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Ecolopolis: Making the Case for a Cascadian Supercity

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Cascadia

Defined as the watersheds of rivers that flow into the Pacific Ocean through North America's temperate rainforest zone, Cascadia, or the Pacific Northwest, extends from northern California to southern Alaska—along a coastline once cloaked in nearly continuous rainforest—and inland as far as the Continental Divide.

Northwest Environment Watch
2004

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DRAFT

Ecolopolis: Making the Case for a Cascadian SuperCity

Imagine boarding a high-speed rail train in downtown Portland. Your coffee steams while you sit down to open your laptop. As the train's speed increases, rivers and snowy volcanic peaks come in and out of view. The city vanishes into a mossy haze of temperate rainforest.

This is Cascadia, the distinct region known to the world as the Pacific Northwest. It encompasses two states (Oregon and Washington), one province (British Columbia) and an international border (USA/Canada). After just over two hours, the train pulls up amidst the sleek high-rise towers of Vancouver. Roundtrip your travel tops 600 miles, but high-speed rail will allow you to return to Portland after your meeting in time for dinner.

Fact or fiction? Currently, air connections make it possible. However, for this tale to become true, the fundamental underpinnings of Cascadia, and the identity of the region as a place, would need to become much stronger, and more carefully articulated From the outside, we are one region. From the inside, it's difficult to get the citizens of the Portland metropolitan region today to embrace the issues (let alone the professional sports teams) of the Seattle and Vancouver, BC metropolitan areas as their own.
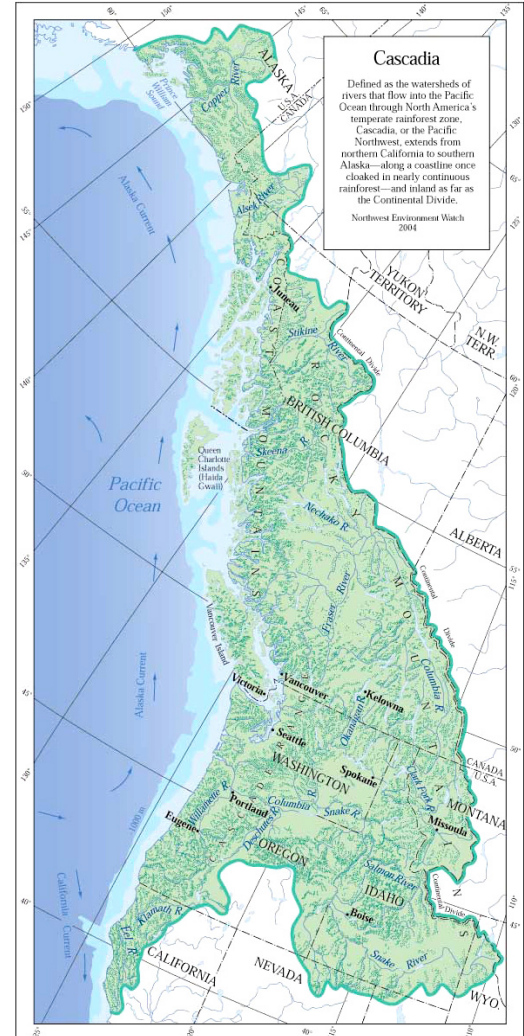

Figure 1: The Cascadian bioregion.

Still, the idea of a Cascadian supercity is an intriguing one. In the spring of 2005, the Regional Planning Methods class in the Toulan School of Urban Studies and Planning at Portland State University took up the challenge of investigating the nature and promise of a binational, tristate regional supercity in the territory referred to as Cascadia. For the purposes of this study, we concentrated on the three major metropolitan areas in the Pacific Northwest, namely Portland, Seattle, and Vancouver, BC.

The question we asked ourselves was what, besides locations in the northern temperate rainforest and the expectations of national interests outside of our respective corners of the Pacific Northwest, did these three metros share? What dynamics linking the three pointed to the promise of working to unite them under a common banner? More specifically, what would justify an investment in high(er) speed rail? If this is about economic competitiveness, what about current models of competitiveness suggested that the territory we should care about was Cascadian in scale?

Armed with a bit of theory, some suggestive statistics, and the encouragement of our colleagues at the Lincoln Institute, Regional Plan Association, University of Pennsylvania, and Georgia Tech, we set out to attempt to answer these questions. We wanted to look beyond mere proximity to actual evidence of interaction, exchange, and mutual interest, for only those dynamics would create a case for investing in Cascadia.

Figure 2: Potential Supercities in the United States identified in "Towards an American Spatial Development Pattern" (The Lincoln Institute of Land Policy and the University of Pennsylvania School of Design, 2004).
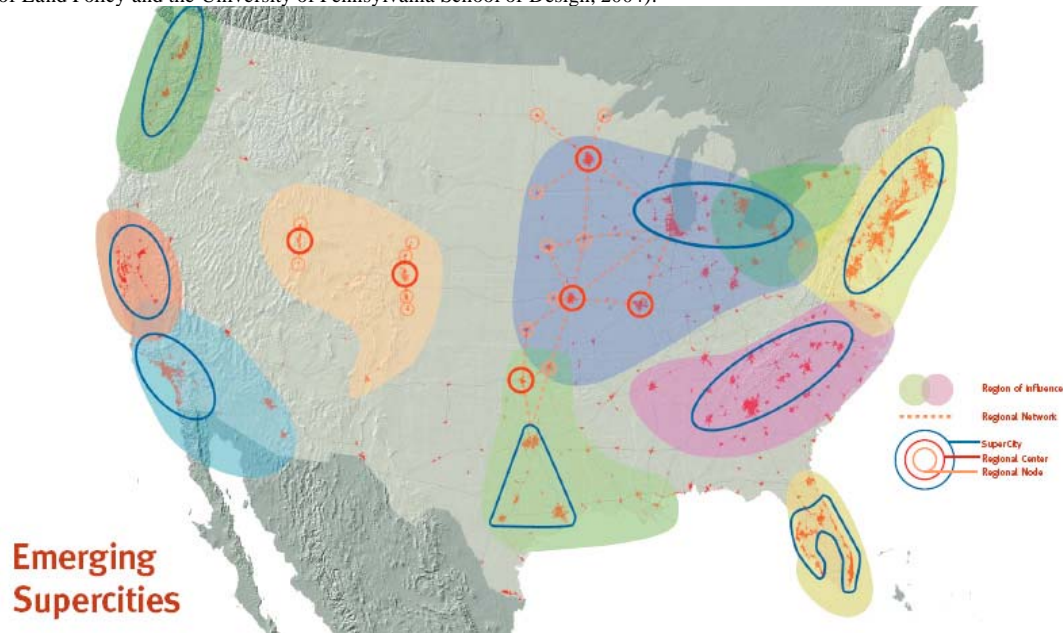
URBAN NETWORKS and MULTICITY MODELS

A variety of concepts have been developed to describe the interactions among cities and their corresponding physical relationships. These models provide a backdrop from which we begin to visualize how linked Cascadian urban system might look and function.

A MEGALOPOLIS near YOU?

In his 1961 book *Megalopolis*, geographer Jean Gottman documented the growth of metropolitan areas in the Northeastern United States. He observed that as the urbanized areas of Boston, New York, Philadelphia, Baltimore and Washington DC expanded outward they formed an almost seamless whole. The region was characterized by a system of intersecting urban and suburban areas. Gottman called this pattern "Megalopolis." He saw it as a "new order in the organization of inhabited space" (Gottman 9). For the first time
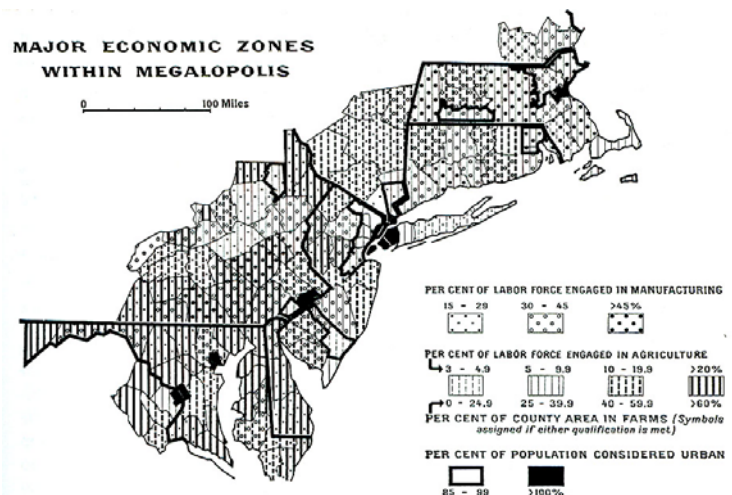

Figure 3: Gottman's Megalopolis (1961).

in history, a region's distinguishing feature had become its urban-ness.

Does the East Coast's Megalopolis provide a model for potential Cascadian urban development and interaction? The heavily urbanized nature of Megalopolis immediately seems to clash with Cascadian sensibilities. After all, access to the outdoors, open space and preservation of agricultural land provide many residents here with a strong sense of place and pride. People are attracted to the quality of life in our cities. Their proximity to pristine mountains, rivers and forests is a top draw for skilled workers and young people. Cascadia's competitive advantage lies in the fact that it is NOT a continuously urbanized region yet still provides cosmopolitan amenities like arts and culture, fine food, shopping and sports.
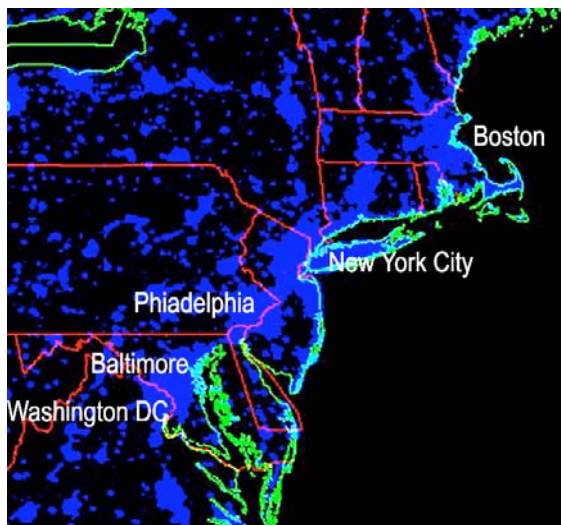

Figure 4: Satellite photo showing artificial light from urban areas in blue. The solid blue Megalopolitan blob slithers about 400 miles and contains 44 million people.

Figure 5: Satellite photo of Cascadia showing light from urban areas. The heavily lit blue cities are broken up by stretches of black unurbanized land.

The plans of city, state and provincial governments in the Northwest are proof Cascadians strive to curb urban sprawl. Washington, Oregon and British Columbia have all made cutting edge commitments to growth management. Oregon and Washington have established urban growth boundaries around cities and towns. Portland and Vancouver are celebrated as two of North America's most successful examples of Smart Growth. The human scale of relationships in the built environment is celebrated here.

More than anything Megalopolis may provide a picture of what we don't want to be. It signals a warning of what we could become. Megalopolis helps distinguish the Pacific Northwest as a desirable alternative and uniquely livable region.   Cascadians have shown themselves committed to accommodating future development without compromising livability.

GLOBAL CITIES

Technological advances and free trade agreements have restructured the world's economy over the past 30 years. Financial capital pours through the world with ease via high-tech telecommunications networks. The deindustrialization of American cities and the industrialization of developing countries have created an international division of labor. Cities around the globe assume roles as producers, consumers and managers in the global economy. The top command posts of this new economic landscape have been dubbed "Global Cities" (Sassen).

Figure 6: "A New Landscape of Globalization" by Jared Lang. The distance between London and New York has been altered to represent the strength of the cities' financial, travel and business relations. The surrounding constellation of world cities is shown in similar spatial relationships. Cities in the global network are defined by "dense patterns of interaction rather than by political-administrative boundaries" (Friedmann, 1995).

