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Environmental Migrants and the Future of the Willamette Valley: A Preliminary Exploration

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ENVIRONMENTAL MIGRANTS AND THE FUTURE OF THE WILLAMETTE VALLEY

A Preliminary Exploration

USP 594: Planning in the Pacific Northwest
Fall 2011

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EXECUTIVE SUMMARY

This report reviews existing data and research on predicted impacts of climate change in the Northwestern United States, and specifically focuses on the level of preparedness to accommodate new population growth due to climate migration in Oregon's Willamette Valley. Climate change impacts in Oregon are predicted to be less severe than in other areas of the country. Generally, models project warmer, wetter winters and hotter, drier summers in the Willamette Valley and other areas west of the Cascade Range. This will likely make the Willamette Valley a more desirable place for environmentally displaced people to locate. This report considers how Oregon might plan for this potential increase in population.

Migration trends

This report reviews data and research on existing migration trends in order to prepare for a potential influx of climate migrants in the decades to come. This report defines a climate migrant as someone who, by choice or out of necessity, leaves their original habitat because it no longer meets their basic needs as a result of persistent and pervasive climate change. Current population estimates for the Willamette Valley predict growth from 2.7 million to 3.9 million by 2040, not accounting for additional growth from climate migrants. We conducted a spatial analysis of where growth has occurred, and where it is most likely to continue to occur based on where certain demographic groups have located.

Strategies to accommodate new growth in the Willamette Valley

The Willamette Valley is better suited than most regions of the United States to plan for new population growth, thanks to Oregon's statewide land use planning program, and previous exercises to consider this question. Efforts to contain new growth within urban growth boundaries and preserve the natural resources and working landscapes have been successful over the past thirty years.

However, to maintain the quality of life Valley residents currently enjoy and value, additional measures will be necessary to prioritize redevelopment within existing urban growth boundaries and to more permanently protect the Willamette Valley's most valuable resources.

Recommendations

Public agencies should use the data accumulated in this report to develop better frameworks for modeling climate change migration scenarios in the Willamette Valley. A potential framework for monitoring and analyzing climate-induced migration is included in the report, which will help inform municipalities of demographic changes and allow them to anticipate potential strains new migrants will place on public systems. Portland State University's Population Research Center could play a lead role in disseminating and communicating information about population trends across the Willamette Valley, to provide necessary, improved coordination between jurisdictions to plan for new growth. Additional measures will need to be taken to protect water resources, energy sources, fertile soil and natural areas in order to accommodate a growing population – and the state is best suited to lead these conservation efforts. Our research found that many of the recommendations of the Willamette Valley Livability Study of 1999 to be quite relevant to existing residents and are necessary to consider for planning at a valley-wide scale, especially the importance of investing in public transportation choices within and between existing urban areas. Though this synthesis of existing planning efforts and values of Willamette Valley residents is by no means comprehensive, it should serve as a starting point for jurisdictions to consider strategies to improve how to accommodate growth while preserving our region's best assets.



INTRODUCTION

During fall term, 2011, a group of 16 graduate students enrolled in the graduate degree programs of the Toulan School of Urban Studies and Planning participated in USP 594: Planning in the Pacific Northwest. This course was created as part of the curriculum for the Master of Urban and Regional Planning degree in the Toulan School, and explores the links between place and planning. The course is intended to serve both as an eclectic introduction to a Pacific Northwest sense of place as well as an exploration of how planners might approach an understanding of place and place attachment in their work.

Part of that course this year took up the challenge identified by some as the incorporation of potential “climate refugees” in local communities. Though there are a wide range of opinions about everything having to do with climate change, the science pretty conclusively indicates that the atmosphere is warming, the climate is changing, and those changes will have a whole host of implications for communities throughout the globe.

One of the issues that has captured the attention, if not the imagination, of some is the prospect of “climate refugees,” populations displaced from their current locales due to climate-induced impacts on livability. Many of the impacts have to do with water, either too much or too little, though other concerns, like dust or habitat change, have also been considered.

With relatively large populations in the southeast and southwest now vulnerable to prolonged drought and consequent water shortages, the Willamette Valley may emerge as a site where population displaced by climate change may seek to relocate. Some projections of climate impact suggest that the Valley may end up being as wet or wetter in the future, but whether it is or isn't, the proximity to the Columbia River system may make this a desirable location for thirsty migrants. If migration due to climate materializes, we may be dealing with far more population than we

currently anticipate and are planning for.

This raises some interesting questions. What is the prospect for climate refugees becoming an important stream of in-migrants in coming decades? How vulnerable is our planning to an increase in migration? Where might these people come from, and what kinds of values or expectations for land use and lifestyle will they bring with them? What kinds of concerns do climate refugees versus other kinds of migrants bring with them? Perhaps most important, what might we use as principles for accommodating unanticipated growth in the Willamette Valley, and how might those principles role into scenarios for future growth and change?

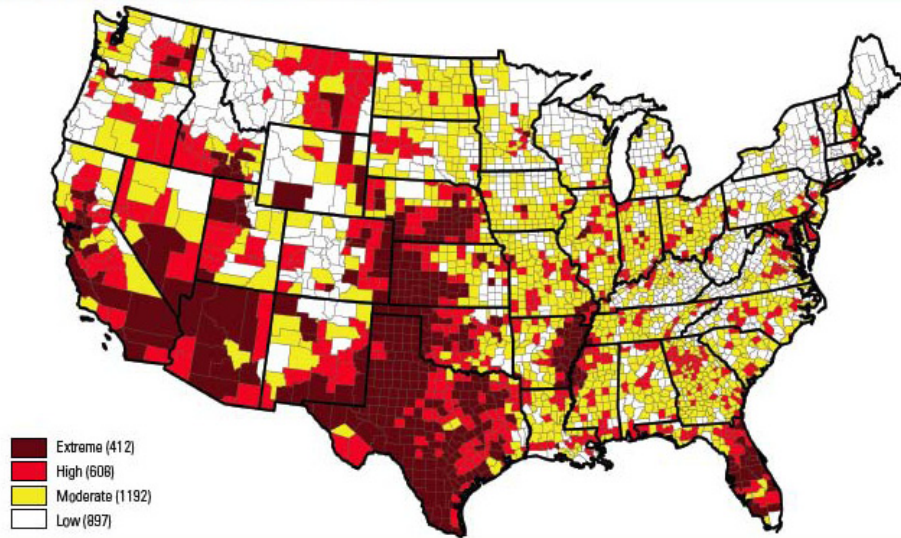
Oregon has gone through this exercise before. The “Willamette Valley: Choices for the Future” study done by Lawrence Halprin and Associates in the early 1970s set the stage for SB 100 and the Oregon Land Use Planning Program. In the 1990s, additional work was done to revisit planning for the Valley, at the scale of the Valley. Recent work by the Oregon Global Warming Commission has provided new background on both anticipated climate impacts and possible adaptive strategies.

This project, and the report you are now reading, takes up three central challenges associated with these themes:

Challenge 1: What is the current thinking about climate refugees, about climate refugees in the western US, and how they might affect population change in the Willamette Valley?

Challenge 2: What are the core principles for planning in the Willamette Valley based on broadly held community values, history, and the ecology of the place?

Challenge 3: How might unanticipated growth be accommodated in a manner that enhances livability, sense of place, and ecological sustainability and integrity? Under



Water Supply Sustainability Risk Index, 2050

Source: Natural Resources Defense Council July, 2010 "Climate Change, Water, and Risk: Current Water Demands are not Sustainable"

what, if any, circumstances could unanticipated growth be an important positive force for livability and furthering sustainability in the Valley?

This report documents our findings. The next chapter reports on what we know about climate or environmentally induced migration. Among other things, it finds that referring to climate "refugees" may be less effective than focusing attention on "environmental migrants." That chapter is followed by a review of planning at the scale of the Willamette Valley, and the core values and beliefs that ought to be considered when trying to anticipate the spatial distribution of new population growth.

We take an initial stab at pulling the pieces together in the last two sections. First, we report on a workshop conducted with a panel of distinguished visitors. Applying the issues associated

with environmental migration to place, in this case the Willamette Valley, is no easy task. Finally, we present a series of "In My Opinion" pieces drafted in response to the findings made by the class throughout this process.

We have subtitled this report as "an initial exploration" because it really is. We have found very little systematic work that links the topics of climate-induced migration and place, particularly in a planning context. Consequently, we've undertaken this work as a means for catalyzing a longer conversation, one unfolding over the coming year in response both to the issues of climate change and a desire to act on the findings of the Oregon Global Warming Commission. We present this report in that spirit.

Acknowledgements:

We would like to thank Jane Lee for her assistance with printing copies of our base maps, Jason Jurjevich of PSU's Population Research Center for his advice and insight regarding migration, Kat West of Multnomah County for inspiring this inquiry through her longstanding interest in the topic, and Arnold Cogan, Kirstin Green, Kat West, Tim Lynch, Joe Zehnder, Michael Armstrong, Jim Rue, Dyami Valentine, Roger Hamilton, Mike Hoglund, and Kari Lyons-Eubanks for their participation in our final review.

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CLIMATE MIGRATION

BACKGROUND

Climate Change Defined, Projected

Climate change, or global warming, is a phenomenon that occurs when carbon dioxide, methane and other “greenhouse” gases accumulate in the Earth’s atmosphere and trap the sun’s heat. In 2007, the United Nations Intergovernmental Panel on Climate Change (IPCC) concluded that the warming of the Earth’s climate — including an average global surface temperature increase of about 1 degree Celsius during the 20th century — is “unequivocal” and due largely to anthropogenic activities such as burning fossil fuels in automobiles, factories and power plants (IPCC, 2007).

The IPCC, which makes projections with varying degrees of certainty, reported that shrinking ice sheets, rising sea levels and changes in precipitation during the past century are consistent with the warming of the Earth’s climate. For example, it is “very likely” that cold days, cold nights and frosts have become less frequent over most land areas during the past 50 years, and hot days and hot nights have become more frequent. The scientists also concluded that, during the same period, it is “likely” that heat waves have become more frequent over most land areas, and the frequency of heavy precipitation events has increased over most areas. So, how has the Beaver State changed? More important, what might the future hold?

In a 2010 climate change assessment, the Oregon Global Warming Commission (OGWC) stated “with confidence” that human activities are primarily responsible for a 1.5 degree Fahrenheit increase in 20th century temperatures in the Pacific Northwest (OGWC, 2010). Transportation and electricity were responsible for 37.2 percent and 33.2 percent of Oregon’s greenhouse gas emissions during the 2003-2007 period, respectively, according to

the commission. Agriculture, waste, combustion and leakage and other sources were responsible for the balance of emissions. In the Portland metro area, residents and businesses were responsible for about 31 million metric tons of greenhouse gases annually; a quarter of the emissions came from transportation, 27 percent from energy and 48 percent from goods and food, according to a 2010 inventory conducted by Metro (Metro, 2010).

