

# **The Money Tree: Does the Intertwine Create Jobs?**

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Clients: Metro and The Intertwine Alliance

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## **ABOUT THE AUTHOR AND THIS PROJECT**

The author, Joe Otts, is a 2014 M.S. graduate in Environmental Policy and Planning from the University of Michigan School of Natural Resources and Environment. He is a Returned Peace Corps Volunteer, having served in Fiji from 2007 to 2010 in the Integrated Environmental Resource Management sector. He is also a two-term AmeriCorps volunteer. Joe's professional passions are sustainable development and the bolstering of social, economic and environmental decision-making with scientific research and feedback through robust stakeholder dialogue.

This project is in fulfillment of Joe's eight-month tenure as a Portland State University Hatfield Resident Fellow. Among the primary goals of the fellowship program is to attract recent master's level graduates from universities across the United States and to connect them with professional development opportunities in the State of Oregon. The fellowship program has the dual benefit of providing temporary, affordable, skilled labor to the clients while providing the fellow with an opportunity to professionally integrate into the region. Joe's primary client in the fellowship program was Metro, in partnership with the Intertwine Alliance. Joe's task was to research and document the connections between the Portland-Vancouver region's network of parks, trails, and natural areas (aka The Intertwine) and recruitment and retention of firms to the region. This report is the product of Joe's work.

## **METHODS**

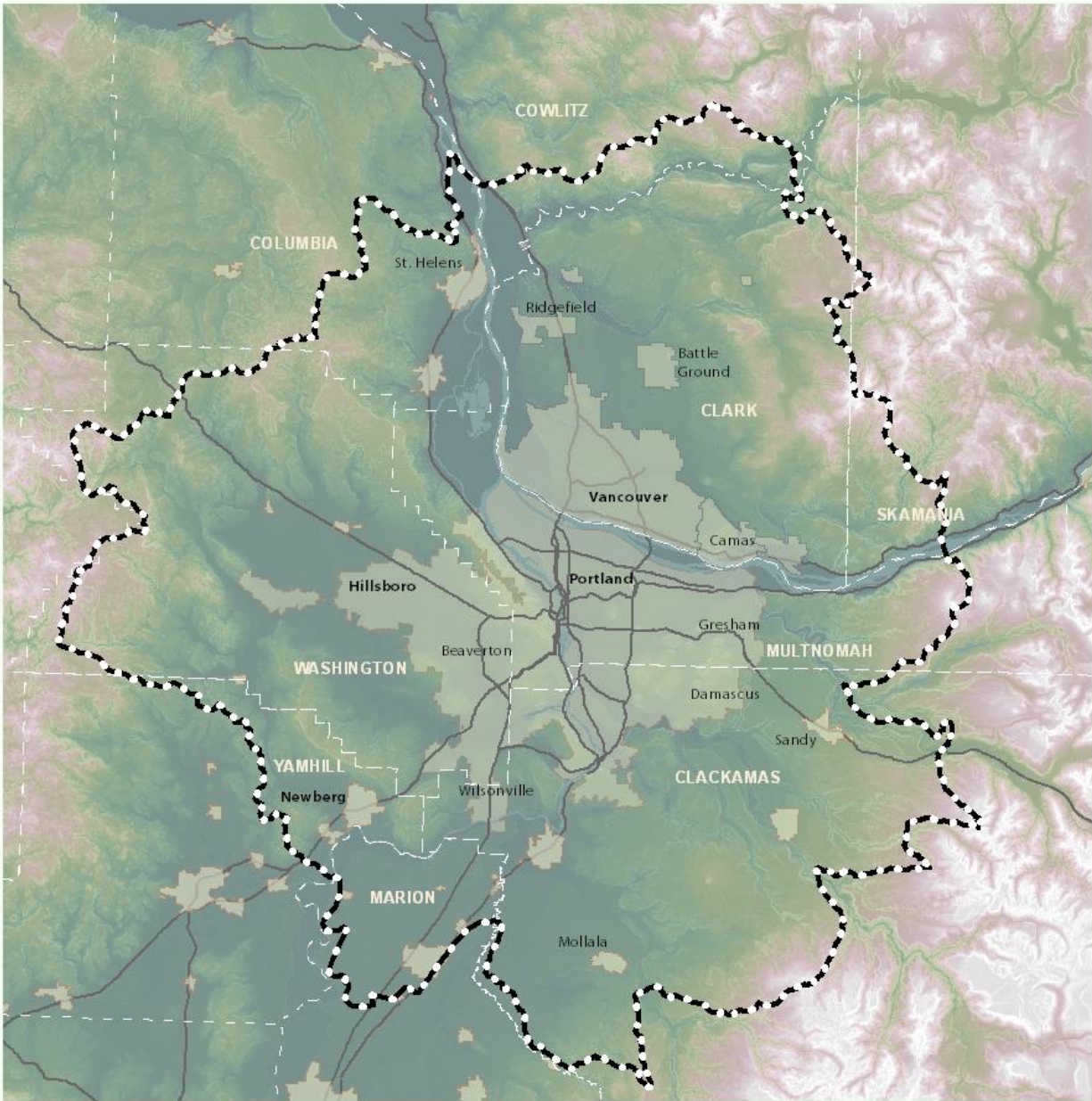
To inform this report, the author performed a literature review, communicated with stakeholders, and conducted original analyses, including:

- Reviewing over 60 scholarly articles, books, professionally produced business and industry profiles, nonprofit publications, and government publications from the local, regional and federal levels.
- Reviewing countless websites, news reports and press releases.
- Conducting informational overviews with more than 50 professionals, of all ranks, in the fields of business, economic research, economic development, advocacy, public administration, and parks and recreation.
- Conducting 10 audio-recorded interviews with industry representatives and civic leaders. Six of these interviewees also agreed to be video-recorded.
- Constructing an original survey distributed to Intertwine Alliance partners and other constituents, with additional distribution assistance from the Portland Development Commission and the Technology Association of Oregon, to assess the importance of parks, trails and natural areas in talent recruitment and retention. There were 523 total responses over the 30-day response period.

## DEFINING THE INTERTWINE

The Intertwine is defined as the 3,000 square miles of parks, trails and natural areas within the Portland-Vancouver Metropolitan Region. In ecosystem-level discussions of The Intertwine, however, the boundaries extend further. In this context, it extends, roughly, north to St. Helens, south to Molalla, east to Cascade Locks, and west past Forest Grove. (See graphic 0.1.) Relatedly, The Intertwine Alliance is the network of 140+ partner organization’s collaborating to protect and promote The Intertwine, as well as to the non-profit that organizes and spearheads this effort.