New York, London, Paris, Tokyo, and Los Angeles form the primary global cities (Friedmann).
Criteria used to determine a city's ascendancy in the global network include population size, presence of multi-national headquarters, and strength of financial and professional service industries. Global cities exhibit a high degree of interaction with other urban centers around the globe. The number of international flights, flows of immigrants or destinations of FedEx packages can also indicate the strength of a city's global links.
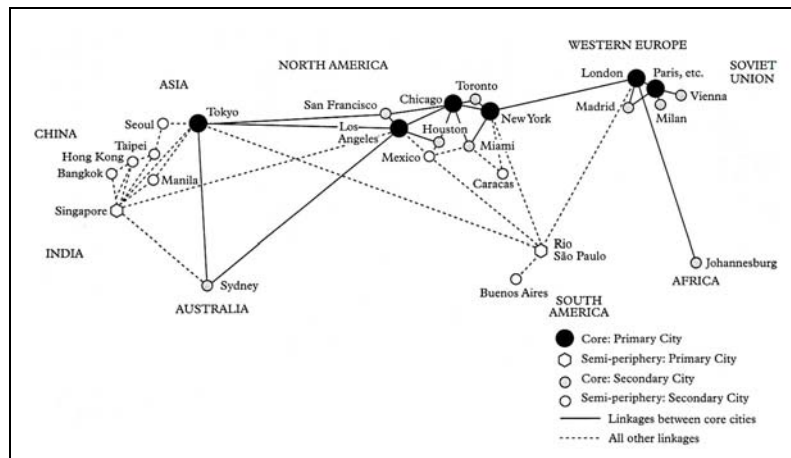
Figure 7: Map of Global City hierarchy and interrelationships (Friedmann, 1995).

While this concept is useful for global financial capitals like New York and London and even other major global nodes like Los Angeles, it does not adequately express the relations or stature of cities within Cascadia. Standing alone, each Cascadian city has a global connectivity incomparable to a Paris or Tokyo.

As port cities on the western edge of North America, Vancouver, Seattle and Portland do serve as gateways to international markets. Vancouver's bustling Chinatown and frequent direct flights to Asian cities illustrate its global connections. However, the recent loss of two

transpacific container ship lines by the Port of Portland signals the challenges Cascadia faces in attaining a truly global stature.

If we compare populations of the primary global cities with their Cascadian counterparts, the contrasts are severe (**Table 1**). The combined population of Portland, Vancouver and Seattle does not even equal half the population of the list's smallest global city – Los Angeles. While the metropolitan regions of Cascadia each encompass about 1-2 million residents, inserting an additional 3-10 million people to each metropolis would exert a disastrous strain on our landscape. Ask your typical Cascadian if they would like Portland to be as dense as Tokyo or Vancouver to sprawl the size of Los Angeles and they will most likely cringe. It is the human scale of our cities that has earned them spots on many "most livable city" lists.

Table 1: Populations of Global Cities and Cascadian Cities (by city limit)

Global City	Population		Cascadian City	Population
Los Angeles	3,694,820		Portland	529,121
London	7,172,091			
New York City	8,008,278		Seattle	563,374
Paris	9,638,000			
Tokyo	12,138,000		Vancouver	545,674
(Avg size)	**8,130,238**		**(Total)**	**1,638,169**

Sources: US Census 2000, UK Census 2001, UN Population Division 2000, Japan Ministry of Internal Affairs and Communications 2001.

Cascadia's global sphere of influence cannot be compared with the world's top global cities. What can learn from them is the potential of economic benefit to be gained by greater connectivity between Portland, Seattle and Vancouver with each other and cities around the world. A strategy to foster these kinds of connections could make the region a more competitive global unit.

WELCOME to ECOLOPOLIS

What kind of Pacific Northwest do we want to live in? Can celebrating our uniqueness be our strategy to boost our competitiveness? How can we prosper, accommodate a growing population and remain livable? The answer lies in the commitment of decision makers, developers and citizens to develop the region into an "Ecolopolis" instead of a Megalopolis.

ECOLOPOLIS:
➔ The unique Pacific Northwestern bioregion known as "Cascadia"
➔ A global and regional economic unit
➔ A networked metropolitan system (Vancouver, Seattle and Portland) linked by high-speed rail

Over 300 years ago a global economy began in the Pacific Northwest. English explorers traded goods with the region's native populations for furs. Explorers then sailed on to Asia where they traded Cascadian pelts for Eastern luxury goods. These were then transported to urban markets in cities like Boston and London. Urban pioneers today can facilitate a successful international economy for the region. High-speed rail could be the infrastructure necessary to set the path of development for an Ecolopolis. We can protect the Pacific Northwest's legacy of livability so that it may be passed on to our children and preserved for future generations.

THIS DOCUMENT

This document is organized into three main sections. In section one we consider Cascadia from an economic point of view using the cluster model developed by Michael Porter and others. In section two we look at the Cascadia through the lens afforded by high speed rail. In the third section we revisit the questions that launched this study, and discuss the next steps. For those you new to Cascadia, we append some basic background information on the metrics and "brand" identity of Cascadia.

This document originated in the discussions and combined work of USP 549: Regional Planning Methods, offered in the spring of 2005 in the Toulan School of Urban Studies and Planning at Portland State University. It is the first product of what we expect to be an ongoing project focused on the existence of and prospects for Cascadia. Many things remain to be investigated. Nonetheless, this is a start, and over time and further refinement, the full story of this remarkable region will emerge.

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Ecolopolis I: The Clusters of Cascadia

Regions typically are defined by shared characteristics, such as physical, environmental, social, cultural or historic traits. The recent emergence of regions as the new competitive unit in the global economy has motivated thought abut how networks of cities may share economic and market characteristics to form a supercity based on global competitive advantage.

This chapter examines the potential for a Cascadia ecolopolis or supercity based on creating and sustaining a distinctive economic base. We use the cluster model developed by Michael Porter to analyze three industry sectors in Cascadia for their potential as economic clusters able to distinguish the economy and identity the region. First we present an introduction to the cluster concept and model and how industry clusters provide a foundation for competitive advantage. Then we present a preliminary analysis of three industries – green building, creative industries, and high tech – in Cascadia. We conclude with a discussion of the potential for Cascadia as a competitive and identifiable economic region.

INTRODUCTION TO CLUSTERS

According to the Council on Competitiveness (2005), future U.S. competitive advantage will be based on the capacity to foster clusters of innovation in regions across the country. The cluster model is based on the assumption that innovation breeds competitiveness, and innovation is fostered through interactions and relationships which require geographic proximity. The Council on Competitiveness claims that the region is the primary locus of innovative activities because it provides the setting for the interactions necessary for industry innovation and knowledge sharing. Thus, strong clusters provide regional prosperity and create value that allows them to compete across regional boundaries.

What are Clusters?

Clusters are "groups of companies and institutions co-located in a specific geographic region and linked by interdependencies in providing a related group of products and/or services" (Ketels, 2003; Porter, 1996). Industry clusters are defined primarily by their interactions – with each other, customers, and suppliers – that allow them to be innovative and thus "distinguish themselves from firms in the same industry found in other places" (Mayer, 2003, p. 5). As Mayer (2003) points out, a cluster is not simply the existence of several firms in the same industry located in close proximity. Rather, a cluster is based on the ability of the firms to interact within their industry to create and incorporate new knowledge that will give all of the firms in the cluster a competitive advantage. Thus, the key elements of clusters are geographic proximity, interactions or relationships, and innovation. These will be explored further in the context of Cascadia in subsequent sections.

Economic Benefits of Clusters

For a region, clusters provide higher productivity and innovation that are critical factors for long-term regional prosperity. The Harvard cluster mapping project tested the impact of cluster presence on economic performance at the regional level and found that clusters have a strong role in the region's prosperity:

- higher average regional wages are related to higher regional employment in specialized cluster categories;
- higher regional wage growth is associated with increased employment in industry clusters; and

- a relationship exists between the average level of wages in traded clusters and local industries, implying that traded clusters create value which is dispersed into the local economy through local consumption (Ketels, 2003).

Porter's Diamond of Competitive Advantage

Michael Porter's diamond of competitive advantage lays out the framework for analyzing industries for their potential to form a cluster by assessing the business environment in which they operate. The diamond consists of four inter-related elements that create the source of locational competitive advantage, and are described in the diagram below.

Figure 1: Porter's diamond of competitive advantage

Context for Firm Strategy and Rivalry

Factor (Input) Conditions

• A local context that encourages appropriate forms of **investment** and **sustained upgrading**
•Vigorous competition among **locally based rivals**

Demand Conditions

Factor (input) quantity and cost
✓Natural resources
✓Human resources
✓Capital resources
✓Physical infrastructure
✓Administrative infrastructure
✓Information infrastructure
✓Scientific and technological infrastructure

•Factor quality
•Factor specialization

Related and supporting industries

• Presence of capable, locally based **suppliers**
•Presence of competitive **related industries**

• **Sophisticated and demanding** local customer(s)
•Customers' needs that **anticipate** those elsewhere
•Unusual local demand in **specialized segments** that can be served globally

Source: Porter (2000)

PROSPECTS FOR CASCADIA AS AN ECONOMIC REGION

While tools for analyzing industry clusters, such as Mayer's 2003 guide, provide detailed methodologies for examining specific clusters as the basis for economic development strategies, our intent is to present a broader look at Cascadia to assess its viability as an economic region. We selected three industries to represent the potential for regional industry clusters and studied their functions and relationships within the region to determine their viability as clusters.

Using the Cluster Model to Conceptualize Cascadia as a Region

Industry clusters by themselves do not form the basis for regional identity. However, the presence of specialized industry clusters, and the implied relationships and networks within the industry members do have the potential to provide a physical and economic cohesion that would provide regional identity to a place such as Cascadia. In addition to the competitive advantage

conferred on the region by their presence, some clusters, especially those tied to other elements of the region such as the natural resources, or those in which the cluster is unique or an industry leader, also provide an opportunity for regional branding. An example of this for Cascadia might be the opportunity to use green industries as a way to brand Cascadia that builds on the synergy of the cluster, the region's natural resources and its lifestyle reputation.

For Cascadia to be viewed as a region that is competitive in the global economy based on the cluster model, it would need to have several identifiable industry clusters that possess the key elements of clusters: geographic proximity, interactions or relationships, and the innovations that result from shared knowledge. To determine the potential for industry clusters in Cascadia, we need to ask three questions:

1. *Do clusters exist at the regional scale*
2. *Do the industries act like clusters?*
3. *Do the clusters exhibit innovation and competitive advantage?*

We look at green building in the three major cities of Cascadia (Vancouver, Seattle and Portland) using analysis and data of the factor inputs of Porter's model. For the creative industries, we examine film in Vancouver, music in Seattle and the supporting role of Portland to determine if synergy exists to form a cluster of creative industries. Finally, we take a more qualitative approach to the high tech industry, using the story of open source software as an indicator of the potential for high tech to compete as an industry cluster in Cascadia.

GREEN BUILDING: AN EMERGING ECONOMIC CLUSTER WITHIN CASCADIA

Cascadians are known for their concern for the environment. This ethic is reflected in recreation opportunities, patterns of consumption, arts and local policies—the culture. In this respect, Cascadia has become a living laboratory in pursuit of the connections between urban form and sustainability.

Green building addresses sustainability through the design, construction, and operation of buildings to boost environmental, economic, health, and productivity performance over conventional building techniques. Many Cascadian professionals involved in design and urban planning use the goal of sustainability to inform their work. This analysis explores the development of green building as an industry within the three regional centers of Cascadia, Portland, Seattle and Vancouver, and uses qualitative analysis to explore the following research questions:

• Do relationships between firms exist that allow for innovation at the Cascadian level?
• Can Cascadia emerge as a leading innovator of green building within North America?
• Does green building have the potential to become a regional economic cluster?

LEED Statistics in Portland, Seattle and Vancouver

The U.S Green Building Council is the foremost coalition in the United States promoting green building. They have developed a voluntary rating system, also adopted by the Canadian Green Building Council, called LEED (Leadership in Energy and Environmental Design). The LEED system uses an integrated approach to rate buildings on a variety of factors, including water conservation, energy efficiency and use of renewable energy sources, selection of materials, and indoor environmental quality.

LEED certification, and the volume of LEED-certified buildings has become a key indicator for green building. Since the practice of green building is difficult to measure and is embedded within many fields (planning, architecture, civil engineering, real estate development and construction), LEED can be used as a way of tracking local involvement and expertise with green building.

Cascadia has distinguished itself as the most robust region for green building. At the end of 2004, Oregon, Idaho, Washington and British Columbia were home to nearly 195 certified projects, about 14 percent of the total registrations, compared with less than 5 percent of the US/Canadian Population (Yudelson, 2004).

Within Cascadia, the number of LEED projects and accredited professionals demonstrates leadership and the intensity of competition and innovation. Out of all US Cities, Portland ranks second in LEED buildings per capita, with 78 certified and registered buildings (Sustainlane, 2005). Portland has the fifth highest and Seattle has the highest per capita rate of LEED Accredited Professionals among US Cities (Jones, et al, 2004). Seattle ranks fourth among all US Cities in per capita number of LEED certified or registered buildings (Sustainlane, 2005).