The OGWC concluded that a warmer climate will affect Oregon’s land and marine environments “substantially” through the 21st century. The Pacific Northwest could see a temperature increase of about 0.5 degree F per decade, depending upon global emissions of greenhouse gases. The commission’s models do not show a clear region-wide trend in annual precipitation for the region during the next century, however. Generally, models project warmer, wetter winters and hotter, drier summers in the Willamette Valley and other areas west of the Cascade Range.

Portland and the Willamette Valley

Today, the Willamette Valley gets most of its rain during the October-March period today, so the region must rely upon melting snowpack in the Cascade Range to provide water during the dry summer months. If there is less snow in the future winters, the Oregon Climate Change Research Institute noted in a recent report, there would be less summer water for farms, factories and homes (OCCRI, 2010).

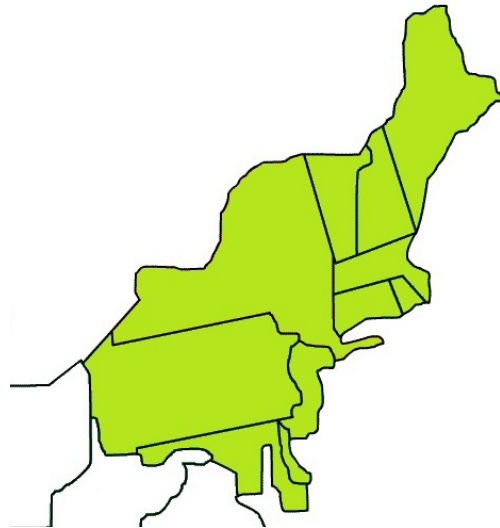
With a 1 degree Celsius increase in temperature, the commission projected in its report, irrigation demand would increase by about 10 percent. Warmer temperatures could make Willamette Valley crops more vulnerable to pests, diseases, droughts and heat waves. Further, wine grapes, turf grass and other agricultural staples that have been optimized to fit a narrow temperature niche in

NORTHEASTERN UNITED STATES

2010 - 2040 : Within the next several decades the Northeast is projected to see its annual mean temperature increase by about 2.5 degrees F, with a likely range of 1.9 - 3.2 degrees F. Summers would be characterized by more extreme-heat days and winters would be characterized by more rain.

2040 – 2070: The Northeast is projected to see its annual mean temperature increase between 3.8 and 4.8 degrees F, with a likely range of 2.8 - 5.8 degrees. Boston, for example, could see an additional 12-29 days of over 90 degrees F.

2070 – 2100: By the end of the century, the Northeast is projected to see its annual mean temperature increase by 5.4 - 9.0 degrees F, with a likely range of 4.2 - 10.8 degrees F. Winters would be shorter; indeed, the winter snow season would be cut in half for New York, Vermont, New Hampshire and Maine. Summer-like temperatures, rather, are projected to persist for 6 weeks longer than usual.



Box 1: Projected climate change impacts for Northeastern U.S., 2010-2100. Source: US DOT 2010

the Willamette Valley “may no longer be optimal under a warmer climate,” the OCCRI cautioned in its report (p. 12).

Growing urban areas would also tax the water supply. Oregon’s population is projected to increase 13 percent by 2020; about 63 percent of the growth will be due to net migration into the state, the OGWC noted in its report. Climate-induced migration to the temperate Pacific Northwest from other parts of the globe and nation could affect the Willamette Valley’s economic, environmental and social sustainability.

“This is where a lot of the economic activity is, where the port facilities are,” Angus Duncan, the OGWC’s chairman, noted in an interview. “Trade runs through Portland, whether it’s from the interior or from the south. This is where the universities are, where the infrastructure is. Chances are, this is where we would want people to come rather than overwhelming communities on the east side or down in the south [of Oregon], (M. Burnham, Interviewer).

Climate Change Projections: U.S. and Global

Understanding the projections for climate change impacts nationally as well as globally will be vital for planners. Areas more likely to become less habitable are thus also more likely to be the source of climate migrants. Locational origin will be a major determinant of the demographic profile of climate migrants, and having a better understanding of those areas will lead to better planning for shifting settlement patterns.

The IPCC projects the following global impacts:

- Warming greatest over land and at most high-northern latitudes and least over southern oceans;
- Globally averaged sea level will rise 7-23 inches by the end of the century;
- Contraction of snow cover area, increases in thaw depth over most permafrost regions and decrease in sea ice

coverage;

- Very likely increase in frequency of hot extremes, heat waves and heavy precipitation;
- Likely increase in tropical cyclone intensity;
- Very likely precipitation increases in high latitudes and likely decreases in most subtropical land regions;
- High confidence that by mid-century annual river runoff and water availability are projected to increase at high latitudes and decrease in some dry regions in the mid-latitudes and tropics;

- High confidence that semi-arid areas (e.g., the Mediterranean Basin, western United States, southern Africa and north-eastern Brazil) will suffer a decrease in water resources.

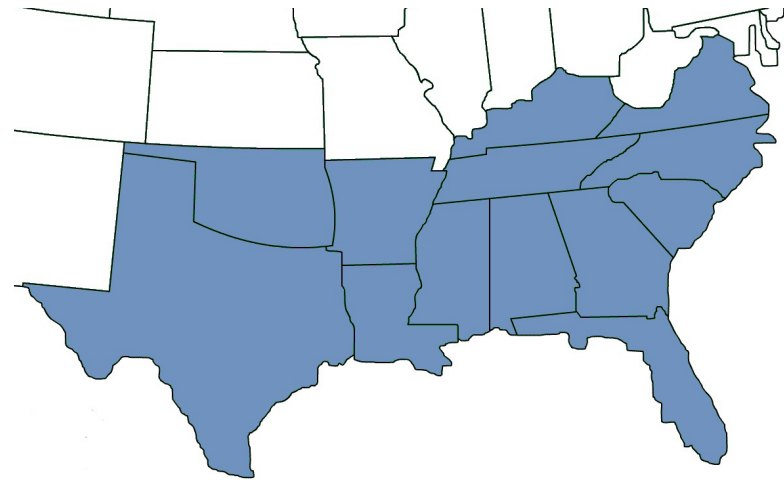
A 2009 report from the U.S. Global Climate Research Program (USGCRP) projects that average temperatures in the United States will increase between 7 and 11 degrees F, under a “high-emission” scenario, by the end of the century; the average global temperature would increase between 4 and 6.5 degrees F, under the “low-emission” scenario. Here’s how this could play out nationally by the end of the century (USGCRP, 2009):

SOUTHEASTERN UNITED STATES

2010 – 2040 : Within the next several decades the Southeast is projected to see its annual mean temperature increase by about 2 degrees F, with a likely range of 1.7 - 2.7 degrees F. Summers would be characterized by more extreme-heat days. Houston, Texas, for example, is projected to experience a 25 - 75 percent probability of having an additional 4 - 11 days above 100 degrees F, according to the DOT report’s high-emission scenario.

2040 – 2070: By mid-century, the Southeast is projected to see its annual mean temperature increase between 3.2 and 4.0 degrees F, with a likely range of 2.4 - 4.8 degrees F.

2070 – 2100: By the end of the century, the Southeast is projected to see its annual mean temperature increase by 4.5 - 7.8 degrees F, with a likely range of 3.4 - 9.4 degrees F. The summer months, characterized by more heat waves, are projected to experience the greatest warming of all seasons; the likely range for a temperature increase during this season would be 3.5 - 11.2 degrees F.



Box 2: Projected climate change impacts for Southeastern U.S., 2010-2100. Source: US DOT 2010

- Extreme heat events are projected to have a 50 percent chance of occurring each year;
- Heavy downpours that have a 5 percent chance of occurring in a given year today are projected to have a 20-75 percent chance of occurring in a given year;
- In general, northern areas of the country are projected to become wetter while southern areas are projected to become drier;
- In northern areas, precipitation and humidity are projected to increase during the winter and spring.

The U.S. Department of Transportation, synthesizing projections by the USGCRP and other scientific bodies, published a 2010 report that makes climate change projections for the Northeast, Southeast, Midwest, Southwest and Pacific Northwest (U.S. DOT, 2010). Boxes 1-4 summarize the DOT’s regional projections for three different time periods.

MIGRATION THEORY AND VARIABLES

One of today’s leading concepts of immigration and domestic migration patterns was introduced by Everett S. Lee in 1966. Lee surmised that a person’s decision to move consists of two distinct choices: first, deciding to leave his or her current home, and, second, choosing a new destination. Within Lee’s theory of migration, the decision to move is influenced by push factors, and their destination is influenced by pull factors.

Push Factors

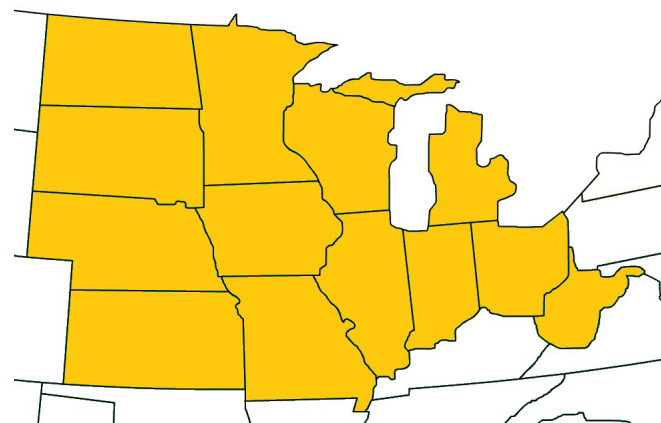
Push Factors are characteristics of a migrant’s place of origin. They include economic, political, social and environmental conditions that may seem to be “pushing” the family away. Key push factors include: lack of jobs, poverty, political unrest, religious

MIDWESTERN UNITED STATES

2010 – 2040: The Midwest is projected to see its annual mean temperature increase by about 2.7 degrees F, with a likely range of 1.9-3.3 degrees F. Observed temperatures in the winter have extended the frost-free growing season by a week.

2040 – 2070 : The Midwest is projected to see its annual mean temperature increase between 4.0 and 5.0 degrees F, with a likely range of 3.0-6.0 degrees F.

2070 – 2100: By the end of the century, the Midwest is projected to see its annual mean temperature increase by 5.6 to 9.6 degrees F, with a likely range of 4.3 to 11.7 degrees F. The summer months, characterized by more heat waves, are projected to experience the greatest warming of all seasons; the likely range for a temperature increase during this season would be 3.5-11.2 degrees F.