**Graphic 0.1: Map of the Ecosystem Boundaries of The Intertwine**



## INTRODUCTION AND ROAD MAP

This report highlights no fewer than seven connections between The Intertwine and recruitment and retention of firms to the region. The economic benefits The Intertwine provides include attracting firms of many sizes and industries directly; reflecting the ethos of many companies and their customers (which helps companies brand and market their products worldwide); providing tangible benefits (i.e. serving as a product testing venue or sometimes serving as the product itself); attracting and retaining key talent; providing ecosystem services that support large, established industries directly; and, finally, providing unique opportunities for innovation. Throughout the report, these economic benefits will be viewed through four main lenses that help to isolate and describe the benefits and their associated impacts:

**“Alpha Clusters, Core Values and a Big Backyard”** describes how one specific and very significant industry cluster in the Metro region, the athletic and outdoor industry, benefits from an important and unique symbiosis with The Intertwine. The Intertwine provides athletic and outdoor companies a venue for product testing, as well as opportunities for product marketing and company branding. Moreover, The Intertwine reflects the core values and ethos of these companies, both bringing and keeping them here.

**“More than Athletic and Outdoor”** continues by exploring The Intertwine’s benefits to other industries, including technology and bicycle tourism. It also describes The Intertwine’s benefits for the countless number of small businesses that anchor the Metro region economy. For the bicycle industry, The Intertwine provides a playground and creates the demand the industry relies on. For the technology industry and small businesses, the benefit is more subtle. When companies are not bound to plant themselves near a given natural resource (such as a supplier of solar power needing sunshine), or when decision-makers move with the company (which happens often with small businesses), these companies often value parks, trails and natural areas in their location decisions.

**“The Talent Likes Green”** explains the specific boost The Intertwine provides to talent recruitment and retention. This is critically important to the industries mentioned above and to all competitive economies of the future. Highlighting these points are interviews with talent recruitment officers from industry giants Columbia Sportswear and Intel. Also presented is an original survey that The Intertwine Alliance distributed to Metro-region employees, results of which strongly bolster the recruitment officers’ assertions.

In **“The Intertwine Provides,”** ecosystem services, an oft-mentioned and critical benefit of The Intertwine and all natural areas, is brought into the fold. This sections starts by describing an Intertwine ecosystem service valuation study before diving into specifics of how these services benefit companies ranging from computer chip manufacturers to area microbrewers. Additional benefits include opportunities for upshot green infrastructure manufacturing and distribution companies, as well as savings incurred from implementing the Metro region’s flagship green infrastructure project, the Tabor to the River Project. Finally, we note the increase in property values and associated tax revenues provided by parks, trails and natural areas.

## ALPHA CLUSTERS, CORE VALUES AND A BIG BACKYARD

“What could a unique position for Oregon look like? What could some of the aspects for that be? Well, I think some pieces of it are clear ... One piece has to do with the natural endowments that you enjoy. It is certain natural resource intensive clusters that you have positions in. It is this focus on sustainability. Yeah, you have resources, but you are approaching them in a very, very distinctive way in Oregon, which is very, very exciting and powerful ... I have not seen it anywhere else.” – *Michael Porter, Harvard economist and competitiveness guru, speaking in 2006 at the Oregon Business Council’s Annual Oregon Leadership Summit in Portland.*

The athletic and outdoor industry in the Portland metro region constitutes what is known as an alpha cluster. Harvard economist Michael Porter first coined the term “clusters” in 1998, defining them as “geographic concentrations of interconnected companies and institutions.” (Think of the Napa Valley wine cluster or the Hollywood film industry). With the premise that companies operate at a higher level based on the quality of other local businesses, clusters boost competitiveness by increasing company productivity, driving direction and pace, and encouraging new business development — which then offers positive feedback for the cluster process.<sup>1</sup>

A recent report by noted local economist Joe Cortright describes the Portland metro region athletic and outdoor industry in detail: a signature industry here, it employs statewide more than 14,000 workers, is comprised of over 700 firms, and supplies average wages of more than \$80,000 and almost \$1.2 billion in total payroll. It is an alpha cluster in the Metro region because it is “characterized by continuous innovation, high wages, strong geographic concentration and strong connections to the culture and quality of life in the community” (p. 2).<sup>2</sup>

But what brought the cluster here? What sustains it? Undoubtedly, companies like Columbia Sportswear, Danner and Nike anchored the cluster many decades ago. They moved here for reasons that include family ties and the manufacturing and distribution hub that gave Portland its name. Other companies followed suit, in part to benefit from the initial peripheral structure these pioneers spawned in their wake. Once a critical mass was achieved, the cluster became self-sustaining and perpetuating. But there is more going on here.

Could this process not have happened somewhere else? Former Mayor Sam Adams speaks to this question: “Having recruited and worked to retain companies for decades here, [I can say] the access to the natural environment, to recreational activities, especially, is a big draw.” Indeed, interviews with local athletic and outdoor industry companies confirm this and offer additional insight. It became apparent that the core values of these companies are directly reflected in the environmental amenities both within and proximate to the Portland metro region. As KEEN Footwear’s corporate responsibility manager Chris Enlow says, “The community here allows us to get actively engaged. We can participate and do trail work just right over there in Forest Park.”

Indeed, the Metro region is Wild in the City; it has The Intertwine. The smart growth policies implemented here, such as the urban growth boundary, ensure that a natural area is never too far away. The Metro region’s system of parks and trails offers opportunity for, and is filled with, people who actually need and use athletic and outdoor products. And of course, the Columbia River Gorge and Mount Hood are close by for those who like to explore farther afield.



Meanwhile, the core values the Portland metro region shares with athletic and outdoor companies – preservation, sustainability, abundant natural resources – extend outward to customers, resulting in real branding potential. As Enlow states, “Authenticity is really important with brands ... The amenities around us are a reflection of who our industry is, what we believe, and what we want to support.” Indeed, the identity of the Portland metro region can influence patterns and numbers of sales. (See sidebar 1.1.)

Product-testing benefits are also a key locational decision factor for these companies. Taking a stroll through Forest Park, it is not unlikely that a fleet-footed athlete wearing cool gear will pass. Columbia, Nike and KEEN all test their products in natural areas around town. “We definitely do field testing, and this is a great environment,” says Enlow, “We will go up into Forest Park and test them there. I mean, we actively use the resources.” Scott Welch, global corporate relations manager for Columbia Sportswear, says, “Part of our footwear testing is actually the outdoors around here, which includes any green space area.”