British Columbia has the greatest number of LEED accredited professionals among Canadian provinces (LeadingEdge, British Columbia, 2005). The province accounts for 43 percent of all the LEED accredited professionals in Canada (Green Buildings BC, 2004).   British Columbia also has the tenth highest number of LEED certified or registered buildings among North American cities (Cascadia USGBC Chapter, 2005) and the highest number among Canadian provinces, with 102 LEED. Alberta ranked second with 52 (LeadingEdge, 2005).

Economic Cluster Analysis

Factor Inputs

Relative to the rest of North America, Portland, Seattle, and Vancouver collectively have the knowledge capital and social networks that give the region an edge in green building. Using Multnomah County in Portland and King County in Seattle, location quotients for architectural and engineering services are 1.30 and 1.42 respectively, indicating a high concentration of these types of professionals (BLS, 2005). These professions also have well developed professional networks that provide opportunities to share ideas and learn about the competition.

Oregon and Washington have robust and active chapters of the American Planning Association and the American Institute of Architects. Likewise British Columbia has active chapters of the Royal Architectural Institute of Canada and the Planning Institute of British Columbia. The high number of professionals involved in the development of urban form, and the strong and sustained public sector commitment to planning and green building, provides the human and knowledge capital necessary to develop green building as an economic cluster within Cascadia.

In addition to human and knowledge capital, Cascadia's environmental ethic and culture has given rise to media networks that support competition, cooperation and innovation among green builders. On a regional scale, Sustainable Industries Journal Northwest provides news on green building, clean energy, recycled markets and other sustainable industries within the cities of Portland, Seattle and Vancouver, BC. The existence of this journal, dedicated to sustainable

industries on the Cascadian scale, serves as a catalyst for innovation, competition and cooperation.

<u>Cascadia's Context for Firm Strategy and Rivalry</u>

The local context within each city and state or province encourages investment and open competition among locally based rivals. Local policies (including incentives and regulations), competition and collaboration among firms, professional organizations, educational opportunities, and the presence of anchor firms and industry leaders promote the emergence of green building as an economic cluster in Cascadia.

Each city and state or province has made policy commitments to building green above and beyond national requirements. The incentives or regulations provide a local context that encourages investment and sustained innovation in green building techniques.

Cascadia Green Building Chapter

Recognizing the unique regional effect, the Cascadia Green Building Chapter strives to connect firms and jurisdictions within the Cascadia region. It is the only bi-state, bi-country chapter and acts as a regional umbrella for member chapters in Portland, Seattle and Vancouver. They facilitate the emergence of green building as a regional economic cluster by coordinating event calendars for each region and producing a newsletter highlighting innovations and projects within each city, spurring both competition and information sharing. Their board of directors includes industry leaders from throughout Cascadia in academia, private consulting, local government agencies, and utility companies, and they hope to host a regional trade and industry conference to help "glue" the industry together.

<u>Local Demand for Green Building</u>

Reflecting the strong environmental values shared within the region of Cascadia, the region has a sophisticated core of local customers who push for innovation that can then be exported throughout North America. The cities of Portland, Seattle and Vancouver all have sustainability agendas and policies, and have all made commitments to green building for public buildings. The cities of Portland, Seattle and Vancouver all have major universities with sustainability curriculum and local government agencies that facilitate green building.

CREATIVE "INDUSTRIES" IN CASCADIA

The people of Cascadia share a similar cultural heritage. Influenced by the proximity to several mountain ranges and the Pacific Ocean, Cascadians take pride in their natural surroundings and their contributions to the region's history, sense of place and creativity.

Creative industries are defined as "those industries that have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property."[i] Collectively, creative industries include a wide range of artistic professions including designers, painters, performers, musicians, actors, directors, performance artists, dancers and choreographers as well as composers, authors, writers, painters, sculptors, and photographers.[ii] These people identify themselves as artists and have found a way pursue their creative careers. This section examines the presence of creative

clusters in Cascadia by focusing on the major creative forces in Vancouver and Seattle, and how Portland supports the creative cluster regionally.

The Film Industry Cluster: Vancouver, B.C.

Vancouver is well known for its rising film industry. Coined the "Hollywood of the North," BC is a place where business, government, labor and the community work together to support this province's billion-dollar film industry. Over the past 10 years, the industry has experienced tremendous growth with an average annual rate of 21 percent.[iii] In 2001, 197 productions were shot in BC and of these, 84 were foreign productions worth 856.8 million.[iv]. In July, 2002, the Vancouver Economic Development Commission issued a report documenting the existence of film as an emerging economic cluster in the City and the only industry in Vancouver where the total number of small businesses is growing faster than large businesses.

Factor Inputs

Table 1. Examples of key government and private industries supporting BC's burgeoning film industry cluster.

Name	Purpose
Praxis Institute	Screenwriting development center
National Screen Institute	Training school
Cineworks	Production cooperative
Video In	Production cooperative
BC Film Commission	Funding and incentives; regulatory
BC Film	Funding and incentives
Telefilm Canada	Funding and incentives
Vancouver Office of Telefilm	Funding, incentives, regulatory base
Red Sky Entertainment	Major global film distributor
Lions Gate Entertainment	Major global film distributor
Hollywood North Filmnet	Online film news

The businesses listed in Table 1 provide education and training, funding and incentives, and/or promote BC's film industry through distribution, infrastructure, and/or media coverage. The city's infrastructure is well developed with 3 major film companies, 26 studios, 70 post-production facilities and 50 shooting stages. The city has a large labor pool of film laborers and acting talent that has the ability to supply services to 35 projects simultaneously.[v] It appears that BC is capable of retaining their own film and acting talent and has sufficient demand to attract film professionals from other locales. Ninety percent of film crews in Vancouver are BC natives and approximately 30,000 BC residents rely on the film industry for their livelihood.[vi]

Context for Firm Strategy and Rivalry

Vancouver's film industry is the third largest film production center in North America. In 2003, the film industry spent $1.4 billion in production, infrastructure, and related needs.[vii] The industry also boasts a competitive advantage due to the Canadian exchange rate. The exchange rate lures foreign investors to film here or to take advantage of the City's film based infrastructure for their related post-production needs.

Competition within the Vancouver industry appears to tend toward friendly competition where the number of small businesses are growing faster than large businesses and networking opportunities are easy to gain. The independent (or indie) film scene is maintained with a supply

of production work and local work is promoted through underground theaters and the Vancouver Underground Film Festival, which offers locals a shot at the big screen.

Related and Supporting Industries

The film industry economic cluster in Vancouver is supported by a number of complimentary industries that benefit financially from its presence in the region. Hotel, food suppliers, accounting services, vehicle rentals, fuel, and lumber industries provide goods and services to the film industry. Often their services are most needed when foreign film crews work within the area for extended amounts of time. These supporting industries are a multiplier on the film industry's overall economic impact on the region. The fact that a healthy supply of supporting industries exists in the Vancouver area enables the film industry to continue growing at its 21 percent annual growth rate.[viii]

Demand Conditions

With Canada's exchange rate, established film infrastructure, and labor capital in Vancouver, the City enjoys the greatest share of the industry in Canada as evidenced by a location quotient of 2.56.[ix] Foreign interest in Vancouver's film industry continues to strengthen their economy and promote Vancouver's image as a filming destination. In 2003, approximately 88 percent (or 1.2 billion) of all spending on film and television in Vancouver was from foreign sources.[x]

The competitiveness of the region's film industry is also seen through the region's employment growth. Shift-share analysis is used to describe the competitiveness of a region's industries by enabling the dissection of local employment growth into components that can be explained by trends in the national economy, the national industry mix, or local competitiveness factors. In 1991-2001, local competitiveness in the film industry accounted for an increase of approximately 5,000 employees, with an actual change in growth of approximately 7,000 employees (includes national and local competitive growth rates).[xi]

The Music Industry Cluster: Seattle, Washington

The Seattle music industry is an emerging economic cluster in Cascadia. This emerging industry cluster has established itself with its legendary grunge scene that spurred world famous groups such as Nirvana, Pearl Jam, and Soundgarden and continues to evolve as new bands start up and existing bands change musicians or their genre.

Seattle residents enjoy a wide assortment of jazz, rock, and alternative music clubs, with over 80 clubs playing music most any day of the week.[xii] The City of Seattle released an economic impact study of the City's music scene in 2004 and established the industry as an important emerging industry cluster and economic stronghold in the City.[xiii] The report showed that in 2002, revenues totaled $648.91 million and increased to $1,262.16 when including supporting industries.

According to data from the 2000 U.S. Census, Seattle's art industry is more concentrated in Seattle than across the nation with a location quotient of 1.33 (includes artists, authors and musicians). The report also documented that approximately 8,700 jobs actively contribute to the production of music in over 2,600 businesses across Seattle. Seattle's emerging music scene stimulates local employment and is a major contributor to Seattle's local economy. Figure 2 shows a conceptual diagram of Seattle's music scene. Although it is a complex diagram, it

provides a framework for the following dissection of the City's music scene into the factors describing Porter's "Diamond of Competitive Advantage."
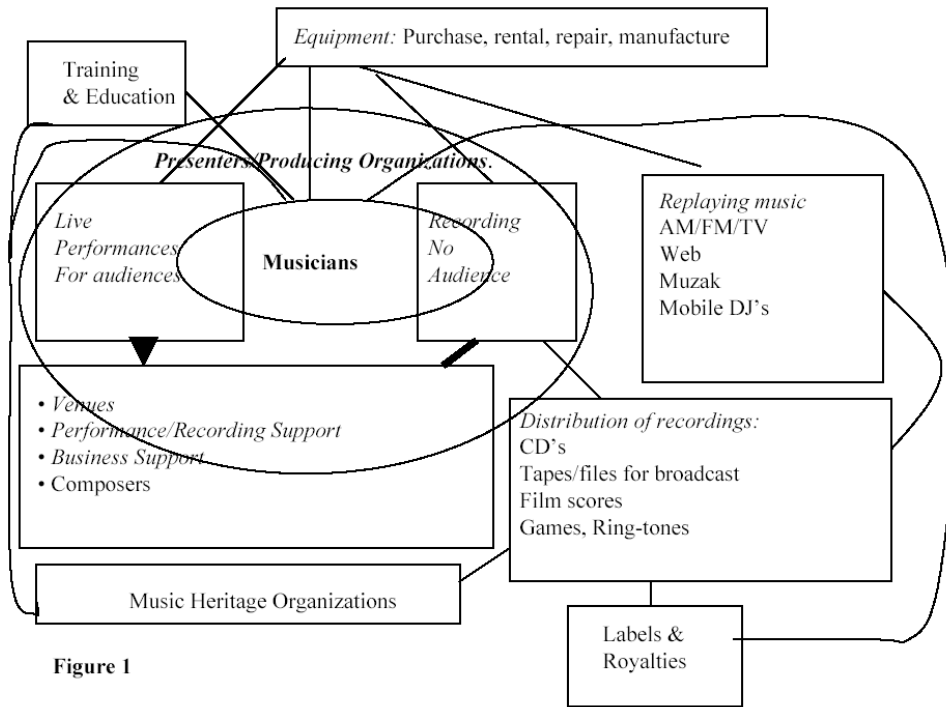

Figure 1

Factor Inputs

Seattle's music industry cluster is comprised of both for-profit and non-profit organizations. For-profit organizations dominate the business activity in the industry, while non-profit organizations also employ many people and contribute to the local cultural scene. Key industries in Seattle's music scene are included in Table 2.

Table 2. Examples of key government and private industries supporting Seattle's emerging music industry cluster.

Name	Purpose
Office of Economic Development	City government office
Mayor's Office of Music	City government office promoting the music scene.
Victory Studios	Largest recording studio north of LA
Media, Inc.	Industry magazine
Triad Studio	Recording studio with platinum album credits
Gold Carpet Entertainment	Booking agency
Academy of Music Northwest	Pre-college nonprofit music school
Seattle Music Web	Website connecting area artists
Seattle Symphony	Live classical music
Northwest Chamber Orchestra	Live classical music
Avernus Productions	Largest rehearsal studio in Seattle
Glenn Sound	Recording studio and postproduction facility for film and television.

Proprietors and small businesses are most common in Seattle's music market. At the core of the music scene are musicians and composers who play in a number of venues across the City ranging from the main arena to small clubs, bars, churches, and music halls found in

neighborhoods throughout the City. Music recording studios, audio/video equipment as well as musical instrument manufacturers and retailers supply technology for this burgeoning industry. The industry also has a strong educational component ranging from professional music schools to programs at the K-12 and higher education institutions. Factor inputs with some of the highest revenues include clubs, taverns & lounges (129.85 million) and theatrical producers and services (76.60 million).[xiv]

Context for Firm Strategy and Rivalry

Seattle seems to be holding its own in the nation's music industry. Outside artists are choosing to record in Seattle because of the City's established infrastructure and laid-back attitude. Well known artists Dave Matthews, Evanescence, and Trey Anastasio of Phish have all recently recorded CD's in Seattle.

