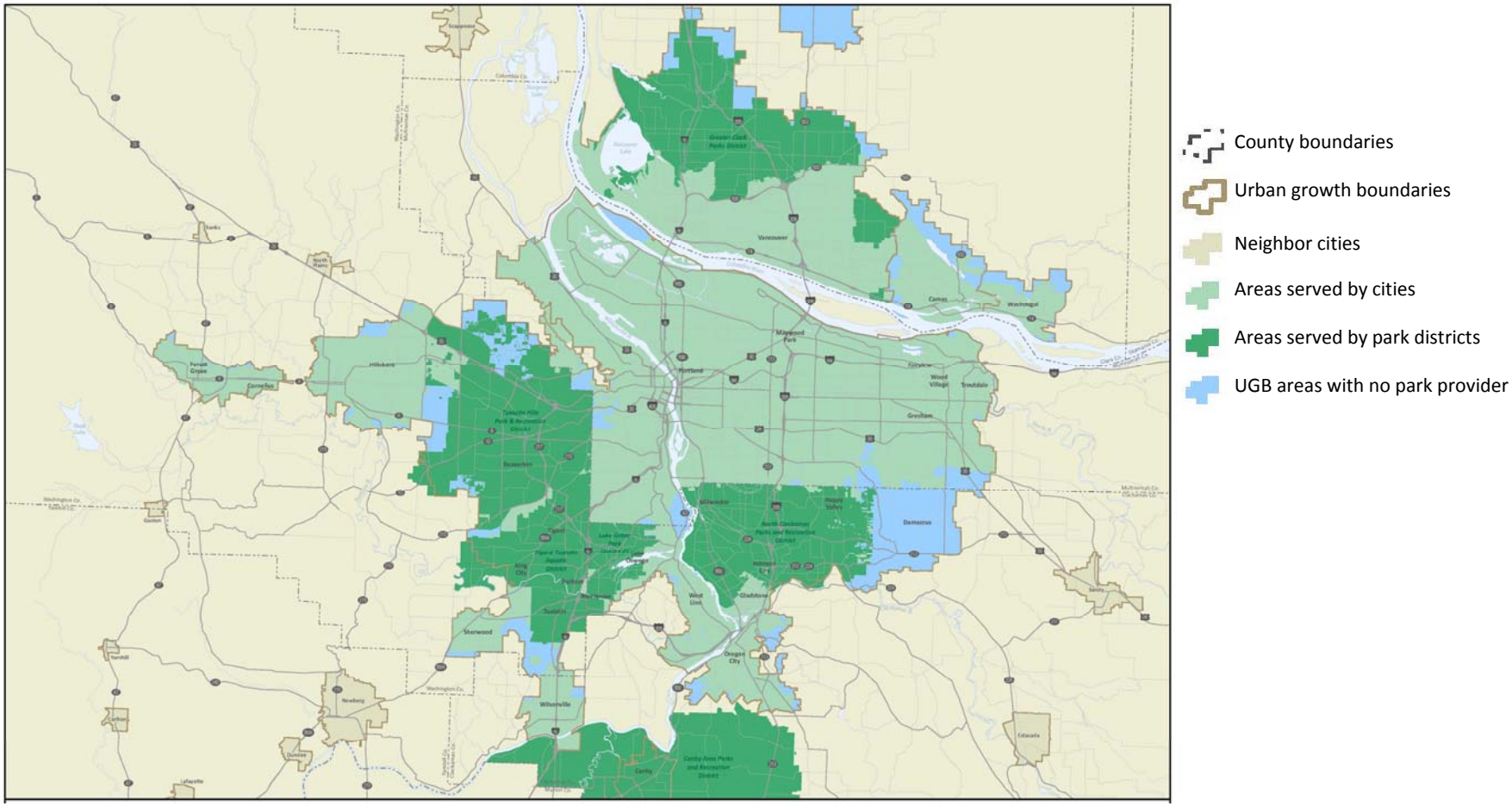
In summer 2010, Metro staff interviewed 27 park jurisdiction leaders about regional relationships and the work ahead. Most envisioned a world-class recreation network, including a robust trail system with consistent signage. They valued the region's variety of high-quality landscapes, which protect water and natural resources and help make connections for wildlife. Virtually every jurisdiction identified a need to fund basic operations and maintenance, with an emphasis on additional staff. There was strong interest in providing public access to Metro property over time, as appropriate based on a site's natural resources. And a strong majority said local jurisdictions should have the option of managing Metro land, with funding help from a regional source.