The Intertwine appears to affect all athletic and outdoor companies in much the same fashion. But one industry sub-sector that illustrates this point clearly, and receives comparatively little attention in such conversations, is bicycle manufacturing. Portland consistently ranks at or near the top of the annual *Bicycling Magazine* list of top cycling cities. In speaking of the bicycle

### Sidebar 1.1: Place Branding

Nobel Colloquia Prize winning economist, [Simon Arnholt](#), coined the term “place branding” and researches how it contributes to such factors as firm location decisions, tourism and consumer product purchases. CEOs for Cities recently published a [strategy paper](#) describing how cities can implement his work. Every heard of “Bridgetown” or “City of Roses?” Maybe the next one should be “[Parklandia](#).”

industry cluster and why it has developed here, marketing manager Dylan VanWeelden of high-end bicycle manufacturing company Chris King Precision Components posits, “I would say that the cycling infrastructure for the streets that has been created is probably a really big reason for it.” On product testing, VanWeelden adds, “We do a ton of product testing here, and the city infrastructure with the bike lanes helps that a lot and makes it a lot safer.” On marketing benefits, he says, “In our marketing materials and our trade show stuff, we’ll always tout Portland, Oregon, USA, that we make it here. We do a lot of imagery of road riding around the city.”

### Graphic 1.1: Forest Park – Testing Ground and Inspiration

Forest Park is an incredible asset for the Athletic and Outdoor Industry, providing rugged product testing grounds while directly representing Athletic and Outdoor Industry ethics. It also provides employees an inspirational break from their work, so that they can come back ready to design more cutting-edge technology. (Photo courtesy of Mike Houck.)



When local bicycle-oriented planning firm Alta Planning + Design asked businesses if Portland's reputation for bike friendliness was good for their bottom lines, 82 percent said yes or absolutely.<sup>3</sup> And the bicycle industry in Oregon is bigger than most people suspect: \$440 million and over 2,500 jobs. Of the 500+ bicycle industry businesses and organizations in the state, nearly half of them are located in the Portland metro region. Moreover, this is an industry on the move, with 64 percent of all current bicycle businesses in the state having opened since 2000.<sup>4</sup> The industry is big, and getting bigger.

When Michael Porter states that he “has not seen it anywhere else,” he didn't mean the Portland metro region's nearby mountains, rivers, and coastline. Those can be found in many other places. Rather, Porter is referring to the region's outdoor and sustainability ethos, which manifests itself in the way business is conducted here and how related industries develop. And, by extension, he is referring to the parks, trails and natural areas scattered across the region – the features that tangibly embody that green, sustainability ethos. Indeed, these two elements – the athletic and outdoor industry and The Intertwine's system of parks, trails and natural areas – are symbiotic. Investments made in The Intertwine's system of parks, trails and natural areas are capitalized on richly by the athletic and outdoor industry, to the region's collective benefit.

## **MORE THAN ATHLETIC AND OUTDOOR**

“Many of the nation's households and firms are mobile and make their locational decisions based, in part, on the quality of life available in different regions. To the extent that an environmental-protection initiative enhances a region's natural-resource amenities and increases their contribution to the region's quality of life, it also can generate employment and income in the region.” – *Ernie Niemi and Ed Whitelaw of ECONorthwest*

Industries benefitting from The Intertwine are not limited to the outdoor and athletic industry. Indeed, the Portland metro region and Oregon state's slow transition away from an economy reliant on the consumption of natural resources (e.g. timber and fisheries) has paved the way for a variety of other industry clusters to take hold.

Ernie Niemi and Ed Whitelaw of ECONorthwest, two distinguished eco-conscious economists in Oregon, articulate how this transition is possible.<sup>5</sup> They dispel the old “jobs versus the environment” argument, extoll the versatility of American workers and the economy, and draw attention to the role environmental amenities and improved quality of life can play in recruiting firms. Indeed, there is much evidence that many of the industries that have developed here are enhanced by, if not predicated on, abundant, healthy environmental amenities.

John Crompton, a Texas A&M professor and researcher, is well known among the parks and recreation community, having conducted numerous studies describing the economic benefits of parks. One such study sought to determine the factors associated with companies' location decisions in Colorado,<sup>6</sup> a close analog to Oregon in many ways, including being rich in natural amenities and having green-leaning economies. In short, the study's findings are that small companies (where the company founders are more able to influence location decisions, and often move with the company) in addition to highly “footloose” companies (those not bound to a specific locale based on availability of raw materials, natural resources or energy supplies) place a higher value on quality-of-life in their location decisions than do their large and/or non-footloose

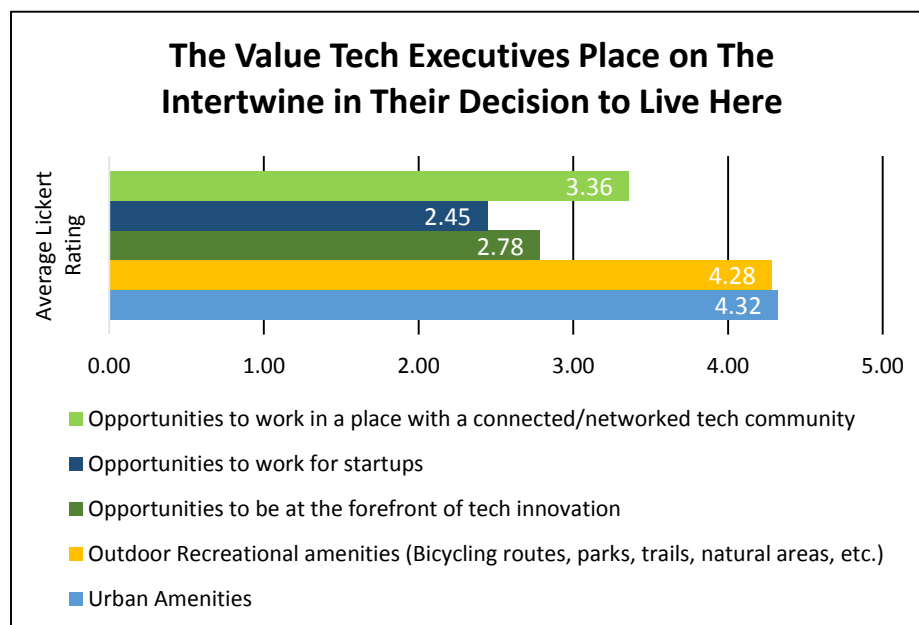
counterparts. Also, with regards to specific quality-of-life components, small and/or footloose companies place greater value on recreation, parks and open spaces.

Now, are quality of life and environmental amenities necessarily the *most* important factors in any given firm’s location decisions? Factors like corporate tax incentives and labor pool are very important. But corporate tax incentives can be replicated anywhere that can afford them or that chooses to. As for the labor pool, there is considerable evidence that environmental amenities play a large role in that, too. (More in the next section.) So, the point remains that parks, trails and natural areas are an attraction for these companies, the type of attraction that can be the determining factor when deciding between two closely competing locations. Fortunately, this is an opportunity that the Portland metro region has tremendous capacity to exploit.