A marked feature of the Seattle music industry is the diverse array of musical styles. From Baroque to jazz and alternative to Latin, a variety of musical styles are supported throughout the City. Seattle's openness enables musicians to explore different musical opportunities, create new and different music, and entice outside artists to experience a music scene that embraces new talents. Because Seattle's music scene dips into so many musical tastes and genres, the City is able to remain competitive despite typical ebbs and flows in changing musical preferences locally and worldwide.

At the street level, rivalry exists between many of the musical acts within and outside of Seattle. Because the music industry is somewhat transient or "footloose," musicians will routinely change bands, start new bands, or break-up existing bands. Similarly, classical musicians will leave a symphony for a symphony in a different city depending on its popularity.

Related and Supporting Industries

Industries that support Seattle's music industry cluster revolve around media such as radio, television, magazines, and newspapers. In addition, multiplier effects occur with the presence of radio, television and electronic retailers as well as computer and software retailers. At the street level, record and CD retailers distribute music to the public. Combined revenues of the music industry's supplemental industries amounted to $613.25 million in 2002.[xv]

Demand Conditions

Demand for Seattle's music scene shows in high attendance rates by residents as well as by people living outside of the City. In addition, foreign investors choose Seattle for their musical scoring, recording, advertising and/or marketing needs. The highest annual music industry revenues are attributed to attendance of musical performances at bars, clubs, and taverns (valued at 129.85 million).[xvi] This demand has facilitated the creation of several well-known summer music festivals in Seattle including Bumbershoot and Northwest Folk Life Festival.

In the Shadows: Portland, Oregon

In the creative industries sector, Portland exists in the shadows of Vancouver, BC and Seattle. A report issued by the University of Minnesota in 2004 utilized U.S. Census data to determine location quotients for creative industries in America's largest cities.[xvii] The report showed that

Portland performs at the national average in performing and visual artists, authors, and musicians with a location quotient of 1.09.

Yet, critics claim that Portland has a lot to offer, just on a smaller and quieter scale. The City hosts a range of services that play a supportive role in Vancouver's film and Seattle's music industry clusters. Portland's services may benefit Seattle and Vancouver by enabling them to pull in creative energy from the City. In this light, Portland acts as an incubator for new talent and a labor pool for Vancouver and Seattle.

CASCADIA'S HIGH TECH CLUSTER

High tech industries offer particularly fertile ground for exploring the extent to which we now have, or could create, a supercity-scale economic cluster in Cascadia. High tech has been called an "indicator species," an industry that is revealing the process of growth in a knowledge-based economy.[1] We observe the radical changes in the scale and structure of high tech industries as they grew rapidly, diversified, crashed, consolidated, and stabilized since 1997. The open source story offers us a case study of how Cascadia is repositioning itself for the new knowledge economy

Scale Matters

High tech businesses are clearly important engines in the regional economies of Portland, Seattle, and Vancouver, and cluster development is appropriately recognized as a priority for each metro area. Portland is the biggest job site in the world for Intel, and has an array of other Silicon Forest businesses. Seattle has Microsoft, Amazon, and their spin-offs. Vancouver is a world-class center of game box and other video software developers. Today, each metro area has global dominance in a distinctive product/service niche.

Yet looking forward, we need to confront the problem of scale. As distinct metropolitan areas committed to compact growth management, Portland, Seattle, and Vancouver are too small, alone, to maintain economic competitiveness with the supercity economies emerging around the globe. Our challenge is to increase the connections between people so that Cascadia can function as a "virtual" supercity – as one economic unit large enough to be recognized in the global economy.

The Open Source Story

About 14 years ago Linus Torvalds, then a computer student at the University of Helsinki, invited people to collaborate in building a free operating system. His premise was value-based: that knowledge should be freely exchanged, and therefore operating system source code should be publicly available to anyone willing to reciprocate in sharing their own modifications. By 2002, the system that resulted, Linux, had a quarter of the global market for server operating systems.[2] Contrary to the conventional economic wisdom, Linux proved both cheaper and more reliable than the alternatives.[3]

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[1] Cortright and Mayer

[2] GEOFF MULGAN

[3] MULGAN

The Open Source Development Lab (ODSL) was formed in 2000 as a public non-profit organization with the mission: "To be the recognized center-of-gravity for the Linux industry; a central body dedicated to accelerating the use of Linux for enterprise computing." It is membership supported, with significant funding from IBM, Intel, and Sun Microsystems, who want to ensure that their products are compatible with ("enterprise-ready" for) the Linux operating system. OSDL acts as both a quality control point and an innovation incubator for the open source community; it is a self-organizing tool for a very fluid, virtually connected community of Linux users and contributors.

OSDL in Cascadia

The decision to locate OSDL in Portland was a business decision that made sense based upon the existing strengths of the open source community in Portland. First, there are a number of internationally recognized experts in open software development, and a large skilled workforce of an estimated 1,500-2000 trained, experienced and currently underemployed Linux engineers, developers, and administrators in the Portland area.[xviii] Second, strong related and supporting firms are operating in the area, and a key few (Intel, IBM, and HP) were willing to invest in the start-up of OSDL.

With Microsoft at arms-length in Seattle, OSDL is also close enough to benefit from that large software community but distant enough to be buffered from Microsoft's potent political and economic influence. [4] Third, Portland's Pacific Rim location puts it roughly equidistant from Europe and Asia. This makes it less difficult to travel in either direction, and to coordinate time zones for web conferencing or phone calls. Fourth, and perhaps most importantly, Portland is a place people want to live.

The Sharing Economy

The success of open source software is now being viewedas one indicator of a fundamental sea change in the world economy. The internet and low cost computers have made mass cooperation across time and space suddenly economical. Yochai Benckler, a Yale Law professor and author of "Sharing Nicely: On Shareable Goods and the Emergence of Sharing as Modality of Economic Production," calls the phenomena of open source, file sharing, and things like online customer reviews, all examples of "commons-based peer production."[xix]

Big business has recognized the power of peer production, and radically different business models are emerging, including:
- Open Innovation – sharing R & D, instead of patenting everything.
- Open Collaboration – systematically working together, across firms and industry sectors
- Open Platforms

Global Economic Grid

"The global economic grid is an international public-private platform currently consisting of about 20 city/states. Open Technologies make the global economic grid possible. Not only are the physical aspects of the grid itself built using Open Source Software running on the hardware associated with Open Source Software, but the business extensions of the Open Technology

development model – Open Innovation and Open Business – are the primary activities on the grid. The only non-open atoms in grid-world are the actual specific deals and offerings being made. Think of the grid as an enormous shared means of production/marketplace – the price of entry is creation of a node.

With Open Source in Portland, Microsoft in Seattle, and key gaming developers in Vancouver, there is an emerging set of key competencies that could unite a cluster at a Cascadian scale. However, it is only, at best, emergent at this point in time. Further, all three of these centers are tightly linked to coproduction centers located throughout the globe, making the development of allegiance to Cascadia that much more of a challenge.

CLUSTERS AND CASCADIA

What do the stories of these three industries tell us about Cascadia? Are there sufficient commonalities and inter-relationships among industry players to breed innovation and create competitive advantage? Our analysis points to a mixed answer.

While none of the industries appears to be a full-fledged established cluster, many of the indicators exist for them to be emerging clusters. Currently, green building seems to be the closest to a cluster. The interaction and innovation fits the definition of Porter's cluster and the industry is already moving toward a regional identity.

The creative industries are a bit more disparate, with different facets, such as film and music, taking the lead in different Cascadian cities. But the strong presence combined with the potential for more interaction among these industries provides a way to create a creative cluster that also has marketing and brand-identity potential, especially for cultural tourism. The story of high tech and open source technology based in Cascadia points the way for not only high-tech, but for other industries to use emerging technology as a way to foster increased interaction across regional and global distance.

What we did find was huge potential for economic clusters in Cascadia, especially when aided by virtual and real infrastructure that could reduce distance to foster interaction among industry players. As discussed below, high-speed rail is viewed as a way to speed transportation and avoid traffic congestion in moving people and freight within the region. But shortcomings, such as the cost and fixed location of the route, do not serve all industries well. On the other hand, the growth of high-tech innovations allow distance and time to be compressed in a way that supports and encourages networking and interaction, not just on a regional scale, but on the global level as well.

The final conclusion from this work is that the cluster concept and competitive advantage can provide a genuine basis for defining regional identity. In addition to cultural, ecological and historical commonalities, the regional economic clusters provide a strong rationale for Cascadia as a region.

Ecolopolis II: Cascadia by High(er) Speed Rail

WHY HIGH SPEED RAIL?

High speed rail holds the promise of a fast, efficient, comfortable, and environmentally-friendly form of intercity transportation that is highly competitive with cars and planes for trips from Eugene to Vancouver, BC, and points between. High speed rail (HSR), with trains routinely running in excess of 180 miles per hour, is a reality throughout Europe, Japan and China. Other countries like Korea, Canada, and Mexico are seriously evaluating new lines and systems.

In metropolitan regions nationwide, safety concerns and congestion on highways and in airports require resolution; extra lanes and runways are the usual prescriptions. But highway lanes, runways, and terminals cost billions of dollars, are often nearly impossible to fit in existing urbanized environments, and are routinely opposed by citizen groups. The country's freight system, which moves goods almost entirely via highway and rail, is projected to require massive capacity increases in the coming decades. This means more trucks, moving more slowly, competing with commuters on congested roads or contending with aging and potentially unsafe rail infrastructure. Delayed freight movement could become a serious drag on the economy.
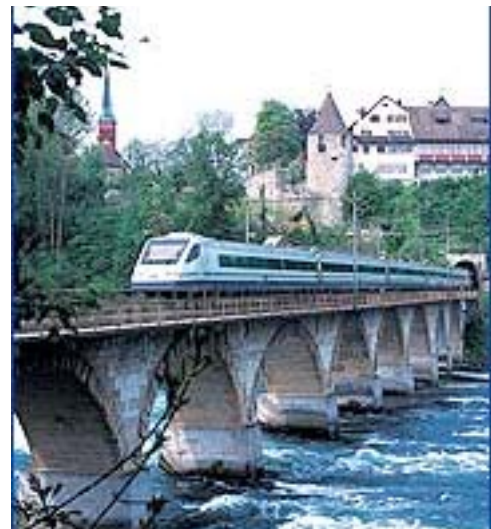
"Once a swift-flowing river of steel and concrete, I-5 has become a sluggish creek that backs up at dozens of choke points," the *Oregonian* reported in May 2005.[xx] The details are no better than the metaphor. In 2020, transportation planners foresee 10 hours of congestion on the Interstate Bridge over the Columbia River. Truckers who used to spend 15 minutes cruising through Portland now spend 45. And traffic is predicted to worsen throughout the Southern Willamette Valley, as it has in Portland.

Of course, the standard solution for road congestion is to build more roads. And that tactic, along with others like dedicated freight lanes and congestion pricing, may have a place in the ultimate solution.

But an important remedy to highway congestion nationwide put forth by the Surface Transportation Policy Project, which went unmentioned in *The Oregonian's* reporting, is HSR. According to a recent "Policy and Practice" briefing by the STPP:

For the state DOTs stuck with the choice of stifling economic growth by not supporting the increase in freight, crowding the roadways with even more truck traffic, or battling public opposition to build new highways, greater public investment in improving the nation's rail system has emerged as a very promising alternative.[xxi]

STPP believes that by initiating a serious rail infrastructure funding campaign and partnering with states, the federal government could ensure the future of freight rail, a functioning highway system, and a liberating new mode of transportation in HSR.

In addition to being a very effective people-mover, high speed rail is energy efficient and environmentally responsible. It takes far less energy to move 1,000 people from Portland to Vancouver, B.C. via high speed rail than by car or airplane. A high speed train system can be built to use low or no-carbon emitting energy sources, like natural gas or hydropower, while airplanes are likely to continue to burn tons of jet fuel during each flight. High speed trains are also seen as a potentially important part of the growth management goals pursued by Oregon, Washington, and British Columbia.

TRAVEL DEMAND WITHIN CASCADIA

In order for high-speed rail to be successful in the Cascadian region, there must be a demonstrated demand: first, for travel of any kind between cities within the region over others, and second, for rail travel in particular. Because high-speed rail is inherently tied to major urban centers (where stations would be located), this demand must especially exist between the three major cities in Cascadia: Portland, OR; Seattle, WA; and Vancouver, BC, Canada.

Travel statistics from airports, the Federal Aviation Administration, and the International Mobility & Trade Corridor Project (IMTC) strongly demonstrate that demand for high-speed rail travel exists in the Cascadian Region. Using statistics from these sources, this report will demonstrate that a high percentage of trips (both air and auto) have a start and end point in the region and that many of these trips could be accommodated by high-speed rail.