After discussing funding needs with partners, Metro took a preliminary step toward a solution in 2011. State legislation would have allowed Metro to create a service district for publicly owned natural areas, parks and trails across the region. Voters would have final say on creating and funding a service district; the legislation simply would have removed a barrier that prohibits the region from considering this strategy. While the legislation did not move forward in 2011, conversations are continuing about whether this approach can offer an opportunity to address both regional and local stewardship challenges.

Metro Council President Tom Hughes led a kick-off tour for Metro's 2011 It's Our Nature outreach initiative.

Metro's relationships and management arrangements have been tailored to meet the agency's goals while accommodating local needs and interests. Partnerships have bolstered Metro's ability to protect natural areas, improve access to nature and help develop regional trails. As the region continues working toward a seamless, world-class network of nature and recreation, Metro must consider its own portfolio of land in a broader context.

Park providers in the region



CHAPTER 8: NEXT STEPS

The region has no stable, long-term funding source to restore, maintain and invite people to learn from and enjoy the places that voters have protected.

The Portland metropolitan area is well on its way toward realizing a vision that emerged two decades ago: protecting the region's most important natural resources and allowing people to explore them. Over the course of two voter-approved bond measures, Metro has strategically and dramatically expanded its network of natural areas, parks and trails, creating a legacy of special places. This portfolio of land now stands at nearly 15,000 acres and counting, stretching from the Chehalem Mountains on the west to the Sandy River Gorge on the east – and it includes a diverse group of settings and experiences in between. Metro has identified resources to begin restoration on most of its land and, in limited cases, open natural areas to the public.

Protecting the region's natural treasures helps build vibrant communities where everybody has opportunities to connect with nature. It promotes economic prosperity by attracting employers to the region, generating business for local companies and bolstering home values. Trail projects provide an alternative way for people to get from one place to another. And, by supporting clean air and water, this collection of protected land also helps the region address climate change.

But the existing financial model is not sustainable. Metro's portfolio of land continues to grow, while the general fund resources needed to support it are decreasing. The region has no stable, long-term funding source to restore, maintain and invite people to learn from and enjoy the places that voters have protected. As Metro continues investing the proceeds of its second bond measure, there is an opportunity to step back and evaluate how to make the most of this growing portfolio of land. To take the next steps, Metro will have to answer three overarching questions.

Should Metro invest more money in restoring and maintaining land and, if so, where will the funding come from?

Even if no new parks are opened, additional restoration is needed. Bringing all of Metro's properties to their ideal condition would cost an estimated $12 million to $45 million over several decades. After restoration is complete, maintaining all the land in its ideal condition would cost about $830,000 per year. These estimates cover only the restoration side of the ledger; opening parks to the public would increase costs.

Natural resource scientist Elaine Stewart assesses restoration options at Metro's Wapato Lake natural area.

Metro must weigh the costs of restoring natural areas against the costs of waiting. Limited restoration is an option; Metro prioritizes projects all the time. But there are opportunity costs. Degraded property can harm sensitive habitats and threatened species, it often takes more money to maintain – and it can hurt Metro's credibility with neighbors and visitors.

How much land should Metro open to the public, how soon and how will park development and operations be paid for?

Using today's portfolio as a starting point, this report identifies 10 opportunities to create nature parks that feature signage, trails, parking and restrooms – at a cost of about $2.8 million to $7.4 million each. More than 20 additional sites could support natural areas with fewer amenities and limited signage, which would cost about $500,000 to $2.3 million to develop at each site.

These costs do not take into account grants and other leveraging opportunities, which would reduce Metro's level of investment. Estimates cover only capital; ongoing stewardship, maintenance and any desired environmental education programming would also need to be factored in.

To put together a package of future parks, Metro would have to more deeply analyze public demand, site constraints, community needs and park experiences already available nearby.

Landscape architect Rod Wojtanik, who oversaw the development of Graham Oaks Nature Park, leads a field trip for children from a nearby school.

What is the best fit for Metro on the continuum of natural areas, parks and trails providers: an active land manager or a convener, planner and technical expert?