It is easy to see the potential benefits upon inspection of the Portland metro region’s economy. One example of a highly footloose industry is technology/software. According to data crunching conducted by the Oregon Business Council, this industry sector, statewide, employed 50,527 people and doled out \$105,665 in average annual wages in 2011.<sup>7</sup>

Such technology firms locate themselves in Menlo Park, California; Seattle, Washington; and elsewhere for various reasons. But why do they locate *here*? The Crompton study offers general insight. But a recent survey conducted by the Portland-based nonprofit Technology Association of Oregon offers locally-specific data.

**Graphic 2.1: Reasons Technology Executives Locate in the Portland Metro Region**



A recent survey that the Technology Association of Oregon (the largest member organization for the technology industry in the state) conducted amongst its members revealed that technology executives are placing a considerable value on The Intertwine in their decisions to live here. On a scale from 1-5 (with 5 being “very important” and 1 being “very unimportant”), respondents reported an average value for The Intertwine at 4.28. This greatly

outpaced the value respondents placed on “opportunities to work for startups” (2.45) and “opportunities to work in a place with a connected/networked tech community” (3.36). The only factor that scored higher than The Intertwine was “urban amenities” (4.32), pointing to the fact that what metropolitan areas offer matters very much, whether it’s parks, trails and natural areas or otherwise.

The Technology Association of Oregon asked its members to “rate the importance of the following in your decision to live in the Portland region.” One of the options was “outdoor recreational amenities (bicycling routes, parks, trails, natural areas, etc.)” Ninety percent of



respondents rated it as either very or somewhat important. For comparison, only 60 percent said as much of “opportunities to be at the forefront of tech innovation,” and only 48 percent about “opportunities to work for startups.” (See graphic 2.1) This is a region known to be a significant cluster for this industry, home to Intel and dubbed the Silicon Forest. The fact that these companies are valuing parks, trails and natural areas at a higher rate than industry opportunities is significant.

But Crompton’s study also found that small businesses value quality of life and parks and recreation more than large companies in their locations decision. This also has important implications for Portland. In fact, the City of Portland’s 2009 [Economic Development Strategy](#) notes Small Business Administration data showing that 95 percent of Portland businesses have fewer than 50 employees. The strategy then goes on to describe the abundance of small businesses as a key asset in supplying Portland with a foundation for a sustainable global economy. Meanwhile, separate research shows that between 1993 and mid-2013, small firms were responsible for 63 percent of the net new jobs created, nationwide.<sup>8</sup> And of high patenting firms, small businesses outpaced their large counterparts by 16-fold in patent generation, again nationwide.<sup>9</sup> Thus, small businesses are critically important to the Portland metro region economy, and The Intertwine appears to be a major attractive force for them.

There are many other companies in the Metro region, however, that are neither necessarily small nor footloose, but locate here in part due to the abundant trails and healthy environmental amenities. Take the bicycle tourism industry, bound to a system of trails that provide access to parks and natural areas and directly correlated to the abundance and health of such amenities. One comprehensive study estimated that bicycling tourists spent approximately \$400 million statewide in 2012, directly supporting 4,600 jobs. The region that took home the most? The Portland metro region, where tourists spent nearly \$90 million and supported 700 jobs.<sup>10</sup>

The economic impact of bicycle tourism, small businesses, the technology industry and the previously detailed athletic and outdoor industry does not end here. The economic impact numbers provided describe only the *direct* impact these industries have. Indirect effects, such as the multiplier effect, must also be included. The Multiplier effect is an economist’s term for what happens when directly employed individuals begin spending their earnings, generating even more jobs. It is also important to account for the supporting industries that follow in the wake of the primary industries. Indeed, this is a foundational principle of cluster formation. Examples of supporting industries include consulting firms and marketing firms that develop and disseminate products. Others are university programs, such as the new Athletic and Outdoor [Industry](#) and [Product Management](#) certificate programs, which help supply the next generation of cluster industry entrepreneurs. Strong industries also promote niche opportunities; for example the bicycle manufacturing and tourism industry giving rise to [bicycle attorneys](#).

An underlying ethos fuels all of this, however. When pressed to describe what brought the bicycle industry cluster to the region, Chris King Precision Components marketing manager Dylan VanWeelden says, “I think the Portland Development Commission working with businesses and helping them when they are an environmental or bicycle based business – they support companies in that fashion. I think *a lot of cities in America don’t think in that fashion*” (emphasis added). It is true; the Portland metro region thinks green.

In sum, there is more drawing firms to the Portland metro region than corporate tax incentives and natural resources to industrially consume. The development and maintenance of parks, trails and natural areas must be given due credit. From bicycle tourism to technology, athletic and outdoor, and a variety of small businesses representing many industries, The Intertwine makes a substantial contribution to our regional economy in terms of drawing these

companies and their peripheral support infrastructure here. The Metro region thought green, and it quite literally paid off.

## THE TALENT LIKES GREEN

“This trail [the Indianapolis Cultural Trail] and many other examples in cities across America demonstrate a bold new thinking toward urban transportation planning. A highway to a new factory may still be critical to attracting new jobs and moving those goods to market ... but if you want to attract that facility’s workers to live in your city, you need sidewalks, bike lanes, greenways and so much more.” – *Gregory Ballard, Indianapolis mayor and invitee to the 2014 Sustainability Chat in Portland, Oregon, in testimony before the U.S. Senate Committee on Environment and Public Works*

Recruiting talented labor is a process distinct from recruiting firms, though at times these two foci of economic development are intricately enmeshed. As noted in the previous section, the Portland metro region’s parks, trails and natural areas have a direct draw on small and “footloose” firms. But these amenities attract large and non-footloose firms, too. In this case the draw is less direct; it centers on talent recruitment and retention capacity. The amenities can attract talented entrepreneurs who start their own businesses and contribute substantially to the economic development in the region, a type of development of critical importance in today’s “creative economy.”

Both of these phenomena are well-illustrated in the testimony of Indianapolis Mayor Gregory Ballard before the U.S. Senate Committee on Environment and Public Works.<sup>11</sup> He describes the direct importance of the [Indianapolis Cultural Trail](#) to the city’s recruitment of over \$100 million in new development in the six years since the trail opened. One major contribution to that development was a \$30 million manufacturing and distribution plant for corporate giant Caterpillar. The company cited the trail in its decision to move, along with the company’s commitment to environmental sustainability and the health and wellness of its workers.<sup>12</sup>

The draw that such amenities provides for the talent pool for large companies, as well as talented entrepreneurs, does not exist in Indianapolis alone, however. It occurs nationwide, and it is happening right here in the Portland metro region.