Box 3: Projected climate change impacts for Midwestern U.S., 2010-2100. Source: US DOT 2010

SOUTHWESTERN UNITED STATES

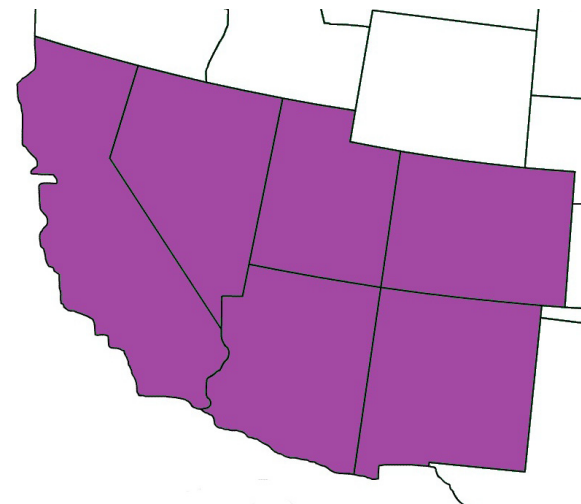
2010 – 2040 : The Southwest is projected to see its annual mean temperature increase by about 2.4 degrees F, with a likely range of 1.7-3.0 degrees F. The summer months are projected to experience the most warming, with an increase of about 2.7 percent and a likely range of 1.8-3.4 degrees F.

2040 – 2070 : The Southwest is projected to see its annual mean temperature increase between 3.6 and 4.5 degrees F, with a likely range of 2.6 - 5.5 degrees. California could see its annual mean temperature increase in the likely range of 1.8 - 5.4 degrees F in 2050, under the lower- and higher-emission scenarios —a “much greater range” than those for the rest of the Southwest.

2070 – 2100: The Southeast is projected to see its annual mean temperature increase by 5.2 - 8.7 degrees F, with a likely range of 3.8 - 10.2 degrees F. Summer months would see greater warming than winter months. Indeed, one study cited by the DOT report, projects that the Southwest could see up to 100 “high-temperature” days (above 90 degrees F) annually during the last several decades of the century.

Like the Pacific Northwest, the Southwest could see more snow fall as rain in the mountains, reducing the snowpack that feeds

important rivers. Averaged from 2035 to 2064, the amount of water stored as snow in the Sierra Nevada Mountains as of each April 1 is projected to decrease by 12 - 42 percent at all elevations, under the lower- and higher-emission scenarios.



Box 4: Projected climate change impacts for Southwestern U.S., 2010-2100. *Source: US DOT 2010*

persecution, and environmental problems (Levin Institute, 2010). An individual weighs push factors in his or her decision to move. In the United States, changing climatic conditions may emphasize environmental push factors. Extreme drought, desertification, and natural disasters could influence the ranking of priorities for migrants, resulting in a larger stream of people leaving affected areas of the country.

Pull Factors

Pull factors, in contrast, are the characteristics of different destinations for a migrant that may “pull” a person toward a particular relocation destination. These characteristics include the perceived economic, political, social and environmental advantages of a potential destination. Key pull factors include; job opportunities,

higher standards of living, political or religious freedom, and attractive climates (Levin Institute, 2010). An individual weighs the pull factors of different places against each other to determine where relocation would provide them with the most utility. As we see climate change emphasize environmental push factors, the plentiful environmental amenities of the Willamette Valley may play out as a strong pull factor for domestic migrants.

Networks and Chain Migration

The structure of physical and social networks can facilitate or obstruct migration patterns (Levin Institute, 2010). Physical infrastructure, such as roads and trains, which literally connect places together, influence migrant destination choice. In addition, the concept of chain migration refers to social patterns that drive destination choices. A migrant may choose a place because of ties to previous migrants, creating a chain effect, linking two places together. Knowing a relative or friend in a potential destination can create a flow of information about opportunities and transportation options. Previous migrants often arrange employment and initial housing for newcomers through social connections (MacDonald, 1964).

Examples of push and pull factors as well as networks and chain migration can be found in case studies of past environmentally-motivated mass-migrations. Hurricane Katrina presented an extreme collection of push factors, not least of which were immediate health and safety concerns due to flooding and water contamination. The decision of many more black New Orleans residents applying for FEMA financial aid to relocate to Memphis (63% black) rather than Austin (8%) illustrates the potential strength of socially-related pull factors. Memphis and Austin are roughly the same distance from New Orleans. Yet, Katrina migrants chose Memphis at a rate three times that of Austin. Similar comparisons can be made of other cities with a high share of blacks, including

Atlanta, Birmingham, Jackson, Miss., Chattanooga, and Greenville, S.C. Although other factors, such as available housing, likely played a role, we can speculate that people opted for communities similar to their home community (see Appendix I for Hurricane Katrina case study). Migrants to those areas may also have had previously established social networks in those cities, or followed friends and family to those locations.

DEMOGRAPHIC VARIABLES AND CLIMATE MIGRATION

Through a review of current literature, we have decided to focus on three general demographic characteristics of migrants to Oregon: stage-of-life course, tenure, and poverty status.

Stage-of-Life-Course

Domestic migration patterns show that an individual's propensity to migrate fluctuates over his or her life course. American Community Survey data collected between 2005 and 2009 shows young adults (ages 18-34) and young children (ages 1-4) are moving to Oregon in the highest numbers (Figure 1).

While it may be delightful to envision diapered children toddling across the country, migrants ages 1-4, it is probably safe to assume they are members of (and migrating with) families with small children. Contrasted with the low percentage of 5-to-17-year-olds moving to Oregon, these data suggest that in this time period families with young children were more likely to move to Oregon than families with older children. The young adult age groups posted the highest numbers as a proportion of movers to Oregon. This age range is full of life-course events that spur migration. These critical events include leaving the parental home, initiating careers, forming families, and bearing children (Plane et al, 2005). The final age range of note is the 55-to-64-year-olds, those at retirement age. Retirement is an additional life-course event tied

to migration (Greenwood, 1985). Between 2005 and 2009, we saw only a small migration peak for this age range. However, with the continued retirement of the Baby Boom generation, this group will be an important one to monitor. In comparison to Oregon’s total population, migrants present a contrasting cross-section of age groups. The 18 to 24 years shows one of the most dramatic differences, it is one of Oregon’s smallest age group but is the **largest age group of in-migrants**.

Housing Tenure

Housing tenure—whether an individual previously lived in a renter-occupied housing unit or an owner-occupied housing unit—is another important characteristic to consider. Of migrants to Oregon from other states between 2005 and 2009, there were more than three times as many renters as owners (Figure 2). The trend we see in Oregon is consistent with national-level data presented by the Chicago Federal Reserve Bank. Using data from the Survey

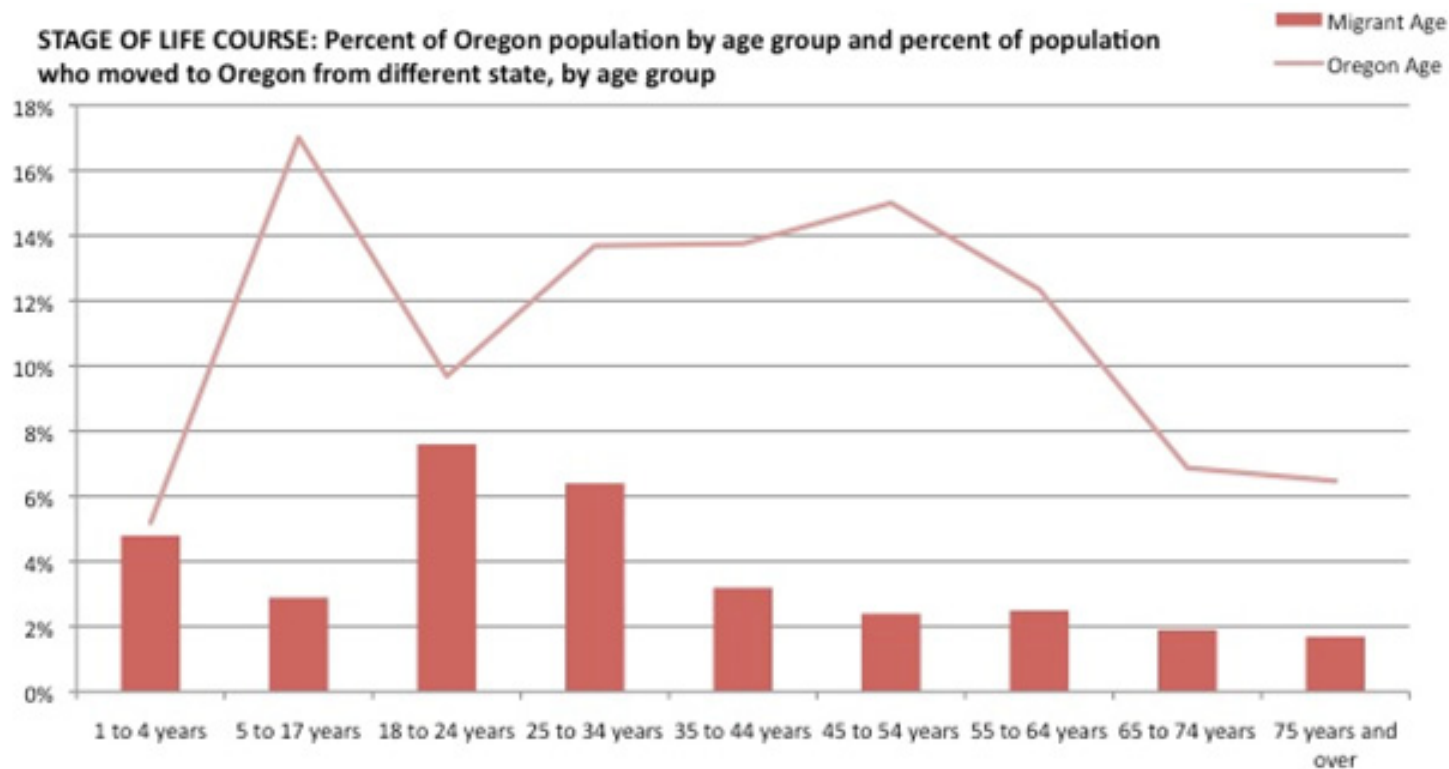
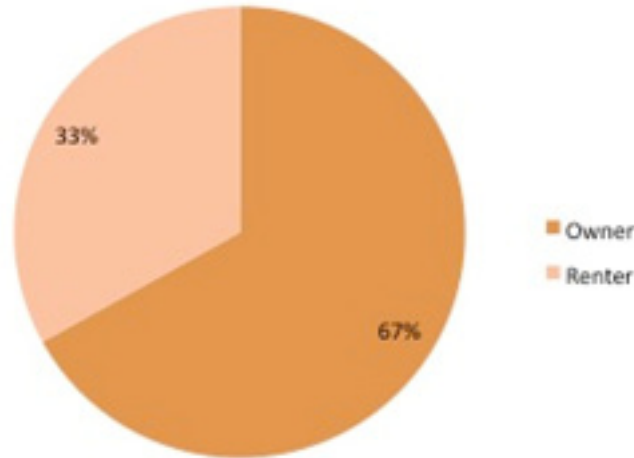