The structure of every regional park organization is unique. Some concentrate on front-end planning, funding distribution and technical assistance to local providers. At the other end of the spectrum, some are full-service operations that even manage local parks. Metro has experimented with a variety of models as it evolves, but this can be confusing and inconsistent.

Cost of not doing restoration

Opportunity costs
Under the status quo, many species are declining. Failure to restore or maintain means a continuation of this trend.

Increased future costs
A delay in weed control translates into an exponential increase in weeds.

Some changes are irreversible
A long delay in treatment can change soil conditions and local seed banks.

Loss of credibility with the public
Metro's stewardship abilities are judged by the condition of its assets.

Bringing all of Metro's properties to their ideal condition would cost an estimated $12-45 million over several decades.

Stakeholders and citizens must provide vital input to help prioritize the possibilities – and challenges – in Metro's portfolio.

Benefits to being a full-service agency include "good government" visibility, direct contact and accountability with citizens, consistent management and some economy of scale. But very few park facilities generate revenue – and it costs money to do a good job. If every property were restored and developed to its capacity, Metro could spend an additional $6 million per year in today's dollars to operate a fully built portfolio. Costs would likely be smaller, depending how many sites are opened, where they are located and what amenities they offer. Expanded operations does mean more staff and increased overall agency responsibilities, for everything from health care and retirement benefits to support services from communications, human resources and finance departments.

Metro is responsible for managing most of its land; partners handle day-to-day operations at sites such as Cooper Mountain and Mount Talbert nature parks, offering models that could work in the future. But most park providers struggle with the same funding challenges Metro does, and few have the capacity or expertise to take on large-scale restoration projects. Very few jurisdictions could take over management of new nature parks without funding help from Metro.

For a region as diverse as ours, a one-size-fits-all model may not work. A consistent but flexible approach may serve citizens best.

Moving forward

To help the Metro Council answer these policy questions, this report analyzes Metro's portfolio of natural areas, parks and trails as it exists today. Additional information may be needed. With policy direction from the Metro Council, staff can develop specific funding and operational proposals to begin finding answers. Metro would then lead a public conversation about the future of the region's natural areas, parks and trails. Stakeholders and citizens must provide vital input to help prioritize the possibilities – and challenges – in Metro's portfolio.

As Metro makes decisions about its portfolio of land, public input – like this visioning exercise at Scouter Mountain Natural Area – will be critical.

APPENDICES

APPENDIX A

The following tables provide an overview of financial information for the various categories of properties in Metro's portfolio. The information is modeled on the categories as presented in Chapter 3, but in some cases (especially the natural area clusters), numbers may differ due to the way the base data is collected.

Metro property	Total acres	Trails (in miles)		Planning document, date		Capital investments since 1995	Unspent replacement & renewal budgeted through 2010	Annual O&M costs FY 2011	Annual revenue FY 2011
		Regional Trails	Local Trail	Master Plan	Natural Resources Management Plan				
NATURE PARKS									
Beggar's-Tick Wildlife Refuge +	21	0	0.2		1991	Portland Parks & Rec	$24,896	Portland Parks & Rec	Portland Parks & Rec
Cooper Mountain Nature Park *+	232	0	3.8	2005		$2,480,804	not calculated	$142,802	no revenue
Graham Oaks Nature Park *	246	1.0	2.0	2004	2004	$2,891,191	not calculated	$58,603	no revenue
Mount Talbert Nature Park *+	215	1.5	3.1	2000		$1,470,857	$21,584	No. Clack Parks & Rec	No. Clack Parks & Rec
Oxbow Regional Park	801	0	10.0	1997		$38,944	$890,601	$552,635	$224,643
Scouter Mountain +	100	Not open yet							
Smith and Bybee Wetlands Natural Area	1,880	1.6	0.6	1992	2010	$1,200,000	$14,815	$101,350	no revenue
Subtotal	**3,495**	**4.1**	**19.7**			**$8,081,796**	**$951,896**	**$855,390**	**$224,643**
RECREATIONAL FACILITIES									
Blue Lake Regional Park	181		2.7	1985		$628,187	$1,020,077	$825,037	$418,359
Chinook Landing Marine Park	47						$593,838	$23,727	$75,857
Glendoveer Golf Course +	231		2.0	underway		contractor pays costs	$69,284	$129,828	$666,001
Howell Territorial Park	119			1997	2010	none	$105,359	see admin costs	no revenue
James. M. Gleason Boat Ramp	18			1998		2,674,738	$356,913	$18,876	$56,127
Mason Hill Park	1					none	see admin costs	see admin costs	no revenue
Sauvie Island Boat Ramp	6					none	$30,932	see admin costs	no revenue
Administration/other facility costs								$642,229	
Subtotal	**603**		**4.7**			**$3,302,925**	**$2,176,403**	**$1,639,697**	**$1,216,344**
TOTALS	**4,098**	**4.1**	**24.4**			**$11,384,721**	**$3,128,299**	**$2,495,087**	**$1,440,987**