Seattle-Tacoma International Airport's (Sea-Tac) 2004 Airport Activity Report, which rates the airport as the "16th busiest U.S. commercial service airport"[5], also ranks the city's top domestic and international destinations. An airport that saw a total of 28,804,554[6] passengers and 17,222[7] international departure flights in 2004, Sea-Tac ranked Vancouver, BC, Canada as its number one international destination for that year (see figure 1[8]). With 7,258 (42.1%)[9] departures from Sea-Tac, Vancouver far outranks all other commercial international destinations. The second-ranked city, Victoria, BC, Canada (which is still in BC, near Cascadia), commands only 14.1% (2,420)[10] of all international flights from Seattle.

Seattle also shares a strong, regional link to Portland, OR through air travel. Out of 156,988[11] total domestic departures, the Airport Activity Report cites Portland as its second-ranked domestic destination, with 13,501 (or 8.6%)[12] of all domestic commercial departures from Sea-Tac airport in 2004. In addition, all of the top four ranked domestic destinations were located in Washington, Oregon, or California (1. Bay Area, CA; 3. Los Angeles, CA and 4. Spokane, WA)

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[5] Port of Seattle web page, 2004 Statistics, http://www.portseattle.org/seatac/statistics/, accessed 6/6/2005
[6] Port of Seattle web page, 2004 Statistics, 2004 Airport Activity Report, http://www.portseattle.org/seatac/statistics/, accessed 6/6/2005
[7] Ibid
[8] Ibid
[9] Ibid
[10] Ibid
[11] Ibid
[12] Ibid

[13], further reinforcing that there is demand for travel, both between the three major cities within the Cascadian region as well as within the larger Pacific region.

Similar to the data on air travel, recent auto and truck border-crossing data indicates that people travel between municipalities in the Cascadian Region more than they travel from Cascadia to other places. In 2000, The International Mobility & Trade Corridor Project (IMTC) published its "Cross-Border Trade and Travel Study Final Report" which summarizes most of the travel data gathered at the four border crossings in Cascadia: Peace Arch; Pacific; Highway 13; and Sumas/Huntington.

The data show that an average of 27% of northbound border crossing trips originate in the Puget Sound area (near Seattle) and an average of 64.5% of southbound trips originate in the West Lower Mainland area of Canada (near Vancouver)[14]. In addition, "Recreation trips to Canada by US residents have Vancouver as the largest single destination both summer and fall (roughly one-third of trips)"[15] and roughly 14% of recreation trips (the third highest destination on the list) from Canada are destined for Seattle[16].

These trends indicate that there is a need for alternative modes of transportation for regional trips, especially for the most frequent trips that people make. If we do not provide alternative methods of transportation, we will soon reach the limits of our capacity, both on the ground and in the air.

THE POTENTIAL OF HIGH SPEED RAIL

For most public discussions of high speed rail, the term applies to trains that can travel at least 150 mph. Trains that travel at this speed are currently in operation in seventeen countries worldwide. The fastest train in regular operation in the world runs 18 miles from from downtown Shanghai to the Pudong International Airport at an average speed of 267 mph.

There are two primary high speed rail technologies: traditional steel wheel on steel rail and magnetic levitation, or maglev. Maglev makes use of magnets in rails and on the rolling stock itself to allow the trains to "levitate" above the tracks. This creates a virtually frictionless ride and makes greater speed and energy efficiency possible. High speed trains in France, Germany, Spain, Japan and elsewhere all use steel-on-steel systems. China's Shanghai route is the only operating maglev system in the world.

Of course, one of the first questions that everyone from riders to legislators want to know about HSR is: How fast does it go? The short answer is that HSR could get a passenger from downtown Portland to downtown Seattle in under 1 hour and 45 minutes. Express trains that do not stop at any of the cities in between could be expected to make the trip in less time—perhaps nearing one hour!

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[13] Ibid
[14] IMTC Cross Border Trade and Travel Study Final Report, http://www.wcog.org/DesktopDefault.aspx?tabid=68, pp 11-23, accessed 6/6/05
[15] Ibid, p 69
[16] Ibid, p 70, 76

Currently, flight time between Seattle and Vancouver, BC is approximately 55 minutes[17]. Adding the time it takes to check in, go through heightened US airport security, and pass through US/Canadian customs, total air-travel time between Seattle and Vancouver, BC is actually much longer than 55 minutes.

WSDOT forecast an additional 59 million trips within the Cascadian corridor between by 2020—a four-fold increase over 1992 travel volumes, and 87% of the increase that California is planning for.[xxii] One would expect auto and air infrastructure figures for Cascadia to be similarly high.

The 1992 High Speed Ground Transportation Study illustrates approximate travel times based on a top speed of 185 mph (see figure 1). These figures are accompanied by uncongested highway travel times to further exhibit impacts through comparative travel times (see figure 2).

Figure 1 - HSR times based on a maximum speed of 185 mph[18]

STATION	POST	MILE	RUN TIME	CUM RUN TIME	EXPRESS
Union Station Portland	0	0	0	0	0
Portland Airport Station	8.5	8.5	12.6	12.6	
Clark County Station	24.3	15.8	6.9	19.5	
Thurston County Station	104.3	80	30.1	**49.6**	
Sea-Tac Airport Station	164.8	60.5	29.7	**79.3**	60
King County Station	179.3	14.5	17.3	96.6	
Snohomish County Station	205.8	26.5	12	**108.6**	
Whatcom County Station	268.3	62.5	26.1	134.7	
Whalley, B.C. Station	323.3	55	29.1	163.8	
Vancouver, B.C. Station	336.8	13.5	20.3	184.1	**120**

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[17] Flight booking, Air Canada Website, http://www.aircanada.com/en/home.html, accessed 6/6/2005
[18] High Speed Ground Transportation Study pg. III-23, Table III-7

Figure 2 - Preliminary Uncongested Highway Travel Time - speed summary[19]

STATION	POST	MILE	RUN TIME	CUM RUN TIME
Union Station Portland	0	0	0	0
Portland Airport Station	8.5	8.5	9.3	9.3
Clark County Station	25	16.5	18	27.3
Thurston County Station	116	91	84	**111.3**
Sea-Tac Airport Station	196	80	87.3	**198.5**
King County Station	213	17	18.5	217.1
Snohomish County Station	251	38	41.5	**258.5**
Whatcom County Station	326	75	69.2	327.8
Whalley, B.C. Station	344.5	18.5	20.2	348
Vancouver, B.C. Station	358	13.5	18	366

With the above approximations of travel time reductions, high speed rail would effectively shrink the distance between Portland, Seattle, and Vancouver, thus integrating and creating distinct markets while further unifying the economic region. Such dramatic changes will result in a virtual reconfiguration of the region's spatial dynamics. Travel time and access are key determinants to residential, commercial, and retail markets. For instance, the 57 minute reduction in travel time from Thurston County to Sea-Tac will increase the area's attractiveness for development as HSR expands the market to those now within traveling distance.

Another benefit of HSR is that, by absorbing a sizable piece of overall travel demand, it allows states to forego expensive infrastructure investments for other modes. Work by the California High Speed Rail Authority show just how significant public investments in highways and airport facilities can be. The authority projects that a new rail system would need to handle 68 million additional trips within the state's major population centers by 2020. That system would cost between $33 and 37 billion. But the rail authority estimates it would cost at least $82 billion—at least twice as much—to build the necessary auto and network. The project list includes: nearly 3,000 additional lane-miles on intercity highways statewide, including at least two and sometimes four additional highway lanes along some highways; nearly 60 new airport gates and 5 new runways statewide.[xxiii]

HIGH SPEED RAIL AND LAND USE IMPLICATIONS

The introduction of High Speed Rail to Cascadia will significantly reshape the region both physically and dynamically. High speed rail has been proven as creating significant implications and even inducing particular trends and markets. Understanding these changes, impacts, and opportunities is essential should we look to exploit HSR for the benefits and strengths it can bring to a region. Business, economic development, transportation dynamics, land use, growth management, population growth, urban design, and sustainability are all components that may be influenced by HSR.

The Cascadia HSR corridor looks to be approximately 335 miles in length as it makes its way south from Vancouver B.C. to Portland Oregon. Eugene Oregon may eventually be considered in

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[19] High Speed Ground Transportation Study pg. III-15, Table III-9

this route due to a desire to further serve the University of Oregon. Current proposals have the corridor running from Union Station in Portland north to Seattle's Sea-Tac airport. The final destination of the corridor will be Vancouver B.C., where a station is expected to be located in the downtown area. All in all, the assumed stations listed in a south-north order have been listed as being [20]

- Portland CBD
- Clark County
- Sea-Tac Airport
- Snohomish County
- Whalley, B.C

- PDX Airport
- Thurston County
- King County
- Whatcom County
- Vancouver, B.C. CBD.

These station locations are those chosen in a 1992 High Speed Rail study for the region. Many of these smaller destinations such as Clark County, Thurston County, or Snohomish County are stops that are fundamentally different in environmental context and population to planned stops in Vancouver, Portland or Seattle. Thurston County's City of Lacey, for example, has a population of 33,000 which provides a drastically different transit dynamic and role than say Vancouver or Seattle. Moreover, such differences have been pointed out as central inputs to gauging the effects HSR stations have on immediate vicinities and surrounding areas.

Much like TOD (transit oriented development) strategy, but in a grander scheme, HSR stations offer surrounding areas opportunities to concentrate development based on new interconnectivity. The most dramatic opportunities are those applicable to 6 of the 10 proposed stations that are not currently situated in highly urbanized locations (see proposed corridor section). A study on proposed HSR in California warrants this notion stating, "The stations in the relatively undeveloped areas will experience the highest percentage impact from the arrival of HSR. The low amount of expected development at those locations without HSR contributes to the high percentage impact."[21] Much of this influx of development may be attributable to the low costs of labor and land that come with the existing role and nature of small cities.

JURISDICTIONAL COOPERATION FOR HSR

In 1996 Oregon House Bill 3479 created an independent, separate regional authority called the Columbia River Light Rail Transit Compact [7]. The bill directed Portland's and Vancouver's transit agencies, Tri-Met and C-Tran, respectively, to design, engineer, finance, and construct the North-South light rail transit line. The agencies also would have to facilitate the operation and maintenance of the North-South light rail as well as other bus transit facilities that serve bi-state trips. This Institutional Arrangement is primarily concerned with organizational structure, policymaking, and financing mechanisms. It also provides the necessary oversight involved in monitoring the compliance with institutional rules established by the organization or other jurisdictions.

This form of governance relates to local and regional relationship as well as to the state's role in the decision making process. Almost all of the HSR corridor development will be in WA. Since this is the case, WA DOT should create an Intra Regional Transit Authority based on the counties surrounding the I-5 corridor. There should be basic cooperation among the county

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[20] High Speed Ground Transportation Study pg. III-16
[21] *Economic Impact and Benefit/Cost of High-Speed Rail for California, P.14*

planning officials and other constituents ensuring compliance with local and county comprehensive and transportation plans. Each city and county affected by the HSR running through their area should establish communication procedures.

FULL SPEED AHEAD—MAKING HSR A REALITY

Clearly, the concept of HSR in Cascadia holds great promise. But how do we move it from concept to reality? On one hand, conditions favor rail more now than any time since before World War II. Our highways and airports are filled to capacity, and rail is cost-competitive compared to expansions of the current system.

HSR offers market tendencies that support smart growth/new urbanism land use and growth management strategies. In taking these factors into consideration, HSR in essence provides fundamental infrastructure necessary to creating a sustainable interconnected regional economy that can compete in an ever-increasing global context. Locally, HSR offers a plethora of opportunities to enrich and bolster an urban fabric and system.

But while the country's state highway and transportation officials advocate for a federal rail plan, it is not clear that the Bush administration puts much stock in the future of rail. The administration has certainly been no friend to mass transit or Amtrak. It attempted to ensure that funding was reduced for intracity rail projects in T-21,[xxiv] and has basically called for the dissolution of Amtrak through the Passenger Rail Investment Reform Act.[xxv] However, the Bush administration has shown an interest in privatization.

And it may be the right time for the private sector to get back into trains. Since the mid-century demise of privately-operated passenger rail, trains have appeared to be a sure loser for business. But passengers are returning[xxvi] in sizable numbers and state agencies are increasingly showing an interest in helping to finance infrastructure. One business model with considerable promise foresees the public sector as track-layer and private train operators paying a fee to manage the service.