Figure 1: Oregon In-migration by age range, 2005-2009

Source: American Community Survey 2005-2009

HOUSING TENURE: Percent of Total Oregon population, by housing tenure, 2009



HOUSING TENURE: Percent of population, one year and over, who moved to Oregon from different state, by housing tenure, 2009

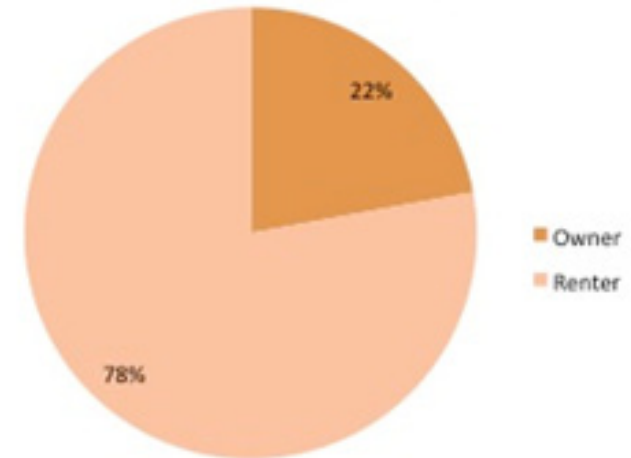


Figure 2 & 3: Housing Tenure – proportion renters vs. homeowners Oregon total population and moving to Oregon (2005-2009)

Source: American Community Survey 2005-2009

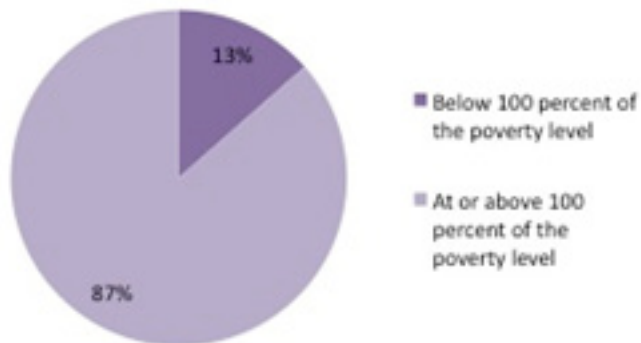
of Income and Program Participants (SIPP), the Federal Reserve Bank reported that between 1984 and 2010 the numbers of renters moving to a different state were consistently three-to-four times higher than the number of homeowners. This demonstrates that, because homeowners are less mobile, tenancy is a noteworthy characteristic for migrants (Navratil et al, 1977). Again this presents a contrast between a characteristics held by current Oregon residents and in-migrants. In 2009, in Oregon, 67% of householders lived in owner-occupied residences, while only 22% of in-migrants lived in owner-occupied residences. This trend could especially present strains in urban areas where the rental markets are tight.

Poverty Status

The poverty status of migrants to Oregon will also be an important characteristic to track. Between 2005 and 2009, there was only a slight difference between the number of migrants from out of state who were in poverty and who were not in poverty (Figure 5).

Currently, individuals in or out of poverty are relocating to Oregon in similar numbers. Individuals both in or out of poverty will migrate because of job opportunities and the promise of improved economic conditions. It will be important to keep a finger on the pulse of this characteristic because, upon arrival, the needs of these two groups could vary widely. In addition it is significant to note the difference in poverty levels between current residents, only 13% in

POVERTY STATUS: Percent of the Oregon population, by poverty status, 2009



POVERTY STATUS: Percent of the population, one year and over, who moved to Oregon from different state, by poverty status in the past twelve months, 2009

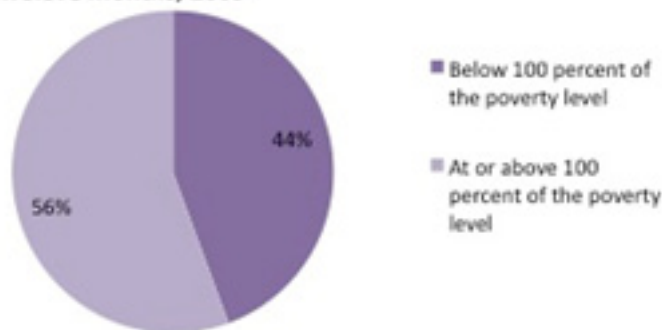


Figure 4 & 5: Poverty Status – Proportion above vs. below poverty level moving to Oregon 2005-2009

Source: American Community Survey 2005-2009

2009, and in-migrants. This will be an important characteristic to consider when planning for in-migrants.

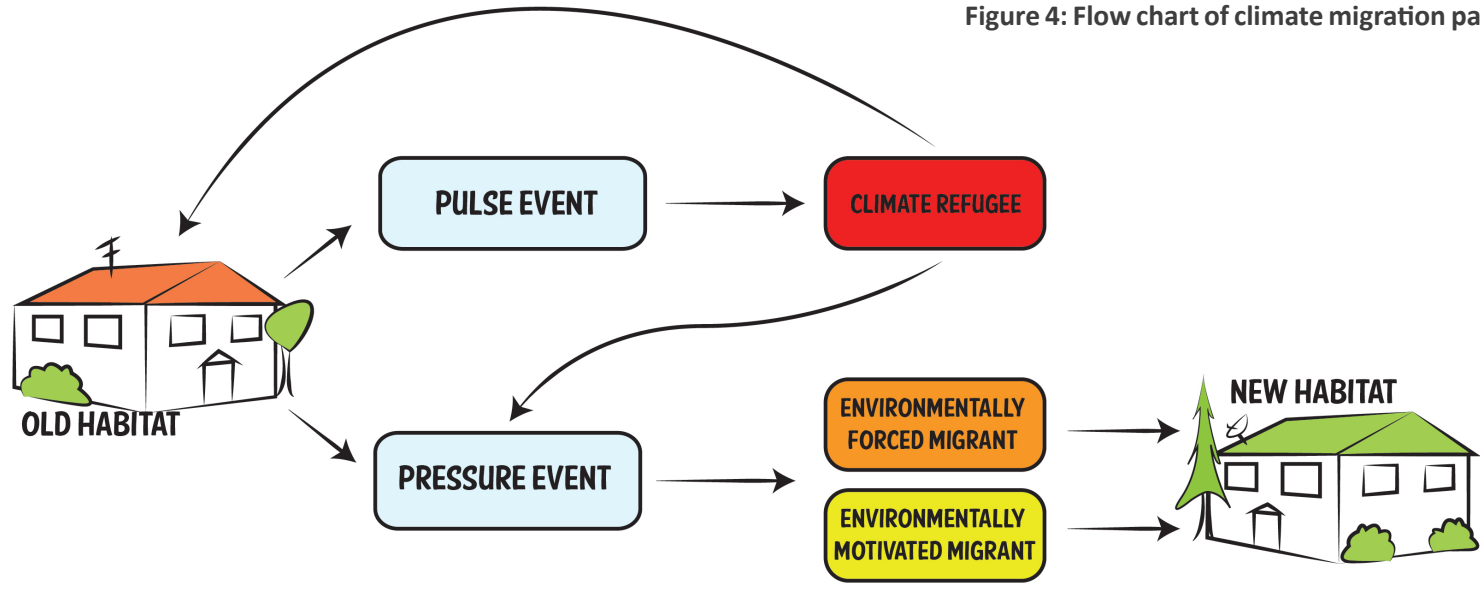
CURRENT THEORIES OF CLIMATE CHANGE MIGRATION

What is a “Climate Migrant”?

Climate refugee, environmental refugee, environmentally displaced person, climate displace, climate migrant, survival migrant, forced environmental migrant, environmentally motivated migrant, population pressure refugee ... All of these terms have been applied variously to people affected by climate change and forced or pressured to move because of environmental changes. In order to locate migration theories in the context of climate change, it is important to explore definitions of climate migrants as they have been developed over time. The following discussion offers context and understanding to the concept of climate-induced migration. The academic conversation linking the environmental influences on migration dates back to the 1970s. Various terms have been used to describe migrants motivated by climate change, and these terms affect peoples’ perceptions and understanding of migrants. For this reason, it is important to define migration terms carefully.

Earth Policy Institute founder Lester Brown first coined the term “environmental refugee” in the 1970s, connecting Everett Lee’s theories on migration to an environmental influence. It was Essam el-Hinnawi who provided the most popular definitions of climate’s influence on migration choices and patterns. In 1985 el-Hinnawi stated, “... those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected **the quality of their life” (el-Hinnawi 1985:4). el-Hinnawi identified three broad categories of environmental migrants:**

Figure 4: Flow chart of climate migration patterns



1. Persons who are displaced temporarily but who can return to their original home when the environmental damage has been repaired;
2. Persons who are permanently displaced and have resettled elsewhere;
3. Persons who migrate from their original home in search of a better quality of life when their original habitat has been degraded to such an extent that it does not meet their basic needs.

el-Hinnawi’s definitions provided structure to the understanding of environmental migrants for much of the 1980s and 1990s. The discussion progressed as the conversation and understanding of climate change developed during this time period. More nuanced definitions developed alongside the scientific communities’

understanding of climate change. Norman Myers built upon the definitions offered by el-Hinnawi by defining environmental migrants as,

...[P]ersons who can no longer gain a secure livelihood in their traditional homelands because of environmental factors of unusual scope, notably drought, desertification, deforestation, soil erosion, water shortages and climate change, also natural disaster such as cyclones, storm surges and floods. In face of these environmental threats, people feel they have no alternative but to seek sustenance elsewhere, whether within their own countries or beyond and whether on a semi-permanent or permanent basis. (Myers, 1995, pp. 18–19).

Myers and others' contribution to the understanding of vulnerable populations places those people spatially. Different environmental changes throughout the world will affect local populations to different degrees. Regions preparing for migrants and refugees may be able to accommodate and plan for newcomers based on a geographic understanding of the environmental event, the expected duration of the event, and the group of migrants.