Locally, the discussion starts with a keystone company in the technology industry cluster, the Intel Corporation. To set the stage, a 2012 ECONorthwest study estimated that Intel makes a total statewide economic impact of \$26.7 billion and provides 16,600 direct jobs, or 67,579 total direct and indirect jobs.<sup>13</sup> Don Cooper, Intel’s talent advisor and executive search recruiter, offers insight into what draws talented workers here: “The parks and recreation is one of the reasons, one of the big reasons, why people come here. I mean, it’s without a doubt.”

The Portland metro region is not the only area offering such attractive amenities. There are intense competitors, a notion Cooper is keenly aware of. “It’s a big selling point for us, those trails, especially trying to get people from Sacramento. When they look at Folsom, and they look at those trails, they kinda go ‘well, do you guys have those?’” Fortunately, Cooper can say that the Metro region does have such trails.

Nevertheless, he notices room for improvement, specifically as it relates to the connectivity of the bike trails. “If you could ride your bike from downtown Portland to Hillsboro and not have

to cross any major streets, where it has literally bike trails that would go underneath the road, where it's a safe trail, *that would be the ultimate recruiting tool for us*" (emphasis added).

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### Graphic 3.1: A Tale of Two Trails



The Indianapolis Cultural Trail and what it has done in terms of economic development for the City of Indianapolis is reminiscent of the City of Portland's own experiences with Harbor Drive and the transition to Tom McCall Waterfront Park. The Indianapolis Cultural Trail (top left, *photo courtesy of the United State Department of Transportation*), Harbor Drive circa 1974 (below left, *photo courtesy of the City of Portland archives*), and Tom McCall Waterfront Park today (below right, *photo courtesy of Mike Houck*).



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Media reports offer reason to believe that the phenomenon we see occurring with Intel is not an isolated occurrence in the technology industry. For example, Salesforce is a San Francisco-headquartered software company with almost 9,000 employees as of 2012 when they began moving a major operational hub from Salt Lake City, Utah, to the Portland metro region. One of the main reasons they cited for the move is that the Portland metro is a more attractive place to recruit young talent.<sup>14</sup>

Another example is eBay, which bought local mobile developer Critical Path Software as a talent acquisition. "We want the renaissance engineers," said Kevin Hurst, then eBay vice president of mobile product. eBay went on to add employees to the firm and increased the office space by 50 percent to make room for them.<sup>15</sup>

Portland's own Puppet Labs, the leader in IT automation employing over 250 people locally, announced in mid-2014 that it is undertaking a significant expansion while staying right here at home. According to them, their office space "is a critical part of who we are as a company." They list bike routes among the four desirable amenities their new location provides employees.<sup>16</sup>

The athletic and outdoor industry also benefits from The Intertwine as a recruitment tool. Take for instance, Columbia Sportswear, who in 2013 reported \$1.7 billion in global sales.<sup>17</sup> Kristin Dagg, Columbia Sportswear talent acquisition team leader, when asked whether these

amenities are a boon to her efforts says, “Absolutely! ... When I’m talking to candidates, I talk about hiking trails and biking and things like that. I have a huge email that I send to people out of state that has a number of bullets about different things people can enjoy and experience, and what a green city we have.” She goes on to say, “I would suspect that all of the [athletic and outdoor] companies leverage the fact that they’re in this amazing, dynamic city and this incredible geography to attract candidates.”

KEEN Footwear also cites the virtues of The Intertwine and its draw for the talent pool, bringing an interesting twist to the discussion. Describing the reasons for its move from Alameda, California, to Portland as a young start-up in 2006, corporate responsibility manager Chris Enlow cites the importance of the talent pool here, especially when workers can be recruited with industry competitive wages. “That was one of the principle drivers. How do we initially get good talent?” he says. “But then, the realization moving here has been that we can *retain* good talent, because we’re in a good space, with these environmental amenities.” According to KEEN, they have experienced record growth for the past 11 consecutive years. The company sells its products in over 5,000 retail locations in more than 60 countries and currently employs 150 workers in the Portland metro region alone.

Indeed, in interviews with other company representatives from multiple industries, there seemed to be a recurring theme. Often, neither the company nor the talent pool realizes until after moving here the full talent-retention power that The Intertwine provides.

The Intertwine Alliance conducted a simple survey to get at just how important The Intertwine is in both talent recruitment and retention. The Technology Association of Oregon and the Portland Development Commission lent the use of their mailing lists to gain access to the technology and athletic industry and outdoor industry, respectively. The survey was also distributed to the Intertwine Alliance email list. All recipients were encouraged to forward the survey to their employers/ees and coworkers. There were 523 total responses.

Over a series of questions, respondents were asked to separately rate the importance of regional environmental assets (i.e. mountains, the Columbia River Gorge, the coast, etc.) and the Portland metro region’s system of parks, trails and natural areas in their decisions to move here. Respondents were prompted with a five-item Likert scale, with possible answers “very unimportant,” “somewhat unimportant,” “neutral,” “somewhat important” and “very important.”

As can be expected, regional environmental assets ranked high: Excluding people born here, 45 percent rated them as very important and 24 percent as somewhat important. But metropolitan parks, trails and natural areas ranked respectably, as well, with 30 percent of respondents (again excluding natives) choosing very important and 30 percent somewhat important. The specific breakdown for the technology industry and the athletic and outdoor industry, however, offers real fuel for the discussion. (See graphic 3.2). By all accounts, The Intertwine is a considerable draw for talent.

While these are certainly powerful numbers in themselves, the follow up was illuminating. When asked to describe the importance of regional environmental assets in terms of equivalent employment elsewhere, 57 percent rated regional environmental assets as very important and 28 percent as somewhat important. For metropolitan parks, trails and natural areas, 54 percent ranked it very important and 29 percent as somewhat important.