Despite financing difficulties, the concept of HSR is an idea worth pursuing for the region of Cascadia. The benefits of HSR to the region are clear; HSR is an effective, ecologically-friendly way to transport people in keeping with the values of Cascadians, and can provide connections between cities to bolster economic development and open new markets. High speed rail has the potential to transform the three cities of Portland, Seattle and Vancouver, BC into a cohesive region, Cascadia, an Ecolopolis.

Ecolopolis III: Cascadia Or Not?

Is Cascadia a supercity? Today, local concerns trump Cascadian points of view. Residents of Portland don't care much about traffic congestion in Seattle, or the opportunities afforded by the dynamic relationships between Vancouver, BC, and Asia. Yet, from the outside, looking in, Cascadia is perceived to be a place apart by the rest of the nations of Canada and the United States, and to some degree the world. This "upper left edge" of the continent is believed to be clean, green, home to tall trees and leaping fish, snow capped mountains and resolute westerners, but with a distinctive ecotopian patina.

Further, we believe that there may be a foundation upon which a supercity in Cascadia could emerge and thrive. We share distinctive competencies in green building, resource restoration and conservation, and sustainable development, all of which builds on our "brand" an will be in increasing demand as the world's population moves to cities. We also have a growing and globally significant knowledge base in software, with open source in Portland, Microsoft in Seattle, and gaming and multimedia in Vancouver. These are creative hubs for people sharing both competencies and outlooks, and in environments that attract and meet the needs of key individuals.

In addition, there is already a significant amount of travel and migration between the Cascadia metros that suggest the basis for supporting investments in high(er) speed rail in the I-5 corridor. The distances are right for a range of technologies that work with both the nature of the travel and, again, the brand image of this region.
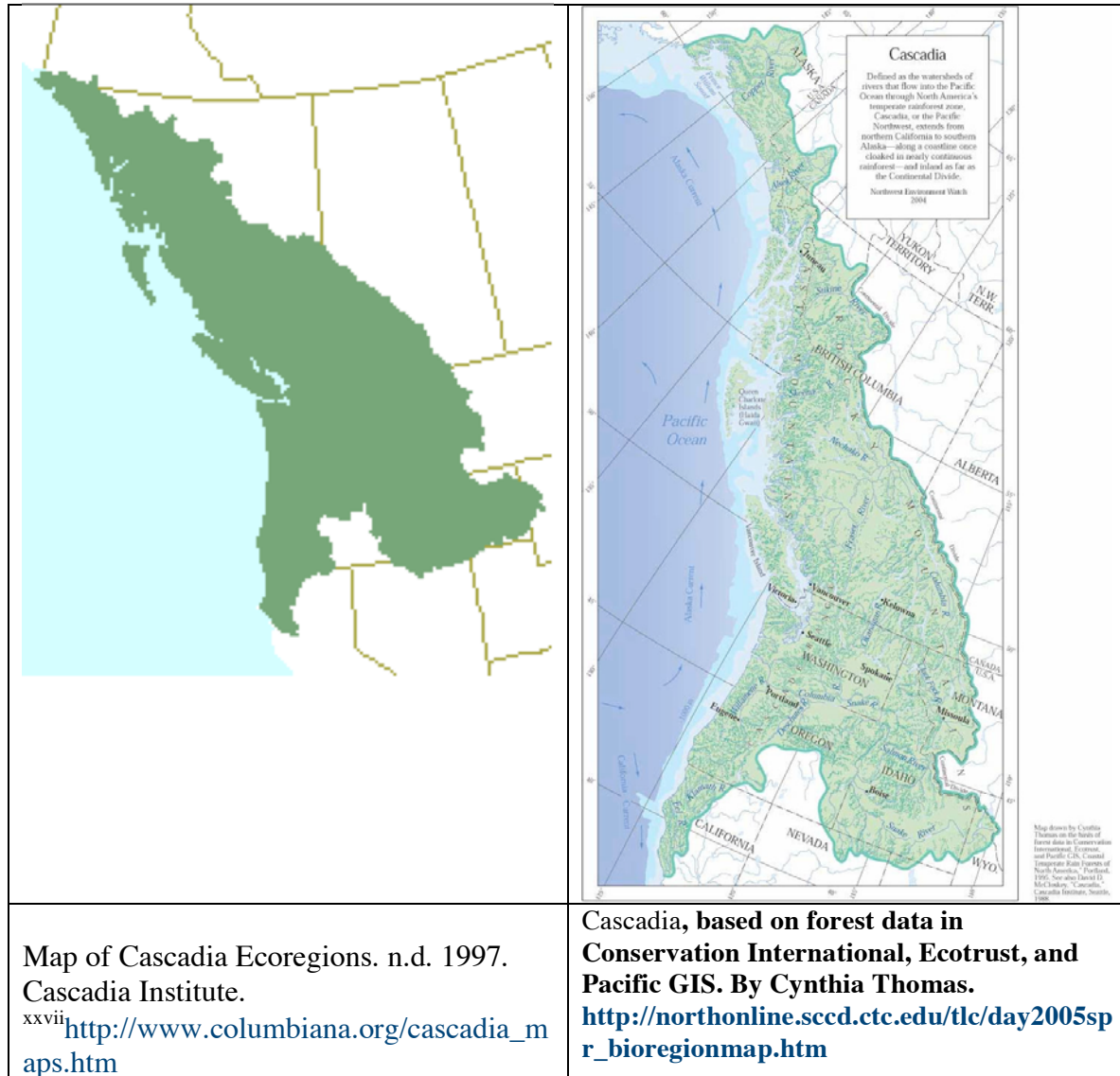
However, for this vision of a united Cascadia to emerge, public and private efforts at the local, metropolitan, state, and national scales need to be aligned. This is clearly a daunting task and it swims upstream against the history of sustained, multistate/binational regional efforts in North America. Nonetheless, in the face of a global competition for talent, and strategic efforts to organize Europe, China, and other key competitors into supercity-like aggolomerations, this may be the time to carefully craft a strategy for building Cascadia from the inside and from the grassroots.

What we have presented here is highly suggestive but in need of further work. We need to know more about the dynamics within presumed clusters, and about the global prospects for those industries. We need to collect truly comparable data across national and state boundaries upon which strategies and plans can be based. We need better and more compelling information regarding the nature of the challenge posed by regionalization efforts outside of North America. Finally, we need to carefully develop a true Cascadian vision for Cascadia: models developed elsewhere may, in fact, undervalue core values essential to our distinctive identity and concerns.

Ultimately, regions are described both by their role in the larger national and global "whole", and by their own intrinsic qualities. Regional strategies need to understand and address both. We believe that Cascadia will succeed, not because of its ability to copy Megalopolis, or the European Spatial Development Perspective, or the recent developments in China, but because of its ability to learn from those regions and to craft a strategy and approach based keeping Cascadia different and distinct. High speed rail may be our infratructure of the future, but it might not. Imitation may be the highest form of flattery, but uniqueness is the core element for competitive advantage. It is in this ongoing quest for a strategy based on distinctive traits that we look forward to the next steps.

A Cascadia Primer: Dipping your Toe in Our Waters

Cascadia is the northwest coastal region of North America, an area containing 20 of the continent's 40 largest rivers. Cascadia generally includes the area surrounding the Cascade mountain range, extends from northern California north to the Alaskan Panhandle, and includes all or most of Oregon, Washington, and British Columbia.

| Map of Cascadia Ecoregions. n.d. 1997. Cascadia Institute. xxviihttp://www.columbiana.org/cascadia_maps.htm | Cascadia, **based on forest data in Conservation International, Ecotrust, and Pacific GIS. By Cynthia Thomas.** http://northonline.sccd.ctc.edu/tlc/day2005spr_bioregionmap.htm |

The Cascadia Bioregion is comprised of three to four smaller bioregions that are centered on significant water sources and their corresponding geographic terrain. These are the Georgia Basin Bioregion (mainly in British Columbia,) the Puget Sound Bioregion (mainly in Washington,) the Columbia River/Columbiana Bioregion (in south eastern B.C., south & eastern Washington, much of northern Oregon, and the Poulouse Bioregion (in eastern Washington, northeastern Oregon between the western edge of the Rocky Mountains & the Columbia River basin, and central-western Idaho). What follows are two views of Cascadia, the first provided by an inquiry into the Cascadian "brand" and the second by a look at Cascadian demographics.

The Cascadian Brand

What exactly does the world envision when they think of "Cascadia"? Understanding the connection of the Cascadian image between metros can provide insight into ways to enhance this linkage to potentially increase the region's global competitiveness. Additionally, it is important to consider the value of better passenger rail links as a tool to market and develop Cascadia's environmental image.

One method to discover how Cascadia is marketed is by examining guidebooks of the region. Often "Pacific Northwest" is used to describe the Cascadian bioregion only. According to Excellent-Romantic-Vacations.com, in the Pacific Northwest "the air is fresh, the people are interesting, and the outdoors are accessible and perfect.(…) Pacific Northwest travel offers a really good balance of interesting cities to explore and fantastic **outdoor** adventures" (original emphasis, 2004).

The introduction to _The Rough Guide to the Pacific Northwest_ (2004) begins with:

> The stunningly **verdant** terrain of the Pacific Northwest is one of North America's scenic gems, a highly varied realm of striking forests, beaches, and mountains, where the outdoors in all its **rugged** glory is always close at hand. Nestled between the Pacific Ocean and a lengthy line of craggy peaks, the region's **isolated** geography preserved within it abundant flora and fauna- from wolves to whales and wildflowers to Western hemlocks – and a **formidable** landscape of active volcanoes, sheer cliffs, towering waterfalls and **untouched** wilderness. (emphasis added, p.iii.)

Travel Smart: Pacific Northwest (2001) warns, "Here **Nature rules**. Strictures of weather and terrain are part of the trade-off for a vast, masterful blueprint that melds forests, waters, mountains, deserts, volcanoes, and creatures –from eagles to orcas – in a **vital**, **awe-inspiring** way" (emphasis added, p.1). The author also advises that "if you don't bring your hiking boots to hit a trail, or plan to paddle a boat, or explore the backcountry of the region, you're missing the **true personality** of the Northwest" (emphasis added, p.9). These three examples show that the Cascadian environment is marketed as the very essence of the region. Furthermore, the marketed image is one of a landscape almost savage in its beauty, one in which the presence of mankind is so minor as to be easily ignored.

A second method to examining the marketed Cascadian image is through economic development efforts. Brand Oregon is one such example, created to draw tourism and businesses to the state. Initiated by Governor Kulongoski in 2003, the campaign has developed themes that are evident in its manifesto (see Figure 1). These themes include caring and living in harmony with the environment, still believing in "public" goods and services, and handling waste in environmentally-friendly ways (Brand Oregon website).

Travel Oregon, the Oregon tourism organization that is partnered with Brand Oregon, offers an interesting quote on their home page: "We encourage you to approach Oregon the way Oregonians do, with a sense of humor and adventure. For the most authentic Oregon experience, be kind to the environment when you visit." These marketing efforts still retain the idea of a landscape that is adventurous, but coupled with this notion is that the people within this

environment tread lightly upon it if at all. Brand Oregon and Travel Oregon marketing efforts also suggest a potential way to more aggressively market Cascadia as a whole. Why not have Brand Cascadia and Travel Cascadia organizations?

There have been attempts to unite Cascadia behind a joint tourism effort. In 1996 the Cascadia Center sponsored a conference to promote the "Two-Nation Vacation" concept. The excitement generated by the conference did not last long however, primarily because public agencies in British Columbia, Washington, and Oregon had invested heavily in promoting their own regional, state and provincial marketing plan. The notion of adopting a common Two-Nation Vacation marketing plan was felt to undercut these individual efforts. Consequently the initiative was put on hold except for the publication of a photographic tour of Seattle and Vancouver (see Figure 2) and the development of Cultural Cascades, an initiative that coordinates cultural activities in five Cascadia cities by way of the Amtrak Cascades Passenger Train route.

Recently, however, enthusiasm for the Two-Nation Vacation was renewed with the announcement of the 2010 Olympic Winter Games in Vancouver, resulting in discussions of more Two-Nation Vacation maps and guidebooks (above paragraph adapted from the Cascadia Center website). Hopefully, the enthusiasm generated from the 2010 Olympics can more cohesively unite marketing efforts of Cascadia and sustain this enthusiasm after the games conclude.
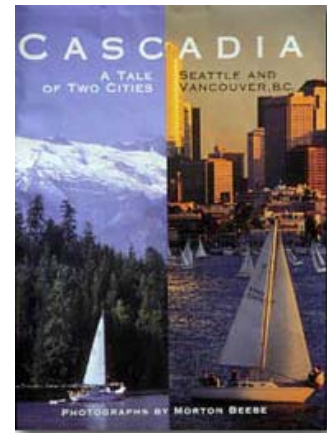
Although it is understood that the point of marketing is to present the best of something in order to create interest, it is important to note what is missing from the advertised image. Certainly the dominance of logging is minimized, as well as the struggle to restore Cascadian salmon populations. The 2005 Cascadia Scorecard issued by Northwest Environment Watch reported that clear-cutting of Cascadian forests which slowed in the 1990's has sped up again in recent years. They state that "tracking clearcuts provides a rough gauge for how extensively humans have altered the forests of the Northwest—and for how effectively northwesterners are safeguarding their distinctive natural heritage." Nonetheless, the Scorecard reports some positive news as well: the number of acres of forests managed in compliance with the demanding standards of the Forest Stewardship Council, the organization that certifies sustainable forestry practices, is increasing.