More recently, international attention has been given to potential environmental migrants. The UN University -- Institute for Environment and Human Security (UNU-IEHS) has defined a forced environmental migrant as somebody "who has to leave his/her place of normal residence because of an environmental stressor... as opposed to an environmentally motivated migrant who is a person who 'may' decide to move because of an environmental stressor." (Renaud et al. 2007). A recent paper from UNU-IEHS defined three different categories:

1. Forced environmental migrant: Has to leave his or her place of residence do to environmental stressor.
2. Environmentally motivated migrant: Person who 'may' decide to move because of an environmental stressor.
3. Environmental Refugee: Someone who must flee immediately i.e. as a result of flooding.

This differentiation between a forced and a motivated migrant is an important distinction. It allows nuance between groups of people and may inform when and from where people come from. Consideration of force or motivation may inform whether a region should prepare to temporarily or permanently house a group of people.

Pulse and Pressure Events

Using the above typologies, a clearer picture of our population of interest emerges. Since pulse events are difficult to predict it

may be best to explain how people may become climate migrants under more persistent environmental degradation. Pressure events come with more forewarning and thus provide more opportunity to accurately forecast and plan for in-migration. This creates a discrete separation between climate refugees (victims of pulse) and forced/motivated climate migrants (victims of pressure). In our analysis, we focus on the latter of the two groups.

The Lower Willamette Resiliency Report provides the following definition:

A climate migrant, or "climate refugee" is a person displaced by climatically induced environmental disasters. Such disasters result from incremental and rapid ecological change, resulting in increased droughts, desertification, sea level rise, and the more frequent occurrence of extreme weather events such as hurricanes, cyclones, fires, mass flooding, and tornadoes. All this is causing, and expected to further cause, mass global migration and border conflicts. Because the Pacific Northwest is expected to experience less extreme climate events compared to other parts of the country and world, many planners and climate scientists believe that population increases will be above norm due to resettling of climate refugees. No formal projections have been made on how climate refugees will affect population increases in the Northwest: therefore, projections for impacts related to climate refugees in this report are speculative and not scientifically based.

Some of the more subtle implications of differentiating between a climate refugee versus a climate migrant will be discussed below. For the purposes of this analysis, a composite definition for environmental migrant (synonymous, for our purposes, with "climate migrant") that takes into account the primary distinguishing features of such people:

An environmental migrant is someone who, by choice or out of necessity, leaves their original habitat because it no longer meets their basic needs as a result of persistent and pervasive climate change.

Box 5: Composite definition of an environmental migrant/climate migrant

Climate Migrant vs. Climate Refugee

Climate Migrant vs. Climate Refugee

The following discussion considers the effect of language's influence on people's understanding of migration. There is a fear of the Other at play in the language of "climate refugee" and how it is used for international movements of people. It is likely that there will be applicable fear of the Other as the term "refugee" is applied to domestic migrants. Thus, a disruption of the popular crisis narrative commonly employed by policymakers and the media is necessary in order to better prepare the region for newcomers.

There are legal difficulties in labeling groups as refugees. The United Nations carefully defines "refugee status" through the 1951 UN Refugee Convention (UNHCR, 1951/ 1967). According to the Convention, a refugee is someone who "owing to a well-founded fear of being persecuted for reasons of race, religion and nationality, membership of a particular social group or political opinion, is outside his country of nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country . . ." (UNHCR, 1951/1967). It is dangerous to fraction refugee status, especially because of the legal ramifications.

Scholars have reinforced the popular and legalistic reasons for careful definition. Hartmann (2010) warns against neo-Malthusian thinking that demographic pressures will push people to move. She states: "The causes of migration are extremely complex and context-specific" (p. 235). It is stressed that the consideration of reasons for why people move needs to be placed in a wider context of economic and personal factors.

A number of researchers have begun develop a more nuanced explanation of the multiple reasons people migrate. First, while climate change is likely to cause displacement, the extent of that displacement will not only depend on how much the temperature rises and affects sea-levels, rainfall patterns and extreme weather, but also the existence and effectiveness of adaptation measures that help individuals and communities with environmental stresses. Whether such measures are in place in turn depends on political economies at the local, regional, national and international levels that are often left out of the so-called "climate refugees" dialogue (Dun and Gemenne, 2008). Further, "Migration is too complex a process to label simply as environmental or climate-induced"(Morrissey, 2008, p.28). There is multi-causality related to environmentally induced migrations. The environment is just one — albeit, important — component in the complex decisions making process of individual actors.

CURRENT POPULATION TRENDS AND MIGRATION PATTERNS IN THE WILLAMETTE VALLEY

Current migration patterns are an important factor to examine in a discussion about future climate-induced migration for three primary reasons. The first is that chain migration theory (previously discussed tells us that migrants from a particular place will follow previous migrants from that same place. In all likelihood, the Willamette Valley can expect to have migrants in the future from

the same states and cities they come from now. Current patterns of migration can also tell us what kind of people come here now, which could help to predict who comes here in the future, assuming that climate change will not completely alter those trends. We can determine if the Willamette Valley attracts certain races or ethnicities more than others, for example, or certain education levels or socioeconomic levels over others. A third reason to look at current migration patterns is to determine where within the Willamette Valley people end up when they move to this region.

State of Origin	Number Moved	Margin of Error
California	42,719	+/- 2,625
Washington	23,137	+/- 1,450
Idaho	6,374	+/- 977
Arizona	5,705	+/- 853
Texas	4,323	+/- 745
Colorado	3,822	+/- 652
Nevada	3,703	+/- 598
Florida	3,132	+/- 554
Alaska	3,026	+/- 712
Utah	2,567	+/- 651

Table 1. Estimated annual migration to Oregon between 2005 and 2009.

Source: American Community Survey

State of Origin	Estimated Percentage of Total Migrants
California	33%
Washington	19%
Arizona	4%
Idaho	4%
Texas	4%
Colorado	3%
Florida	3%
Nevada	2%

Table 2. Estimated migration percentages by state to the Willamette Valley between 2005 and 2009

Source: American Community Survey PUMS

Within this discussion, it is important to keep in mind the population forecasts for the region that represent a baseline expectation of the population, sans climate-induced migrants. The Willamette Valley currently houses more than 2.7 million people and is expected to have 3.9 million by 2040. While the number of climate-induced migrants that may come to the Valley is complete conjecture, we can at least know the minimum population we expect today and can add to that later based on emerging patterns of migration and climate change.

Migrants to Oregon tend to come mostly from western states, primarily California and Washington. Table 1 shows the top 10

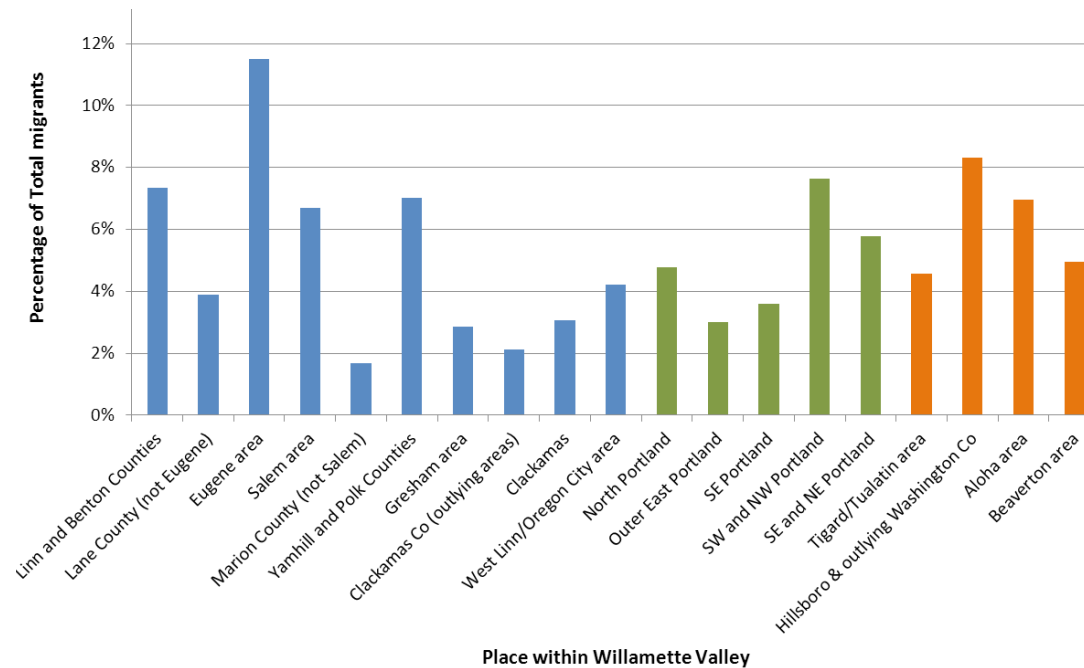


Figure 5: Settlement of migrants to the Willamette Valley between 2005 and 2009

Note: Green bars represent Portland, orange bars represent Washington County, and blue bars include the rest of the Willamette Valley. Source: American Community Survey PUMS

states that send the most people to Oregon, according to 2005-2009 American Community Survey estimates.

The most popular destinations for these migrants are the Portland Metro area, the Eugene area, and Deschutes County, including the City of Bend. Bend is the only substantial Oregon migration destination that does not fall within the Willamette Valley.

Willamette Valley numbers are similar to overall Oregon migration data. One third of recent migrants to the Willamette Valley are from California and about one fifth are from Washington State (Table 2). Within California, a large portion of the movers come from the Los Angeles and San Diego metropolitan areas. In Arizona, the Phoenix metro is the largest source of migrants. These places are of particular importance because of predicted climate change impacts (see Box 2 in Section I: Background).

Over the last half of the 2000-2010 decade, Portland and Eugene received large proportions of those migrating to the Willamette Valley — about 25 percent and 11 percent, respectively. A relatively substantial portion also settled in various parts of Washington County and Clackamas County (Figure 5).

Among migrants to the Willamette Valley between 2005 and 2009, about 97 percent spoke English well or very well. About 8 percent were unemployed, and 28 percent were not in the labor force. About 75 percent had at least a high school degree, and 28 percent had a bachelor's degree or higher. About 12 percent of the migrants were of Hispanic origin, while 82 percent were white alone, 2 percent were black or African American alone, 6 percent were Asian, 2 percent were Native American, and 4 percent were two or more races. More than half of the migrants were between the ages of 18 and 35. Children younger than 18 made up 18 percent of the migrants, and people over 65 were just 5 percent.

Other important considerations include migration patterns within Oregon. The eastern half of the state is very dry and could become drier and hotter in the future. The Willamette Valley contains about 71 percent of the current Oregon population, which could increase substantially if people in Eastern Oregon, especially places such as Bend, move into the Willamette Valley as a result of climate impacts such as diminished water resources.

In addition, California currently receives a large number of migrants from across the nation. One possible impact of climate change is that migration could shift away from California and up into Oregon, where resources, especially water, are more plentiful.