* Properties purchased with bond funds

+ Properties managed by partners

Cemetery	Year est.	Location	Acres	Open/closed to new sales	Available plots	Total revenue by cemetery (FY 2011 unaudited)	Total expenditures for all cemetery properties (FY 2011 unaudited)	Unspent replacement & renewal budgeted through 2020
Brainard	1867	NE Portland	1.10	Open	453	$26,200	*Financial information Is not available for individual cemeteries*	$43,355
Columbia Pioneer	1877	NE Portland	2.40	Open	557	$9,926		N/A
Douglass	1866	Troutdale	9.10	Open	646	$69,255		$13,022
Escobar	1914	Gresham	0.50	Open	26	$3,907		N/A
Grand Army of the Republic	1889	SW Portland	2.00	Open	236	$33,586		$5,631
Gresham Pioneer	1851	Gresham	2.00	Open	179	$2,930		N/A
Jones	1854	SW Portland	3.25	Open	298	$10,114		$5,412
Lone Fir	1855	SE Portland	30.50	Closed	847	$34,694		$9,093
Mt. View	1880	Corbett	2.00	Open	90	$7,328		$54,453
Mt. View	1886	Gresham	0.75	Open	230	$3,628		$5,412
Multnomah Park	1888	SE Portland	9.25	Closed	317	$125,884		$5,412
Pleasant Home	1850s	Gresham	1.92	Open	182	$1,047		$5,412
Powell Grove	1848	Gresham	1.00	Open	136	$2,093		$5,412
White Birch	1888	Gresham	0.50	Open	149	$1,070		$20,271
Totals			**66.27**		**4,346**	**$331,660**	**$473,765**	**$172,885**

Natural areas by target area (Bond-funded nature park numbers included)	Target area		Acres managed by others	Asset costs in millions	Asset value range within target area				Leases	
	Total acres	Transactions			< $100K	$100K - $2 0M	$2M- $10M	> $10M	Acres with Ag Leases	Rental Units
Abernethy and Newell Creeks	387	25	0	$7.0			x			
Beaver Creek	110	4	15.6	$ 1.0		x				
Canemah Bluff	340	8	0	$ 6.5			x			
Cazadero Trail	25	1	24.6	$ 0.3		x				
Chehalem Ridge	1,184	3	0	$ 7.3			x		4	1
Clackamas River Greenway	715	12	0	$ 4.5			x		53	3
Clear Creek	520	7	0	$4.9			x			1
Columbia River	329	13	24.1	$3.2			x			0
Cooper Mountain	255	10	255.0	$7.4			x			
Dairy and McKay Creeks Confluence	221	13	0	$3.2			x		195	