Regarding salmon, serious depletions in populations are the result of over-harvesting, habitat loss and declining water quality. Programs to promote salmon protection do exist, including the State of the Salmon joint program of Ecotrust and the Wild Salmon Center which seeks to improve available salmon data, create better policy, protect existing salmon habitat, and create additional salmon sanctuaries (State of the Salmon website). These programs are a move in the right direction but the protection of Cascadia's endangered salmon species is still a constant uphill battle.

There are several observed effects of promoting the image of the "awe-inspiring" Cascadian environment. The first is the benefit to regional economies in ways other than tourism generation: "A high quality of life, including… recreational and cultural activities and a healthy environment, attracts 'high quality people', who will want to live, work, and stay in a particular

region, thereby contributing to its continued economic development" (Moll, n.d.). Thus, advertising the environment and recreational activities to job seekers and businesses can support regional economic growth which will make Cascadia more globally competitive.

A second effect of promoting the environmental image is the attraction of other environmentally-minded people to the region. The natural environment of their home landscape is important to current Cascadian residents (Institute for Portland Metropolitan Studies, 2001). Marketing the Cascadian environment, especially through job recruitment, can result in the immigration of people with similar values to the region. The healthy Cascadia environment and environmentally-friendly culture can form a positive feedback loop drawing in more environmentally-friendly people who will likely support policies and programs that maintain and improve the environment.

High-Speed Rail and Environmental Marketing

The development of a high-speed passenger rail (HSR) line between Main Street Cascadia metros has the potential to enhance efforts to market the Cascadian environment by promoting HSR as a transportation mode that is better for the environment than potential alternatives. By advertising this aspect of HSR, the region can further its environmentally-friendly image, thereby attracting more environmentally-friendly people as explained above.

The primary way that HSR is better for the environment is through the proven fact that HSR produces significantly less air pollution that its alternatives. The California High-Speed Train Program Draft Environmental Impact Statement compared automobile, airplane, and electrical power station emissions of an HSR Alternative with both a No Project/No Action Alternative and a Modal Alternative (potential improvements to the highways and airports serving the same intercity travel demand as the HSR Alternative).

The California HSR Project shows that rail transportation can improve air quality because it takes the place of pollution-heavy automobile and airplane trips (see table on next page for emission saving data). It is estimated that the California HSR could annually substitute for 42.7 million city-to-city automobile trips and 25.3 million air travel trips. Carbon dioxide emissions would slightly increase because trains run on electrical power supplied through power plants. If trains were run instead on wind, solar, or hydro power (a viable option for Cascadian HSR), carbon dioxide emissions would also decline. Because enhancing the connection between Cascadian metros through increased automobile and airplane travel will undeniably generate much more pollution, high-speed rail must be developed if Cascadia's healthy air quality is to be maintained.

	Statewide Percentage Change in Emissions				
	CO*	PM10	NO$_x$	TOG	CO$_2$
Modal Alternative compared to No Project	n/a	0.76%	0.67%	0.72%	0.00%
HSR Alternative compared to No Project	-0.92%	-0.78%	-1.59%	-0.64%	1.43%

Comparison of alternatives' potential impacts on air quality statewide.
(*Note: CO=carbon monoxide, PM10=particulate matter 10 microns in diameter, NO$_x$= nitrogen oxides, TOG=total organic gases, CO$_2$=carbon dioxide. Source: California High-Speed Train Program Draft EIR/EIS, 2004.)

Prospects

A "Brand Cascadia" or "Travel Cascadia" organization marketing a single image of the region has the potential to create a powerful tool that burns "Cascadia" into the minds of a great many people, like a catchy radio jingle. Having a powerful, uniting image of the region alone could propel Cascadia to unite in other ways as well; in other words, a strong Cascadian brand could single-handedly create a Supercity where none currently exists.

Unlike a brand image, high-speed rail cannot be the catalyst behind a Supercity by itself. While the enhanced connections within Cascadia would be greatly improved by HSR, just improving connections is not enough to show three large cities the benefits of coming together. HSR also has the potential to promote the Cascadian icon as a paradise inhabited by residents highly connected to nature. Increasing the amount of interaction among Cascadian metros through rail travel while maintaining air quality will help to further the emergence of a regional Supercity. This greater interaction can only enhance the competitiveness of Cascadia as a whole.

Demographics-at-a-Glance[xxviii]

Portland, OR
Population:1,918,009 (2000)
[Population includes Salem]
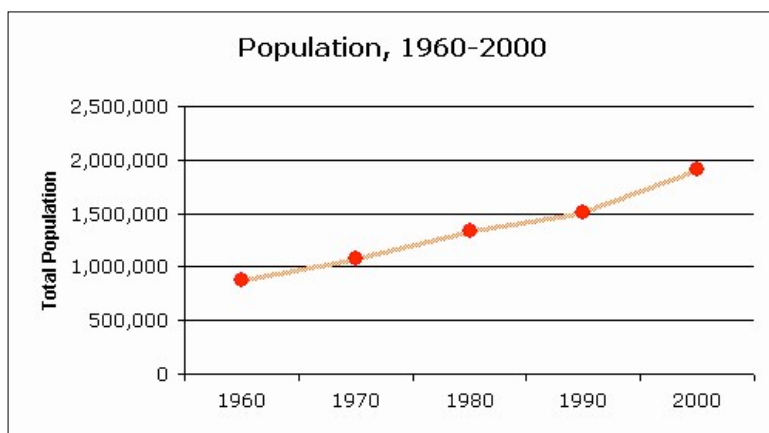
Portland has been growing steadily since 1960.

The growth rates slowed in times of recessions (early 1970s, early 1980s, since 2001) but over all the region has been on a steady trajectory (see chart[xxix]). Growth picked up in the 1990s with a booming economy. Portland's manufacturing industry and the growth of the high-tech industry in Portland fueled the change. In recent years, the economy has been slowing and so has population growth.[xxx] Population grew most rapidly between 1990 and 2000 with 26.6% change.

- Multnomah County continues to have the highest population but the growth of outlying counties, particularly Clark Co, WA is out pacing Multnomah.[xxxi]
- Portland has a young age structure, with a median age of 34.8.
- Portland is predominantly white 84.5%. The largest ethnic groups in Portland are Hispanics,

then Asians. 10.8 % of the population of Portland is foreign born.
- Compared to Seattle, Portland is less educated and has a higher poverty rate. 28.8% of the population has a bachelor's degree or higher and 6.4% of families live in poverty (1999).
- However, only 24.4% of the U.S. population (25 and older) held a bachelors degree or higher and 9.2% of U.S. families were below the poverty level in 1999. Therefore making Portland better educated with a lower incidence of poverty than the national level.
- Portland has a higher percent of workers in construction and manufacturing (22.6% in 2000) than either Seattle or Vancouver.
- Unemployment has risen in recent years peaking at 9.1 in June 2003, and lessening to 6.4 in March 2005[xxxii]

Seattle, WA
Population: 2,414,616 (2001)
Region including Tacoma: 3,115,436

Population, 1960-2000
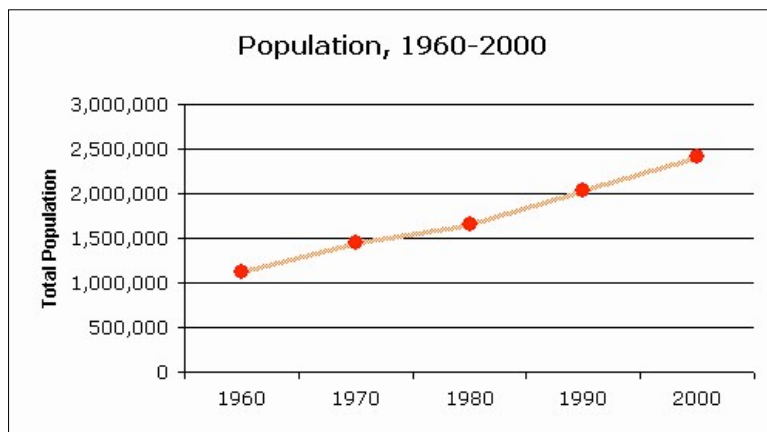
Seattle has also been growing steadily since the 1960s Like Portland population growth was slowed during times of recession in the early 70s, 80s, and since 2001. Population grew most from 1960-1970 (28.8%) and from 1980-1990 (23.1%). King Co remains the dominant county but is losing its stronghold as outlying Pierce and Snohomish Counties grow in size. [xxxiii]

- Seattle has a slightly older age structure than Portland with a median age of 35.5.
- Seattle is 81.4% white and has more African Americans and Asians than Portland. 13.7% of the population in Seattle is foreign born.
- Seattle is better educated than Portland: 35.9% compared with 28.8% have a bachelor's degree or higher.
- Seattle also has a lower incidence of poverty among families (5.2%) and is making more money particularly in the $75,000 + range.
- Seattle has a higher percentage of workers in management and professional services.
- Aerospace is a major industry, though less important in recent years
- Unemployment has risen in recent years reaching 7.3 in June 2003 and now at 5.0 March 2005[xxxiv]

Vancouver, BC[xxxv]
Population: 1,986,965 (2001)
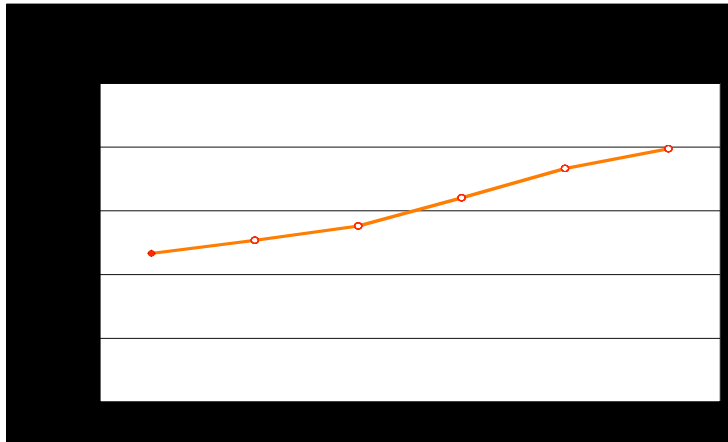
Greater Vancouver's population has almost doubled since 1971. Growth rates until recently were the result of internal Canadian migration and immigration from overseas. The growth rate has tapered in recent years as other areas of Canada are doing better economically, thus lessening internal migration[xxxvi].

- Greater Vancouver has an older age structure with a median age of 37.4
- Vancouver is more ethnically diverse, only 63.1% is white.
- Greater Vancouver is an international leader in foreign-born population with 37.5% of the population being foreign born: ahead of Sydney, LA, and NYC
- Leading industries in Vancouver are business and trade, knowledge industries, tourism, and film[xxxvii]
- Approximately 29% of population hold bachelors degree or higher
- Vancouver reported 20.8 incidence of low income compared with 23.3 in 1995. [The calculation of incidence of low income combines families and unattached individuals over 15 and is calculated differently than the U.S. poverty line.]
- In 2001, the unemployment rate in Vancouver was 7.2, 6.8 in 2004 and 6.3 in 2005.

Analysis:

All three metropolitan regions have experienced substantial growth since 1960, Portland and Vancouver's strongest growth occurring in the 1990s. All three of the regions experienced growth in the high tech sector during the 1990s and subsequent increases in unemployment with the high-tech bust and recession since 2001. In addition, growth and migration has slackened in these regions since 2001 though they all enjoyed robust growth in the 1990s.

Demographically, Vancouver stands out from the two other cities on two counts. First, Vancouver has an older age structure, perhaps attributed to Vancouver's reputation as a retirement destination. Nonetheless, in the 1996-2001 period, Vancouver had net outmigration of those 65+ of -2,430.[xxxviii] This can be representative of a larger Canadian trend in which large metropolitan areas are losing seniors to small towns and rural areas. British Columbia as a whole gained 2,900 net migrants 65+ between 1996-2001[xxxix] compared to Oregon and Washington which had respectively 1,340 and 1,170 net migrants in the 65+ age group from 1995-2000.[xl]

In addition, Vancouver is more ethnically diverse than Portland or Seattle. As previously noted Vancouver has a higher immigration rate and foreign born population, which leads to greater ethnic diversity.