RECOMMENDATIONS FOR FUTURE ANALYSIS

The vast number of variables that affect climate migration makes projections for the Willamette Valley's future inherently

difficult. The uncertainty, however, has led to an avoidance of the issue altogether. Considering climate change has already started to affect migration patterns (see Appendix I, a case study of the Hurricane Katrina Diaspora), planners cannot continue to disregard the need to become better informed about the spatial distribution of climate-vulnerable populations in our country. While it is important for cities to plan for possible changes it is imperative that regions begin collaborating at the county, environmentally defined geographic scale (Willamette Valley, Puget Sound), state, and multi-state level.

Available Data

Public agencies should use the data we have about current migration patterns to develop better frameworks to model climate change migration scenarios in the Willamette Valley. We recommend that public agencies stay informed about the areas of this country where migrants come from and the characteristics of those migrants. If migration theory holds true, people will choose cities that feel familiar to them with regard to culture, urban form, and available work. Concurrently, agencies should track where weather-related events are happening and begin to speculate the connection between the in-migration patterns and those events. We recommend that agencies collect and analyze data with each new American Community Survey (ACS) release. The variability of migration patterns necessitates frequent updates to become acutely aware of the changes taking place in a particular region.

Public Use Microdata Area (PUMA) data (available through the ACS) allows us to track: where people move from; where they move to; and their demographic characteristics. Using these data points, we can create a framework for monitoring and analyzing climate-induced migration, which will help inform municipalities of demographic changes and allow them to anticipate potential strains new migrants will place on public systems.

Organizing Information

For rapid assessment and easy visual analysis, one method planners might use to organize demographic data on potential climate migrant populations could be through the use of a demographic variable matrix (Table 3). A preexisting framework for

performing quick, initial assessments of a climate change migration scenario will be vital as patterns of migration begin to become clear and analysis must be undertaken quickly to begin planning for appropriate changes (and protection of) social, environmental and physical infrastructure in the Willamette Valley region.

Characteristics Important for Planning Purposes

		Race/ Ethnicity	Educational Attainment	English Language Proficiency	Age	Industry	Other?
Characteristics that Predict Migration	Owner						
	Renter						
	In Poverty						
	Not in Poverty						
	With Children						
	Without Children						
	Retiree						
	Middle Age						
	Young Adult						

Table 3: Sample Climate Migration Planning Matrix.

Based on relevant demographic variables for developing migrant population profiles. To see a sample of how this matrix might be populated, see Appendix IV.

The matrix has been developed to allow cities to forecast changing demographics. For example, a city planner can see climate change forcing a greater number of migrants from Southwestern states, using the matrix it is possible to assess who is most likely to move, what their needs may be, and what changes will be necessary. (For an example of how this matrix might be populated, see Appendix IV).

Data Analysis Workflow

While there will invariably be many more factors taken into account to plan for climate migration, we believe the process outlined in Figure 6 (above) provides a starting point from which planners can begin to assess the types of data that might be appropriate for this type of analysis, as well as ways of compiling that data that provide a basis for an overview of a particular scenario.

Further Analysis

In the aftermath of Hurricane Katrina, some cities in the southeastern United States found themselves attracting a disproportionate share of people with certain demographic characteristics. The climate migrants that fled to Memphis and Atlanta, for instance, had a greater relative share of African Americans than the New Orleans MSA. To inform municipalities further, it may be helpful to closely examine differences between those inhabiting the climate migrant area and those arriving in the Willamette Valley from the climate migrant area. This analysis will help planners gain insight into the subsets of climate migrants that the Willamette Valley is attracting and help identify potential needs.

Additionally, contrasting the demographic differences of in-migrants to the existing demographics of the Willamette Valley will also help identify any major cultural shifts that the Willamette Valley should expect.



Figure 6: Data Analysis Workflow for developing climate change migrant population scenario profiles

Lastly, identification of the factors that affect migration decisions from the climate migrant area will help inform area planners and policy makers in the Willamette Valley. A market survey of the climate migrant area can help identify the key factors that attract or deter migration to Willamette Valley. Key market indicators that may play a role in attracting climate migrants include the availability of job opportunities, industry mix, vacancy rates, housing costs, overall cost of living, and school capacity/quality. These are some of the most salient factors households make when determining where to move when given a choice.

LIMITATIONS

Planning for climate change migration to the Willamette Valley is complex but necessary. As has been mentioned throughout this paper, however, a major component of this planning process will need to be the recognition of major limitations in any predictions for climate change migration based on current data, due to extreme levels of uncertainty. Many of the factors affecting climate change are highly complex in and of themselves. Introducing new cause-and-effect relationships between these variables — many of which depend upon larger-scale political and economic contexts — greatly reduces the level of certainty to which we believe we can predict human behavior, long-term weather patterns, and unexpected natural disasters (i.e., pulse events).

Larger regional context

For feasibility's sake, our analysis was confined to the Oregon portion of the Willamette Valley. However, if and when climate migration to the Pacific Northwest reaches a critical mass, it will be important to consider the relationship between Willamette Valley (or other area of study) and other parts of the Pacific Northwest in terms of capacity and attractiveness for potential climate migrants. For example, Clark County, Wash. lies within the Portland Metropolitan Area (PMA) as well as the Willamette Valley, and is a

highly feasible location for climate migrants to settle in the future. Many consider Clark County a population growth “pressure valve” because as property values have been driven up in the PMA the UGB, growth has been spilling into Clark County where land rents are lower than others in the PMA and there is more physical space for residential development.

International migration patterns

International migration patterns are not taken into account in this analysis; in reality, planners would need to take those patterns into account. Climate change in other countries may have equal if not greater impact on settlement patterns in the Willamette Valley, depending upon factors that are largely outside of local control, including national immigration policy, international aid and governance levels, or destabilizing conflict — such as civil war.

Uncertain impact of climate change on migration variables

There is a great degree of uncertainty surrounding predictions for actual impacts of climate change, and the degree to which it will spur pulse vs. pressure events and migration patterns. Changes in population demographics in certain regions will probably have a large impact on climate refugee profiles. However, there are myriad external factors influencing demographic changes across the country, none of which provides a certain enough basis upon which to base climate refugee profile projections with any degree of certainty. For example, lower-income residents of Phoenix, Ariz. may be more likely to move in the event of a water shortage because they are more likely to be renters and thus are more mobile. On the other hand, higher-income populations may have less fungible assets if they own a home, but if they have more overall assets they may also have more choices about when and where to move, perhaps generally migrating out from the impacted area sooner than low-income populations. These are the kinds of factors that should certainly be considered but for which there aren't any concrete answers at present.

CORE PLANNING PRINCIPLES OF THE WILLAMETTE VALLEY

INTRODUCTION

Planning and policy arise from accepted “social, economic and ideological frameworks” that characterize a society during a given historical period (Albrechts, 1991). In the 1800s vast numbers of migrants from the eastern United States relocated to the American West for economic opportunity and the promise of a better life. The land was rich in natural resources: abundant fisheries, range land for grazing of sheep and cattle, forests for lumber products and lush river valleys for farming. Traditional Western frontier values of individualism, freedom, and economic growth shaped the Willamette Valley in the 19th and early 20th centuries. These values have altered the landscape significantly. Since that time, dramatic social, economic, demographic and ideological change has occurred. This dynamic situation makes it necessary to periodically assess core values of Willamette Valley residents. To guide planning decisions in the region, government agencies and municipalities have tried to identify common values through various mechanisms; including, but not limited to, open houses, public surveys, and opinion polls. This has been a laborious, but fruitful effort. The first section of our report reviews planning documents and other planning-related efforts and consolidates the results of these efforts into a set of common values and principles guiding land use planning in the Willamette Valley.

Historic Background of the Willamette Valley Geography

Oregon is characterized by vastly different climates and topography. The high desert of eastern Oregon sharply contrasts with the rain forests of the Oregon coast. The Willamette River Valley is geographically and culturally central to the state in many ways. This role has made it the destination of many immigrants for centuries. The Willamette River Valley is situated between the

foothills of the Cascade Mountain range on the east, the coastal mountains on the west, the Columbia River valley to the north, and the Calapooya Mountains to the south. The valley floor has little topographic variation, except where broken up by large hills and volcanic cones. The Willamette Valley region includes the cities of Portland, Vancouver, Eugene, Salem, Gresham, Hillsboro, Beaverton, Corvallis, Albany, McMinnville, Newberg, and Wilsonville; and the counties generally considered part of the valley include: Lane, Linn, Benton, Polk, Marion, Clackamas, Yamhill, Washington, Multnomah, and Columbia. Clark County, Washington is also included in this report since it is a part of the greater Portland Metropolitan area.



Economy

The Willamette Valley is blessed with fertile soils, a mild climate, and a long growing season. The historic Missoula floods and subsequent flooding of the Willamette River left thick, rich alluvial soils on the valley floor. The land has long been in production. Native Americans cultivated vast camas crops in the Willamette Valley for as many as 8,000 years prior to the arrival of Euro-American settlers (Bureau of Land Management). The tribes of the valley established intricate trading networks with other peoples in the Pacific Northwest.

Historically, natural resources were the principal driver of growth in the region. When Euro-American settlers began to arrive in the mid-1800s, they were drawn by the agricultural and resource extraction potential of the land. They were acting out the “Jeffersonian, agrarian” vision of the American West. (Dash, 1996) The Willamette Valley was the terminus of the Oregon Trail and the destination of many farmers and timber workers. Within only a decade, intense eastern immigration began to take its toll on the land and people of the region. By 1850, the Native American population had been greatly reduced by disease and forced removal, and the first of Euro-American settlements were established in the Willamette Valley. The free fertile agricultural land of the Willamette River Basin provided by the Donation Land Claim Act and the availability of river energy and transportation influenced settlement patterns that persist today.

The development of the timber industry and hydropower drew industry, business and development to the region in the 1900s and shaped many planning efforts of the time. Later in the century, computer and electronic products became an important sector of Oregon’s economy

Agriculture and wood products (paper and wood products combined) are still two of the top five industries in Oregon (Davis,

Hibbits, and Midghall, 2010). The Willamette Valley is recognized for the diversity of crops grown: hazelnuts, grass seed, wheat, berries, hops and nursery products (Oregon Department of Agriculture, 2009). The valley has also become a major producer of wine and wine grapes in the last 20 years. Two-thirds of Oregon’s wineries are found in the Willamette Valley (Willamette Valley Wines).

Settlement Patterns

The highest population densities occur along the Willamette River and particularly at the confluences of major rivers: in Eugene (Coast Fork Willamette, Middle Fork Willamette, and McKenzie Rivers), Corvallis/Albany (Marys, Calapooia, and Willamette Rivers), Salem (Willamette River), and Portland (Willamette, Clackamas, and Columbia Rivers) (Pacific Northwest Ecosystem Research Consortium, 2002). These areas of population growth (Figure 1) coincide with some of the most productive agricultural land in the basin.