Natural areas by target area (Bond-funded nature park numbers included)	Target area		Acres managed by others	Asset costs in millions	Asset value range within target area				Leases	
	Total acres	Transactions			< $100K	$100K - $2 0M	$2M- $10M	> $10M	Acres with Ag Leases	Rental Units
Deep Creek and Tributaries	23	2	0	$1.2		x				1
East Buttes/Johnson Creek	1,327	79	332.5	$1.9				x		6
Fanno Creek Linkages	56	14	31.6	$3.2			x			1
Forest Park Connections	1,015	31	348.2	$9.1			x		25	1
Gresham-Fairview Trail	0	0	0	-	x					
Killin Wetlands	374	2	0	$1.4		x			83	1
Lower Tualatin River Headwaters	208	7	0	$3.8			x			
Multnomah Channel	325	4	0	$1.6		x			77	2
Springwater Corridor	56	6	42.7	$1.6		x				
Peninsula Crossing Trail	2	1	1.5	$0.1	x					
Rock Creek	234	15	53.4	$9.2			x		20	5
Sandy River	1,123	16	4.6	$6.8			x		15	0
Stafford Basin	89	2	0	$6.3			x			1
Tonquin Geologic Area	506	11	0	$4.8			x			
Trolley Trail	20	1	0.3	-	x					
Tryon Creek Linkages	59	10	48.94	$3.2			x		0	0
Tualatin River	400	13	160.1	$6.7			x		185	7
Wapato/Gales Creek	648	11	0	$2.9			x		110	1
Westside Trail	0	1	21.0	-	x					
Willamette Narrows	485	11	0	$8.9			x		100	5
Willamette River Greenway	172	3	5.7	$2.3			x		20	
Willamette Cove 1995	27	2	0	$0.9		x				
Subtotal	**11,235**	**338**	**1,369.84**	**$121.2**					**887**	**36**
NON-BOND-FUNDED NATURAL AREAS										
Bell View point	10	0		$0					1	10
Flagg Island	15	0		$0					0	0
Gary Island	49	0		$0					0	0
Indian John Island	52	0		$0					0	0
Larch Mountain	186	0		$0					0	0
Mason Hill Park	1	0		$0					0	0
Subtotal	**313**	**0**		**$0**					**1**	**10**
Totals	**11,544**	**338**	**1,369.84**	**$121.2**					**888**	**46**

APPENDIX B

In 2001, the Metro Council approved Resolution No. 01-3113, which established for the first time a set of capital asset management policies. At the time of adoption, Metro's physical assets were valued at $375 million – making it essential to create a program to manage assets. Today, those policies guide a comprehensive program that funds both new capital projects and renovation of existing facilities.

Capital improvement planning at Metro

Metro prepares and annually updates an agency-wide capital improvement plan to identify capital projects and coordinate the financing and timing of improvements in a way that maximizes public benefits.

Long-term financial planning allows Metro to identify capital financing needs for future years and minimize the need to defer maintenance and capital replacement projects. This strategy promotes sound, long-term operational and capital financing strategies. In summary, the planning process accomplishes the following:

- identification of future capital needs (both new and replacement)
- consideration of all proposed capital projects simultaneously
- assessment of fiscal capacity to undertake these projects
- measurement of the impact of capital improvement projects on operating budgets
- longer planning time frame for decision makers to consider projects
- coordination of the scheduling of bond issues

The capital improvement planning process involves five major phases:

- financial forecasts
- departmental submissions
- Metro Council president review and plan development
- budget authorization by the Metro Council
- Metro Council review and adoption of plan

New capital outlay vs. new capital projects

For the purpose of the plan, capital outlay is distinguished from capital projects. Capital outlay includes only projects or equipment purchases between $5,000 and $50,000 with less than an estimated five years of useful life. All capital projects or equipment purchases of at least $50,000 and at least five years of useful life are included in the capital improvement planning process. These projects include capital maintenance items of $50,000 or more that increase the life of the asset. In addition, the plan includes Information Services items of more than $50,000 that may not have a useful life of five years.

Maintenance

Maintenance is defined as a minor alteration, ordinary repair or effort necessary to preserve or repair an asset due to normal wear and tear. Maintenance is work and effort (project, staff time and materials) necessary to repair an asset so it will reach its designated life span or retain market value if replaced for technological or economical reasons.

Maintenance is contrasted with "renewal," a refurbishment that will extend the life of the asset beyond its current expected life span. For example, putting oil coating on an asphalt sidewalk maintains it; replacing the asphalt renews it.

Facilities maintenance is the normally funded, ongoing upkeep of buildings, equipment, roads, grounds and utilities to keep a facility in a condition adequate to meet the department's mission to provide program and public service. Maintenance in this normal program includes the planned, preventive and emergency maintenance required to provide a safe, healthful and secure environment.

Calculation methods

Percentage of total assets – This method calls for taking a specific percentage of total asset value. The asset value used is the cost of the asset or the current estimated value. The recommended industry standard is 1 percent to 4 percent of that value for annual renewal and replacement costs. When a Metro department acquires or builds a new asset, a renewal and replacement reserve of 2 percent is generally set aside each year unless an alternate, specific approach is provided. It is possible the specific percentage used will be more or less than 2 percent, depending on the facility.