Focus on Migration

International and domestic migration patterns are important influences in the dynamics of city population and demographic trends. The populous of North America is highly mobile. For example, four in 10 Canadians picked up and moved between 1996 and 2001[xli]. International immigration is also influential in these countries. According to Statistics Canada, 18.4% of Canadians in 2001 and according to the US Census, 11.1% of Americans in 2000 were foreign born.

Young adults (age 25-39) make up one of the most mobile cohorts. According to a report done by the U.S. Census Bureau, this is "perhaps because they are less risk-averse and have a longer time horizon to recoup an 'investment' in migration".[xlii] In the U.S. between 1995 and 2000, this age group was more likely to move than any other. An influx of young adults of child bearing age can influence the population growth and age structure of a location, with both the young adults and their (potential) children.

Young adults can be further differentiated into young, single, and college-educated adults. This aggregate is particularly interesting for a variety of reasons. Highly mobile, three fourths of this demographic moved between 1995 and 2000, and of those residing in a central city in 2000, one fourth had moved from another state. Single adults may be more likely to move since they are not constrained by spousal obligations. Furthermore, college-educated adults may be motivated by job opportunities or certain amenities and can bring intellectual capital to their location of choice. Finally, young, single, college-educated adults are more likely to move to central cities than their married or less educated counter-parts.[xliii] Besides the mobility and resources of this group the spatial habits of young, single and college-educated adults are important in the context of high-speed rail.

International migrants can also affect the age structure of a locale since they are often younger than the populous and can have higher levels of reproduction. In addition to influencing the age structure and of course the ethnic diversity of a city, foreign-born men and women can bring different skills to the labor force; often working at either high-education, high paying jobs or low-education, low-paying jobs.[xliv] The influence of international immigration varies in the three major metropolitan areas of Cascadia. In addition, since the region of Cascadia crosses national boundaries, foreign-born men and women may not have as much ease crossing between the United States and Canada as citizens of these countries, potentially limiting the inter-Cascadian mobility of an important segment of society.

Portland

Migration is a dominant factor in the population growth in the Portland-Vancouver metropolitan area. Since 1980, net migration has been positive with the exception of 1982-83, in which the metropolitan area experienced an out migration of 10,000 people attributed to an economic downturn. Net migration was especially high in the 1990s when the economy was booming. Between 1990 and 2000, Multnomah County, containing Portland, gained 42,000 net migrants and Clark County, the fastest growing county containing Vancouver, WA, received 79,000 net

migrants. Since 2000, net migration has slowed; coinciding with a slowing economy, but it is still an important factor. Between 2000 and 2003, net migration contributed to one fourth of Multnomah County's growth, over 40% of the population growth in Washington and Yamhill counties, and two thirds of growth in Clackamas, Columbia, and Clark counties.[xlv]

The Portland-Vancouver metropolitan area is a top destination for young, single, college educated adults. According to U.S. census data, Oregon had the 5th highest state and Portland-Vancouver-Salem had the 5th highest metropolitan area net migration rates of this aggregate between 1995 and 2000.[xlvi] The "The Young and the Restless" study chronicles Portland's competitive edge in the quest for this talented group. This study states that one of Portland's highlights is the central city and college educated 25-34 year olds are disproprtionatly represented in close-in neighborhoods.[xlvii]

Oregon receives a relatively small share of U.S. immigration, about 1% from 1990 to 2000 or about 8,000 to 9,000 immigrants annually. These numbers may be misleading, however, as evidence suggests that some immigrants from Latin America may settle in other states before coming to Oregon. About 80% of international migrants to Oregon end up in the Portland area.[xlviii]

Oregon ranks 20 out of 51 (District of Columbia included) states in size of foreign born population and 17th of 51 states in percent foreign born population in 2000. The foreign born population grew by 108% from 1990-2000. 44.6% of immigrants are from Latin America. The top three countries of origin for the foreign born in Oregon are Mexico (39%), Canada (5.9%), and Vietnam (5.7%).[xlix]

The most notable quality of immigration in Portland Metro is the relatively high number of immigrants from the former USSR. Portland receives 18% of its immigrants from Russia and other countries of the former USSR, which is more than twice the national average. Other areas from which the metropolitan Portland area receives immigrants are: Mexico (17%), China (7%), Vietnam (8%), India (5%), Korea (3%) and the Philippines (3%).[l]

Seattle

The Puget Sound region continues to draw migrants; however, rates have slowed dramatically in recent years, ostensibly due to an economic recession.

Since 1960 the population of the Puget Sound region has more than doubled, with net migration being a driving force. Net migration in the region has been positive since 1975 (with the exception of 1983) with migration being especially strong during the 80s and 90s. Between 1990 and 2000 the region gained 299,500 net migrants, with 40% going to King County, containing Seattle. However, growth has slowed since 2000. Net migration in the region has dropped from 26,000 in 2000-01 to 17,700 in 2001-02 to 5, 1000 in 2002-03. In addition, King County's growth has slowed faster than the other counties in the region. In 2002-03, King County had -5,300 net migrants, while the rest of the region continued to grow.[li]

Like several other large metropolitan areas, the Seattle area is a popular destination for young, single college-educated adults. From 1995 to 2000, Washington State had the 6th highest migration rate for young, single college educated adults and Seattle-Tacoma-Bremerton had the 12th highest migration rate for young, single college educated adults for metropolitan areas.

Among the largest 20 metropolitan areas in the U.S. Seattle-Tacoma-Bremerton had the 7th highest rate of migration for this group with a rate of 194.5.[lii] Between 1995 and 2000, the inmigrants were significantly younger (median age 31) than outmigrants (median age 34).[liii]

The state of Washington was 9 of 51 for numeric size of foreign born and 14 of 51 for percent of foreign born. The foreign born population increased 91% between 1990 and 2000. 39% of immigrants came from Asia. The top countries of origin are: Mexico (24.1%), Canada (7.7%), and the Philippines (7.6%).[liv]

Vancouver, BC

British Columbia experienced a boom in past years but the most recent Canadian census indicates that Alberta has replaced British Columbia as the top destination. The province of Alberta, experiencing advantageous economic conditions attracted 29,000 young people and 89,700 people of all age groups from British Columbia alone. In fact, the number of migrants moving from British Columbia to Alberta was the largest flow between two provinces in 2001. Outside of Alberta young people age 15 to 29 were also attracted to Canada's large metropolitan areas between 1996 and 2001. Montreal, Toronto, and Vancouver netted 67,400 youth migrants. The Canadian census data, like the U.S. census data indicates that individuals in "prime working age" or 25 to 44 were the most likely to move. 47% of movers between provinces were in this age range. [lv]

Coinciding with British Columbia's migration loss between 1996 and 2001, the Greater Vancouver Regional District experienced its first net loss in migration in 30 years: -20,500 people. The loss is in stark contrast to the record 150,000 net migrants received by BC between 1991 and 1996. The only age group that experienced a positive net migration to Vancouver between 1996 and 2001 was the young people age 15-29, previously mentioned as being attracted to the large metropolitan areas of Canada.[lvi]

One of the major drivers for change in Vancouver is international immigration. Between 1991 and 2001 immigration accounted for 75% of the regions population growth. Between 1996 and 2001 Vancouver received 169,600 immigrants, 18% of the Canadian total. 20% of immigrants came from China. In the previous 5 years the bulk of Vancouver's immigrants came from Hong Kong, a whooping 44,700, but immigration from Hong Kong has since waned due to the 1997 repatriation with the Peoples Republic of China. Besides China, Vancouver received immigrants from Taiwan (13%), India (9%), Hon Kong (9%) and the Philippines (8%).[lvii]

In 2001 Vancouver's over-all foreign-born populations reached 37.5%. Vancouver ranks among the top international cities in foreign-born population proportions, above both New York and Los Angeles. Immigration affects both ethnic diversity and age structure. Immigrants are typically younger than natives to Vancouver and the large influx supports a culturally diverse metropolitan area. The four largest municipalities in greater Vancouver (Vancouver, Burnaby, Surrey, and Richmond) received the bulk of new immigrants with Vancouver itself attracting 31%.

Although, international migration to Vancouver was down from the 1991-96 period, projections indicate it will continue to be an important factor in the future of the area. The regions strategic plan accounts for continued immigration and aims to provide adequate social support to this group.[lviii]

Spatial Trends

Much of the population growth that has occurred in Cascadia has occurred along the I-5 corridor, not just in the three metro previously discussed. Depending on the number of stops along this route, high speed rail could capture this growth.

According to the 2000 US Census and 2001 Canadian Census, 73% of Portland commuters drove alone and 70.4 % of Seattle commuters drove alone while 72% of Vancouver commuters were the driver of a car. Vancouver had the highest public transit rate of 11.5 compared with 8 for Seattle and 6.3 for Portland. This indicates that although these metros have public transit, the car is still the most popular mode of transportation, at least for commuting.

Finally, the spatial trends within the metropolitan areas could affect not only the characters of these regions but also the potential for HSR assuming that the stations would be centrally located. As previously noted young, single college educated adults tend to migrate to central cities. As these three areas are receiving migrants in this category, this is a promising note for HSR.

Portland Metro's Clark Co, WA and Washington Co are the fastest growing counties in the region. Growth in Vancouver, WA (Clark Co) might be captured in HSR but Washington County would probably not. Multnomah, the county containing Portland is down to 35% share of the total metro population in 2000 from 51% in 1970.[lix]

Seattle's fastest growing counties are Pierce and Snohomish. King County containing Seattle went from 62% of the regional population in 1960 to 52% in 2003.[lx]

Vancouver's fastest growing areas are Richmond and Surrey in both proportion to themselves and the region as a whole. Vancouver is taking a large chunk of the regions growth and Anmore and Electoral area 'A' are growing fast in proportion to themselves (they are very small to start with).[lxi]

The fastest growing areas in each region are not the central cities, however, each region's central city has maintained a stronghold in the region. It remains to be seen how outlaying growth will affect the regions in the future, though all metropolitan areas discussed have land use goals of urban density, which would be conducive to HSR located in central cities.

Supercity?

There are formidable challenges to comparing the demographics of Portland, Seattle, and Vancouver. There are differences and similarities, which makes viewing the region as a cohesive unit questionable. Overall there are major differences in immigration and migration trends that make viewing these three metropolitan areas as collateral nodes difficult.

Similarities

All three metropolitan areas have seen substantial growth in the high tech industry since 1990. Though, growth in high tech was wide spread across North American, British Columbia experienced the strongest growth in high-tech in Canada. Though, there has been decline high-

tech in these metropolitan areas in the late 1990s and early 2000s, which affects migration. In addition, all three metropolitan areas are attractive locations for young internal migrants.

Differences

Demographically speaking, while Portland and Seattle have similar age structure, Vancouver has a larger portion of residents over 55, which may be attributed to Vancouver's reputation as a retirement destination. In addition, Vancouver has more ethnic diversity and sees higher immigration rates than either city. Vancouver is an international leader in foreign-born with 37.5% of the population being foreign born (compared with 13.7% of Seattle and 10% of Portland).

The major differences, however, between Vancouver and the two U.S. cities lie in immigration and migration patterns. As previously noted, Vancouver has a much higher incidence of immigration and immigration is fueling Vancouver's growth. Immigration is not nearly as influential in Seattle and Portland. Furthermore, the origin of immigrants and the diversity of residents are different for the regions.

Portland receives an unusually large number of immigrants from countries of the former USSR and a larger portion of immigrants from Mexico than Seattle. Seattle and Vancouver both receive the bulk of immigrants from Asia, but Vancouver's Asian population is dramatically higher than either Portland or Seattle. These different trends and compositions suggest that the Vancouver will diverge from Seattle and Portland even further ethnically, which could lead to different trading partners, in addition to simply changing the make up of the areas.

In addition, internal migration is different for the areas. Both Portland and Seattle are attracting young people, but Portland is attracting single, college-educated adults at a higher rate than Seattle. Vancouver on the other hand is attracting young adults but also losing them. The oil-rich province of Alberta, CA was the big winner in internal migration between 1996- 2001.

This leaves Vancouver with its first net migration loss in 30 years. Vancouver received a large amount of internal migrants between 1990 and 1995 but has had an economic downturn since then, leaving migrants to choose economically booming Alberta over BC and leaving Vancouver for Edmonton or Calgary. The only age group that experienced a positive net migration rate was the 15-29 age group but this still down from 1990-1995.

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