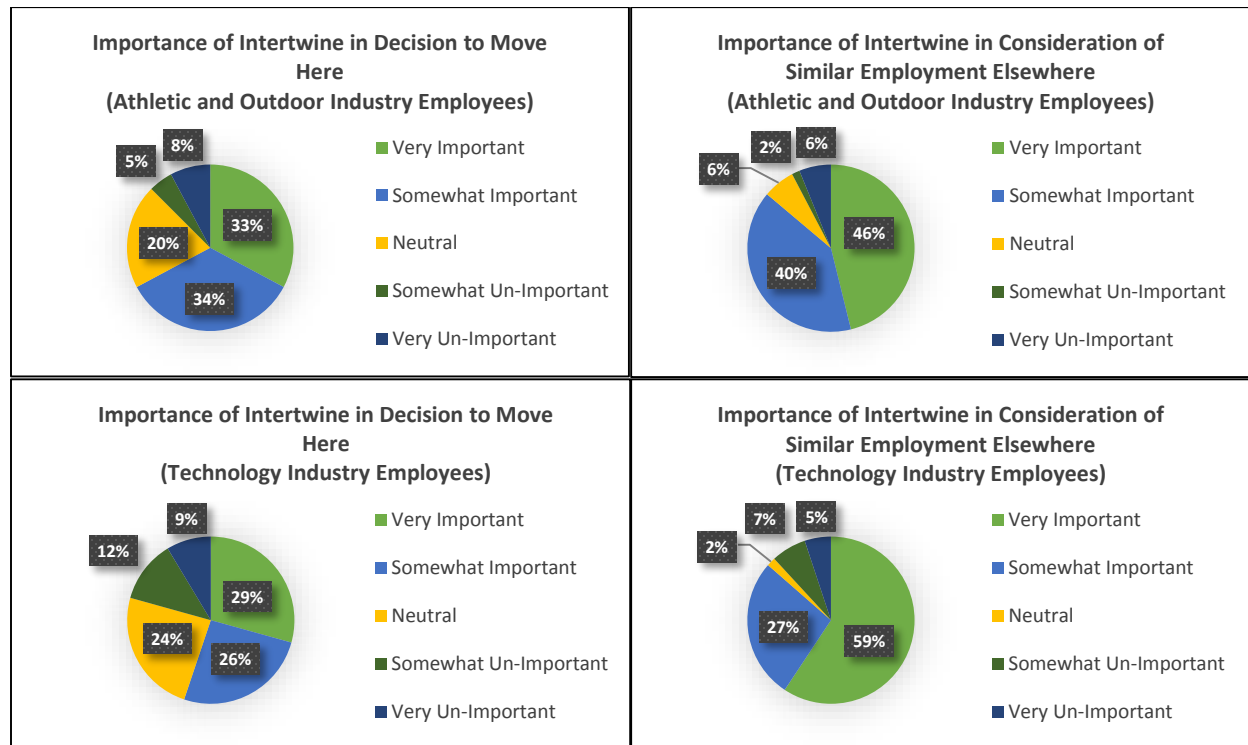
In other words, when explicitly walked through the difference between regional environmental assets versus metropolitan parks, trails and natural areas, the Portland metro talent pool says that The Intertwine is a big part of why people moved here and an even bigger part of



the reason they stay – on par with the mountains, coastline and river gorges for which the region is known.

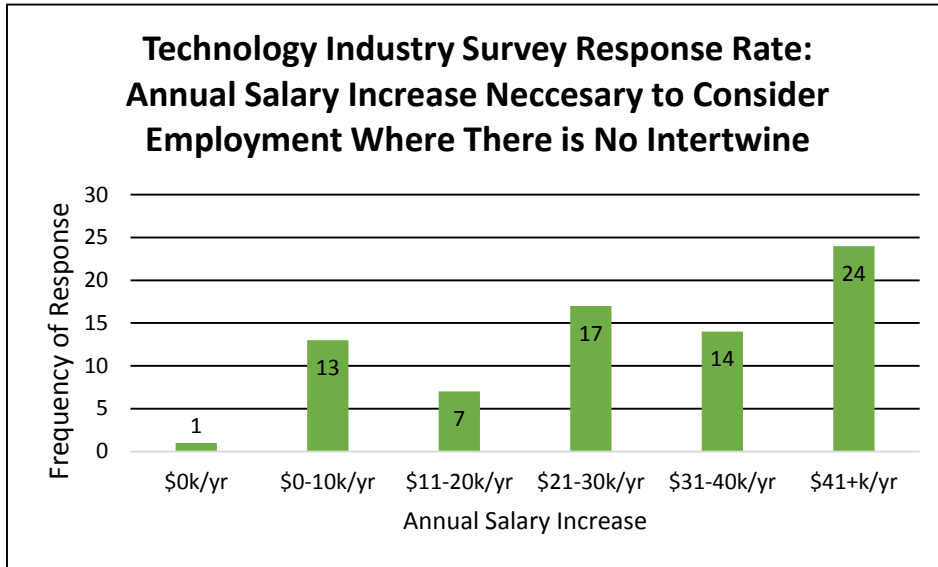
**Graphic 3.2: Key Industry Talent Values The Intertwine**

The pie charts below depict The Intertwine Alliance-administered survey response rates for Portland metro region employees in the technology industry and the athletic and outdoor sectors. They were asked to rate the importance of metro-region parks, trails and natural areas in their decisions to move here (results left) and in their consideration of employment elsewhere, after having lived here for some time (results right). Results indicate these amenities are valued before people move to the Metro region, but are valued even more after people have lived here for some time.



*How* valuable is The Intertwine as a talent-retention tool? 83 percent of respondents said they would require \$11,000 or more in annual salary to accept a similar job in another city with similar regional environmental amenities but no metropolitan parks, trails and natural areas like those here. At first blush, this may not sound impressive if one considers that The Intertwine Alliance members, who by nature greatly value parks, trails and natural areas, were included in the survey. However, isolating technology industry responses, which likely did not originate from The Intertwine Alliance email list, produces substantially the same results. 82 percent of respondents valued The Intertwine at \$11,000 or more in annual salary. This is an impressive “second paycheck,” or extra income, that employees receive and employers benefit from. (See graphic 3.3 for a breakdown of technology industry respondent rates).

**Graphic 3.3: A “Second Paycheck” for the Technology Industry**



The graph to the left illustrates the response rates of employees in the technology industry for an Intertwine Alliance-administered survey. The survey asked respondents to describe the increase in annual salary they would require to consider similar employment in another city or region with similar regional environmental assets (i.e. mountains, forests coastline, etc.) but no metropolitan parks,

trails and natural areas (i.e. no Intertwine). Notably, 82 percent of respondents indicated they would require \$11k/yr or more, and the most popular answer was \$41k/yr. Such a question is significant in light of a seminal notion in Pacific Northwest economic literature: In 1989, Ed Whitelaw and Ernest Niemi of ECONorthwest described a “second paycheck” that Oregonians receive.<sup>18</sup> The theory is that Oregon workers receive additional compensation, which can be economically valuated, via the healthy, abundant natural amenities present in the state. This gives Oregon a competitive edge with many other states. However, Niemi and Whitelaw note, this advantage cannot withstand the growth of an economy that simply industrially consumes the environment.

On a larger scale (i.e. outside of two, albeit large, industry sectors) it is important to understand why talent recruitment and retention is so important. The nationwide economy has shifted over the past decades from industrial to what Bloomberg Businessweek first dubbed a “creative economy” – one centered on the generation of ideas like software and design rather than physical goods like steel or timber.<sup>19</sup> Correspondingly, the creative economy requires members of what noted sociologist Richard Florida has since dubbed the “creative class” – scientists, engineers, architects, designers, musicians, artists and others whose function is to generate the ideas and creative content that drive the creative economy.<sup>20</sup>

According to Florida, the regions that attract the most creative class members are more likely to economically flourish. He also notes that creative class members are making their location decisions based on access to high-quality amenities and experiences rather than tax breaks or productive considerations, as previous generations did.