Specific calculation method – When first putting an asset to use, that replacement cost will be the cost of the asset. Later, when estimating replacement cost of assets, the cost of acquiring a new asset of equal utility expressed in current dollars should be determined.

APPENDIX C

Park management agreements: A comparison of three models

Model	Supported intergovernmental agreement	Unsupported intergovernmental agreement	Hybrid intergovernmental agreement
Examples	Cooper Mountain Nature Park, Tualatin Hills Park and Recreation District	Mount Talbert Nature Park, North Clackamas Parks and Recreation District Clatsop Butte Natural Area, City of Portland	Scouter Mountain Natural Area, North Clackamas Parks and Recreation District Orenco property, City of Hillsboro
Description	Metro signed an agreement with Tualatin Hills Park and Recreation District to manage Cooper Mountain Nature Park. For the first five years, Metro will support THPRD with approximately $137,000 a year for to care for facilities and the landscape. In addition, Metro will pay for improvements to the buildings and trails and restoration work such as vegetation management and prescribed fire. Metro staff will train THPRD staff in natural resource management techniques and strategies. In years five through 10 of the agreement, Metro will no longer provide funding or active natural resource management but will stay on in an advisory role. After the 10-year period, THPRD will solely manage the park.	Metro signed an agreement with North Clackamas Parks and Recreation District to manage Mount Talbert Nature Park. The agreement did not include funding to support staff or operations and maintenance, and did not specify that Metro would pay for improvements to facilities and trails. The agreement did specify that Metro will lead restoration and maintenance for five years. In years six through 10, Metro will transition that responsibility to NCPRD and support them in an advisory role. After year 10, NCPRD will be solely responsible for operating and maintaining all aspects of the park. Metro acquisitions in Portland are included in an overarching intergovernmental agreement. Unless otherwise specified, the City takes responsibility for stabilization and long-term maintenance. The City has maintained Metro properties at an acceptable level.	Metro signed an agreement with North Clackamas Parks and Recreation District to manage Scouter Mountain Natural Area. The agreement did not include funding to support staff, operations or maintenance. After the agreement was signed, NCPRD and Metro concluded that economic challenges would not allow NCPRD to manage the entire park as outlined. It was determined that NCPRD could manage built assets (picnic shelter, access systems, furnishings); Metro was best positioned to manage natural resources. NCPRD employs one full-time staff for natural areas restoration and maintenance, and has a limited budget for this work. A jointly developed management plan identified roles and responsibilities and amended the original agreement. The City of Happy Valley agreed to provide security services.
Pros	Metro funding and staff support have allowed THPRD to successfully operate the park and develop technical skills to manage its natural assets. The support has also given the district time to develop long-term funding for staffing, operations and maintenance. The district is on track to successfully support the park at the conclusion of the first five years of the agreement.	Metro quickly alleviated the responsibility for managing and maintaining developed assets at Mount Talbert and, within five years, has almost no financial or staff liabilities. This approach challenges partner agencies to support parkland within their management area and build their management capacity to manage other acquisitions in the future.	Metro and NCPRD take on responsibilities that most seamlessly and sustainably fit into their operating capacity. In this case Metro assumed responsibility for managing the site's natural areas. NCPRD, which has the staff and knowledge to manage basic park facilities, furnishings and access systems, took on the management of those assets.
Cons	Despite contributing more than $137,000 per year, Metro has still needed to contribute significant staff and financial support to operate the park. These contributions generally are not accounted for in budget cycles. Some causes of the costs fall into the "gray zone" of transition from construction to maintenance. The public, staff and managers who are not directly involved assume that there is no cost to Metro because THPRD is taking on the management of the entire park.	Like most agencies, NCPRD has encountered financial difficulty over the past decade. Capacity to manage basic functions at Mount Talbert is limited. NCPRD dedicates one full-time employee to natural areas restoration and maintenance for its entire portfolio. Metro has spent significant staff and financial resources to maintain restoration and trail investments and, at the same time, seen some built assets degrade. Metro will likely need to assume responsibility for natural resources – and potentially built assets – to protect previous investments.	Both partners are taking on additional responsibilities without the promise of new funding.