There is an even more critical subset of the creative class, however, the group of 25- to 34-year-olds with four-year college degrees, a group that CEOs for Cities has dubbed the “Young and Restless.”<sup>21</sup> According to them, the Young and Restless are even more highly mobile, though their mobility decreases precipitously as they progress through this age range. They establish roots, families and connections to place that make them want to stay. The trick, then, is attracting creative class members early in their careers.



To explore what attracting these individuals might entail, CEOs for Cities conducted a series of surveys of the Young and Restless in various regions across the U.S., one of them being the Portland metro region.<sup>22</sup> Not surprisingly, what they found was that things like diversity, tolerance, and a place where their ideas would be validated were major themes in what draws them here. But also on the list: things like walkability and mixed uses, as well as quick and easy access to recreation activities. Portland's bike friendliness was noted, as were its "green" initiatives. Bottom line: parks, trails and natural areas are on the list, and quite high up on it.

In the end, the words of Indianapolis Mayor Gregory Ballard in his testimony before Congress were quite succinct in illuminating what drives today's economies. He shifted attention away from the linear thinking that all we need is highways, or for that matter tax breaks and other such corporate incentives, to a focus on the employees that drive businesses and innovation – the creative class. Economists widely believe that a focus on attracting creative class members is what will drive successful economies in the 21<sup>st</sup> century. In the Portland metro region, our parks, trails and natural areas are among the significant assets that draw and keep the creative class. These assets give us our identity, and this identity sells.

## **THE INTERTWINE PROVIDES**

“By way of analogy, decision-makers would not make a decision about financial policy in a country without examining the condition of the economic system, since information on the economy of a single sector such as manufacturing would be insufficient. The same applies to ecological systems or ecosystems. Decisions can be improved by considering the interactions among the parts of the system.” – *From the chapter “Ecosystems and Their Services” in Ecosystems and Human Well-being, the 2003 product of the Millennium Ecosystem Assessment, a program administered by the United Nations Environment Programme*

The 2003 Millennium Ecosystem Assessment was a seminal report from the United Nations Environment Programme.<sup>23</sup> Not only did it define “ecosystem services,” but it laid out an argument for their importance in policies and decision-making. Essentially, ecosystem services are the benefits that people derive from healthy, intact ecosystems. These can include food and clean water, protection from flood and disease, cultural and recreational services, and the maintenance of conditions supporting life on Earth. These services are, in fact, so fundamental that the report claims decision-makers would be remiss not to include them in their thinking.

Indeed, the natural areas of The Intertwine provide tremendous services to the Portland metro region that save it and its residents money, contribute to its economic development and sustainability, and provide its citizens with recreation and enjoyment. A review of literature and interviews conducted with regional businesses leaders and city personnel have revealed benefits ranging from increased property values and lower industry operations costs to niche opportunities for pioneering small businesses and world-class beer. With benefits like these, a portrait emerges of The Intertwine as a great provider of economic advantage and opportunity.

In 2010, ECONorthwest, following valuation guidelines provided by the U.S. Environmental Protection Agency, estimated the value of local services (stormwater treatment, air purification, flood protection, bird watching, amenity value, wildlife habitat and storm protection) for a given acre of The Intertwine. The study found the value per acre to be in the range of \$25,831 to \$294,773 over a 20-year period, depending on the services that acre provides.<sup>24</sup> For non-local

services (carbon sequestration, water quality, commercial and recreational fishing), the study concluded that a given acre of The Intertwine is worth an additional \$5,310 to \$258,980, over a 20-year period. Taken together, this adds to a grand total value of \$31,141-\$553,753 per acre.

To really paint a picture of how The Intertwine and its natural areas provide ecosystem services, however, it will help to focus on a single resource: water. Abundant here in the Portland metro region due to high precipitation and healthy natural areas, clean water offers substantial support for many big industries, such as beer, a Portland region staple.

According to a 2014 report by the organization Oregon Craft Beer, the total economic impact of the beer industry in Oregon is \$2.83 billion, and it employs 29,000 people.<sup>25</sup> There are 56 breweries in Portland alone, the most of any city in the world. Also, according to a 2014 report from the Oregon Employment Department, “Oregon’s brewers are gaining recognition as being experts in the industry.” Moreover, “an emphasis on beer tourism is helping to bolster Oregon’s brewing industry.”<sup>26</sup>

Beer being roughly 90 percent water, much of this economic impact would be impossible without water from a reliably clean source. In this case, the source is the Bull Run Watershed, one of many natural areas on the outskirts of The Intertwine. Christian Ettinger, brewmaster and owner of Portland-based sustainability-conscious Hopworks Urban Brewery, says, “The quality of our water coming out of Bull Run is unparalleled. It’s some of the best water in the world, and we’re very, very lucky to have it.”

Brewers must have salinity, pH values and other parameters set and consistent for certain beer styles. In places like San Diego, where water is “hard” (i.e. rich in mineral deposits), brewers spend a lot of extra time and money filtering it before use and cleaning their equipment between batches. This can add significantly to the cost of operation.

In the Portland metro region, however, this is not the case. As Ettinger describes, “water for breweries, internationally, has been a signature, and our signature is this very soft, unfiltered, slightly chlorinated water that is a great backdrop for any beer style ... The fact that we have Bull Run, the competitive advantage is amazing. So it’s up to us to guard it.”

Burnside Brewery puts it right on the can of its Couch Select Lager: “Brewed with Bull Run water.” (See graphic 4.1.) This is reminiscent of the long-running and highly successful “Tap the Rockies” campaign by the Coors Brewing Company.

Another essential Portland metro region industry is computer chip manufacturing. Computer chips require ultra-pure water for the rinsing process between layering stages. No naturally occurring water, even filtered tap water, is pure enough to perform the complex duties required. So Intel and other such manufacturers have special equipment on hand to purify the water to their specifications. But starting with the reliably clean water that normally comes out of the Tualatin River Watershed gives these manufacturers a great baseline. Not have to filter as much

**Graphic 4.1: Beer and the Bull Run Watershed**



Portland, OR based Burnside Brewing Co. prints “Brewed with Bull Run water” on their Couch Select Lager cans, a testament to the value of the marketing and branding benefits to brewers of The Intertwine and its clean water provisioning.

of the undesirable content out in the beginning saves them considerable dollars. It is a major factor in these companies' location decisions, and they must watch the water quality hawkishly to ensure the quality of their product.

In 2008, the failure of a levee keeping water out of the Wapato Lake basin resulted in the fouling of water in the Tualatin River. Fish kills were a direct environmental effect.<sup>27</sup> But this fouled water also exceeded the filtration capacity of the Joint Water Commission's plant just downstream, which in turn supplies the municipal water to the people and industries of Hillsboro, including Intel. There were reports of foul tastes in the water, and Intel itself became concerned when its operations were disturbed.<sup>28</sup> The Joint Water Commission acted quickly to resolve the situation.

All told, according to an information request put to the Joint Water Commission, the response to the incident cost \$285,113 over a four-month period. This includes necessary additional chemical usage during the filtering processes (\$197,968 alone), upgrades to the filtering equipment, additional water-quality sampling, and repair of the levee. While this incident does not describe exactly how much it is worth to chip manufacturers to simply keep their initial intake water clean (they keep this information tightly guarded for proprietary reasons), it does clearly indicate that it is significant. Clean water, provided by healthy functioning watersheds, keeps companies like Intel doing business here.

While the Bull Run and Tualatin River watersheds are prime examples, even small pockets of natural areas, when used effectively, can provide water filtration services (and many other ecosystem services) with considerable economic value. In this discussion, it's helpful to differentiate between grey and green infrastructure. The U.S. Environmental Protection Agency defines green infrastructure as that which uses "vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water."<sup>29</sup> Grey infrastructure is traditional infrastructure like big cement pipes and drainage ditches.

The City of Portland recently saw firsthand how much money using green infrastructure, and thus preserving and enhancing the natural areas of The Intertwine, can save in its stormwater management. The Tabor to the River project incorporates both grey and grey-green infrastructure to manage the stormwater needs of affected areas within the City of Portland. It involved planting 3,500 trees and repairing or replacing 81,000 feet of sewer pipe, removing invasive plants, improving wildlife habitat, and other activities.

While the project would have cost the city an estimated \$144 million using only grey infrastructure, adding green infrastructure projects reduced the cost to an estimated \$81 million, while multiplying the benefits.<sup>30</sup> This is a direct benefit of a healthy Intertwine.

## Graphic 4.2: Tabor to the River – Economic Benefits and More

The Tabor to the River project, which employs green infrastructure to meet the City of Portland’s stormwater management needs, saved the city \$63 million. An important element of the project entails



engaging and educating affected communities, encouraging them to take part. An evaluation report commissioned by the City of Portland found that participants felt they could have a positive impact in their neighborhood through the Tabor to the River program.<sup>31</sup> A subsequent report found that, on average, participants’ perceptions of the quality of their neighborhoods improved during project implementation.<sup>32</sup> Neighborhood citizens actively participating in the program (left) and a map of the Tabor to the River affected area (below, *courtesy of the City of Portland*).



There is big business to be made of green infrastructure, which is not even counted in ecosystem service estimates. Columbia Green, a Portland native pioneer of green roofing technology, has developed an innovative tray-and-layer system to quickly and efficiently allow the conversion of just about any traditional rooftop to a vegetative green rooftop. The company’s local projects include the Apple Retail Store in downtown Portland, the Multnomah County Central Library and many others.

Offering a description of the size and potential of this industry, a report by Lux Research indicates that by 2017 the global green roof market will be \$7 billion.<sup>33</sup> Meanwhile, Columbia Green is the first green roof company in North America to have received venture capital funding. CEO Vanessa Keitges was selected as one of seven members to be on President Obama’s Export Council<sup>34</sup> (a great example of the Portland metro region attracting and retaining green-minded



**Graphic 4.3: Green Infrastructure Industry a Quiet Giant on the Horizon.**



It is easy to see the economic impacts of the technology industry. But without a bird's eye view, many may not realize the emerging green infrastructure industry quietly covering rooftops with natural areas. Portland city examples include the Apple Store, the Multnomah County Central Library, Sandy High School and the Cascade Building – all projects by a local company on the move, Columbia Green Technologies. (above) The Apple Store in downtown Portland lights up the night (*photo courtesy of Columbia Green Technologies*).

creative class members). Look for a profile of this red hot company on The Intertwine Alliance website.

Finally, it is important to note that even the average citizen receives direct economic development benefits from healthy natural areas, parks and trails. Primarily, such amenities can increase the value of nearby private property. Studies isolating this value rely mainly on a method of economic analysis called hedonic property modeling, which compares similar neighborhoods that differ in only one target characteristic, such as proximity to a lake, to determine the effect of that characteristic on housing prices.

Reed College's Noelwah Netusil is an economic researcher who has employed the hedonic method extensively, studying the property-value effects of various amenities in the Portland metro region. In one study, Netusil found that proximity (within ¼ mile) to large patches of tree canopy in Portland can increase the value of a home

by 0.75 to 2.52 percent.<sup>35</sup> In another, Netusil found that water-quality parameters like low levels of dissolved oxygen, indicating eutrophication, and high bacteria counts were significantly negatively correlated with nearby property values in both the Johnson Creek and Burnt Bridge Creek watersheds. In fact, the effects on property values were so great that the researchers concluded that restoration efforts currently conducted in both watersheds were likely justified.<sup>36</sup> When property values increase, so do property tax revenues. This represents a three-way win: one for the cities, one for the residents, and one for The Intertwine.

Of all the ecosystem services that The Intertwine provides, only water has been discussed here in detail. But already, the economic impact is shown to be huge for high-tech manufacturing, small business pioneers, the beer brewing industry, and even home values. The overall economic value of The Intertwine is truly immense, meriting true and deep consideration in any economic development that might threaten its health, abundance and access. Indeed, with this kind of value, The Intertwine should be seen as a major partner in all economic development.

## **THE TAKEAWAY**

The message of this report is quite simple: The Intertwine plays an outsized supporting role in the Portland metro region economy.

Businesses big and small, footloose or not, throughout a variety of industry sectors, are coming to the region to reap the benefits The Intertwine provides. These benefits include improved

quality of life for business owners and their employees, ease of recruiting new employees, and increased ability to retain them.

Sometimes The Intertwine brings entrepreneurs here before they even know what type of business they will start. Product-testing benefits, marketing benefits, and core ethos values are all attractions. These potent factors have supported the development of multiple significant industry clusters that play a vital role in the Portland metro region economy.

Adding to the story, The Intertwine offers ecosystem services that make public utility provisions cost-efficient; increase property values, thereby increasing revenue for the cities; contribute to public health, ensuring a healthier and more productive work force; offer recreation; and so much more.

The Intertwine is the embodiment of the core values of those living in the Portland metro region. Odds are, for those who live here, they or someone they know are into the outdoors. They think green. And if they did not do so before moving here, they probably do now, because the ethos is infectious and the amenities within and around the region breed it.

So, make The Intertwine this region's mascot; brand the city with it. And know that for every park, trail or natural area preserved or expanded, some small contribution is made toward a green, sustainable, competitive and cutting-edge economy right here at home.

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