The Willamette River and Downtown Portland

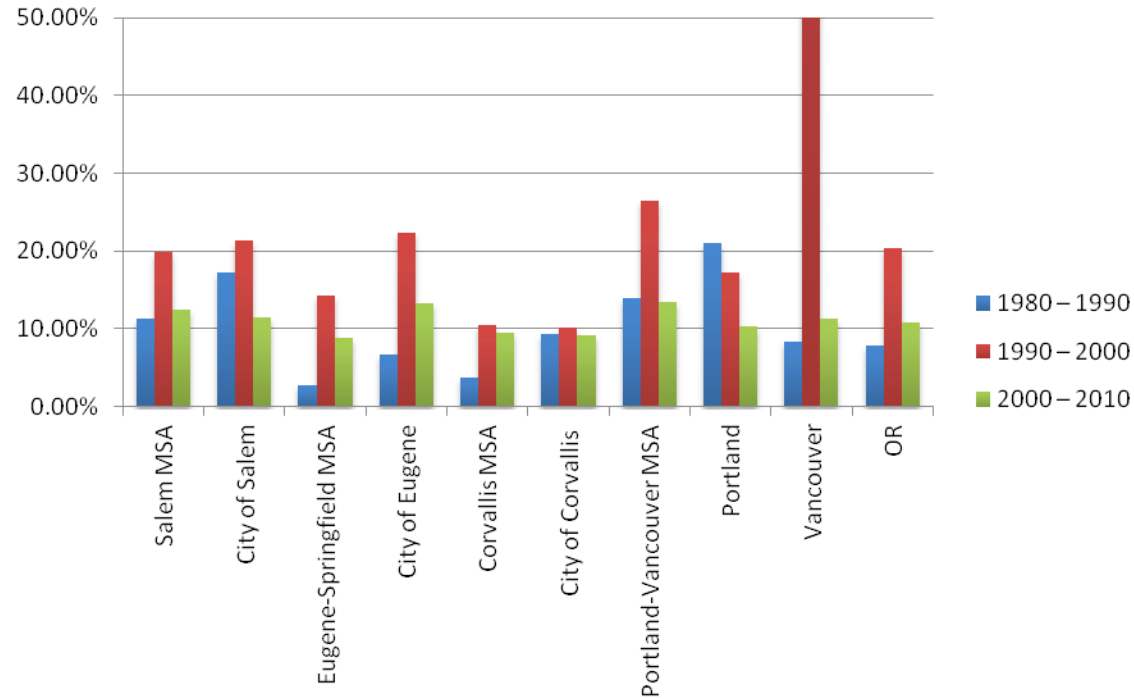


Figure 1. Population growth in the Willamette Valley: percentage of population change in the Willamette Valley MSAs and their central cities, 1980 to 2010.

Data Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder, (<http://factfinder2.census.gov/>).
 *Percent change of population for Vancouver from 1990 to 2000 was an increase by 209.0% of the population.

By 1940, most of Oregon’s population was concentrated in urban areas. Portland alone accounted for 39% of the total state population. Non-urban populations began to decline as a percentage of the total because most new immigration occurred in urban areas, and in absolute numbers in some parts of the state as well. This statewide pattern continued, and in 1970, 40% of the state population lived in the Portland metropolitan area, with another 30% occupying the rest of the Willamette Valley.

As the economy gradually evolved from a resource-based economy to a high-tech manufacturing and information-based economy in the second half of the 20th century, population growth has increasingly concentrated in urban areas, where most jobs in these sectors are located. The U.S. Bureau of the Census defines an urbanized area as composed of one or more places with a minimum of 50,000 people and a density of at least 1,000 people per square mile. By 1990, over 80% of the basin’s population lived in areas

with 1,000 or more people per square mile. Areas within city limits occupied 4% of the total area in the Willamette Basin. The 2010 Census found that the combined population for the Willamette Valley counties for this report to be 2,739,450 (which does not include the 425,000 people living in Clark County, Washington—discussed later in the report), and 65% of that population lives within the six Oregon counties of the Portland Metropolitan area (Portland State University Population Research Center, 2011). Table 1 (shown below) displays the population trends of several keystone communities within the Willamette Valley which support these valley-wide population dynamics.

Demographics

International migration plays a major role in population changes for Multnomah and Washington counties. In Multnomah County, international migration offsets the net loss of residents who migrated to other counties in the United States (Figure 2).

Euro-Americans were not the only immigrant population to settle in the Willamette Valley in the 1800s and early 1900s. It is a common misconception that settlement was predominantly by

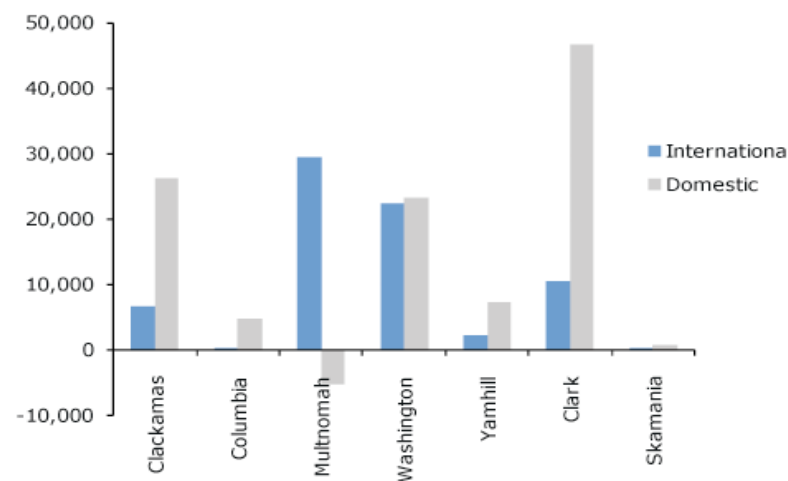


Figure 2. International vs. Domestic Migration in the Portland-Vancouver MSA: Multnomah Co lost some residents to domestic out-migration between 2000 and 2008 but it gained international population.

Source: US Census Bureau, American Community Survey, 2005-2007 PUMS data.

	Corvallis MSA	Eugene MSA	Salem MSA	Portland-Vancouver MSA	Oregon
1980 – 1990	3.8%	2.8%	11.3%	13.9%	7.9%
1990 – 2000	10.4%	14.2%	19.9%	26.5%	20.4%
2000 – 2010	9.5%	8.9%	12.5%	13.4%	10.8%

Table 1. Population Change per decade in Willamette Valley MSAs and Oregon, 1980-2010

Source: 2000 and 2010 U.S. Census

Western and Northern Europeans. This notion was instilled further with the Oregon Constitutional law banning Blacks from settling in the state beginning in 1859. The law was repealed in 1926, but has had lasting implications, partially accounting for a relatively small black population in the area today (Meachum, & Hardwick, 2008). However, many important non-white migrations to the region occurred in the 1800s and 1900s—including, but not limited to, African-Americans, Chinese, and Japanese. The largest influx of African-Americans in the region occurred during World War II when they relocated to work in the shipbuilding industry.

Today a diverse immigrant population continues to grow. Figure 3 shows the great increase from 1990 to 2000 in the foreign born population within the Willamette Valley. According to the 2000-2010 census comparison, Oregon ranked 13th in overall population growth (down from 11th from 1990 to 2000) in the nation (Oregon Department of Administrative Services, 2010) and it currently ranks 11th in total numbers of new refugees (refugee population grew 136% from 1990 to 2000). (Hume & Hardwick, 2005) Most of the new refugees arrive from the Soviet Union, Somalia, Ethiopia, Bosnia, and Southeast Asia and most settle in the Willamette Valley

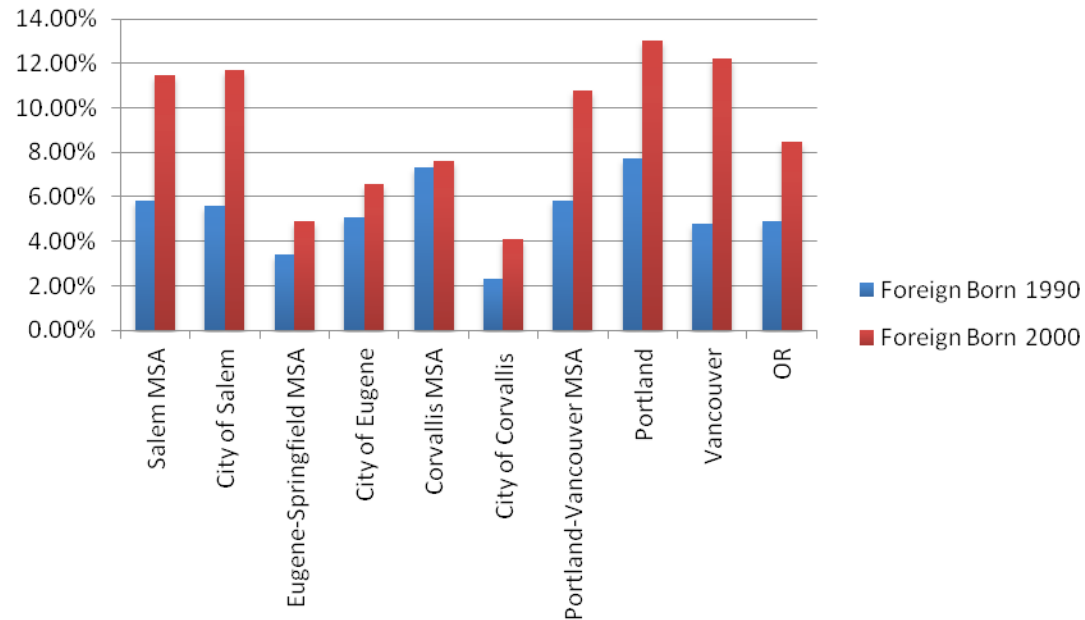


Figure 3. Percentage of the population that is foreign-born for Willamette Valley MSAs and their central cities, 1990 and 2000.

Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder,

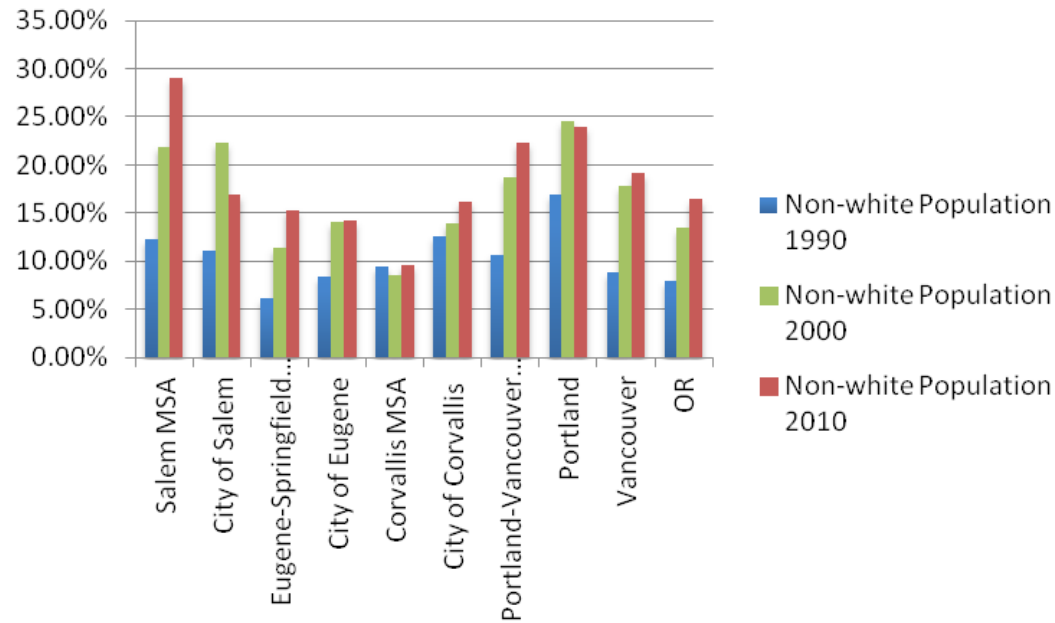


Figure 4. Percentage of the population that is non-white for Willamette Valley MSAs and their central cities: 1990, 2000 and 2010.

Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder.

region. There are many reasons for the influx of refugees to the region: federal refugee laws, the region’s economic growth in the 1980s and 1990s, active immigrant support networks in the Willamette Valley, and affordable housing. Many new immigrants to the area settle in the suburbs of the region due to lower rents, the availability of housing, the proximity to employment and resettlement agencies, and planning policies that create an increase in land values and unaffordable housing in city centers. One of the largest foreign-born populations relocating to the Willamette Valley region in recent years is the Slavic community, with more than 80,000 people in the Portland-Vancouver Metropolitan area.

Religious and social networks connect the Oregon Slavic community with that of their homeland. Survey results and personal accounts reveal that many refugees are attracted to the region because the natural environment, climate, and agricultural land remind them of home (Meachum & Hardwick, 2008).

The Portland Vancouver MSA is not as ethnically diverse as many other major metropolitan areas in the U.S. However, in the last 30 years, the minority population has increased in every county. Willamette Valley MSAs are more racially and ethnically diverse than they ever have been with a rise in the percentage of foreign-born and minority residents.

As shown in Table 2 below, the overall minority population has increased by 67.9% from 1990 to 2010 (from 162,674 people to 507,202) in the Portland-Vancouver Metropolitan area. Minority populations grew more than seven times faster than the overall population of the MSA, which grew by 13.4% from 2000 to 2010 (U.S. Census Bureau, 2010). Latinos are the fastest growing minority population in the Portland-Vancouver MSA.

The largest foreign-born group in the region and the state is Latino-Americans (Figure 5). Latinos were 11.7% (up 63% from 2000) of the total population in Oregon in 2010 (U.S. Census Bureau, 2010). Willamette Valley agriculture produces many labor-intensive crops, which causes a reliance on a large, nomadic class of farmworkers, many of which are Latino. Mexicans started working on farms in the Willamette Valley during the 1940's to address the farmworker shortage during WWII (Nicholson, 1991). The City of Woodburn in the Willamette Valley is home to the only farmworker union (PCUN) in the state and the union serves mostly migrant Latino workers (Pineros y Campesinos Unidos del Noroeste). Small Latino businesses and support services are on the rise in the region, including groceries, retail and other commercial establishments. Planning efforts in the region should assist in preserving and promoting this cultural diversity. The promotion of strong immigration networks could facilitate a smooth transition for incoming migrant and immigrant populations.

The relatively high Latino population in the Willamette Valley has many important considerations. Language barrier is an obvious one. Access to healthcare is another. Poverty rates in the Latino population triple that of the white population in Oregon (Kaiser Family Foundation, 2009). The number of Latino and Black children that live in low-income families is double that of white children in the state (National Center for Children in Poverty, 2009). When planning in the region it is critical to consider the impacts of decision-making on vulnerable and under-represented populations, such as minority and low-income communities.

	Portland-Vancouver MSA
Non-white Population 1990	162,674
Non-white Population 2000	360,000
Non-white Population 2010	507,202
% Change Non-white Population 1990 to 2010	311%

Table 2. Racial/ethnic data for the Portland-Vancouver-Hillsboro MSA and the counties within the MSA, 1990 to 2010.

Cultural considerations

Willamette Valley residents exhibit a diverse cross-section of attitudes and lifestyles. The popular perception of the valley as urban and liberal is an over-simplification. Throughout its history, the region has attracted all manner of cultural and religious groups. There is also a broad spectrum of political viewpoints present in the region. Areas of the Willamette Valley outside of urbanized areas are generally more conservative politically, as voting records show. Urbanized counties tend to vote democrat, rural areas tend to vote conservative. Results of the last presidential election bear this tendency out (New York Times, 2008).

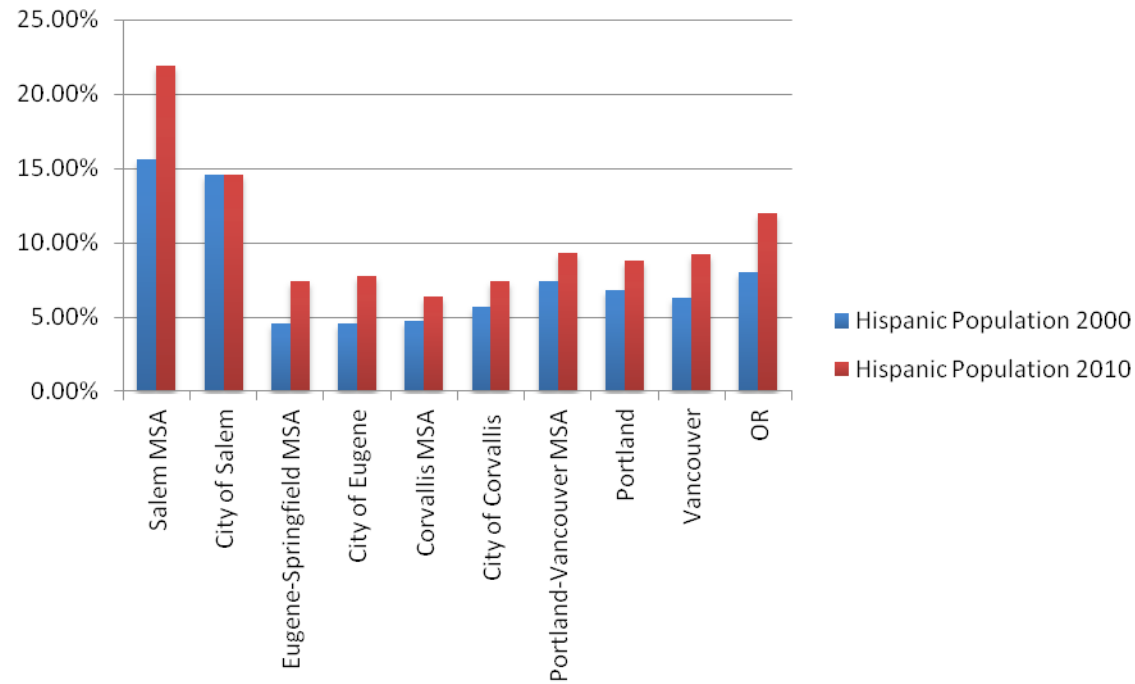


Figure 5. Percentage of the population that is Hispanic (any race) for Willamette Valley MSAs and their central cities, 2000 and 2010.

Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder, (<http://factfinder2.census.gov/>).

*Portland-Vancouver MSA and the City of Portland data are from the 2008 estimates of the American Community Survey.

VALUES AND PLANNING PRINCIPLES OF THE WILLAMETTE VALLEY

Planning policy in Oregon is based on widely accepted principles derived from a particular set of shared place-based attachments and values. The principles drawn from these values serve as a guide for developing and implementing planning strategies that promote healthy, viable, and livable communities, cities and regions. Plans, policies, and public opinion polls reflect values held by Willamette Valley Residents, and suggest widely accepted principles to inform new plans. This section discusses those values and principles. The Appendix D Table shows each information source used to identify

widely held values of the Willamette Valley, with the corresponding values identified in each source. The table also places each value in a value category. Readers interested in particular sources of information should look down the list of rows to find that information source, and then look across the row for the values found in that source. Readers interested in certain issues or value categories, should look across column names to find the issue area or category of interest, and then down the column to find associated values.

Willamette Valley Choices for the Future (1972)

Like much of the American West, the initial settlement and growth of the Willamette Valley was guided by commerce. Trade and travel routes often dictate where growth occurs: it first occurred along the rivers of the valley, then along wagon trails, then along the railroad lines, then, with the advent of the automobile, along freeways and highways, and finally, through airports. In the last century, the relationship between trade and settlement has weakened. The automobile allows residents to live at a distance from their place of work, creating sprawl pattern of development. In response to these patterns, a strong public sentiment arose in Oregon in the late 1960s to resist such sprawl. This led Oregon legislators to craft state land use and growth management practices to protect land qualities valued in the region.

In 1972, Governor Tom McCall commissioned Lawrence Halprin and Associates to conduct a study of future land use scenarios in the Willamette Valley in order to catalyze public conversation on land use planning legislation. The resulting *Willamette Valley Choices for the Future* study provided a comprehensive look at the current state of land use and growth patterns in the valley and proposed two possible trajectories for Willamette Valley growth. The scenarios illustrated starkly dichotomous visions for the future of the Willamette Valley.

Scenario one assumed that the status quo continued into the future. It envisioned a sprawling automobile-dependent suburban development; deteriorated, poorly serviced inner cities segregated by income and race; a large percentage of land used for roadways and automobile storage; a lack of outdoor recreation opportunities close to home; rapidly disappearing farm uses; and dangerously polluted air.

Scenario two envisioned a future of comprehensive land use planning. This vision was marked by compact development,



Painting of “The Willamette Valley Fruit” and photo of the Oregon Timber Industry

economically vibrant non-auto dependent cities, accessible outdoor recreation, healthy agricultural economies and farm landscapes, clean air, coordinated land use planning and intergovernmental implementation (Lawrence Halprin and Associates, 1972).

Senate Bill 100 (1973)

As Oregon grew in the 1960s, Willamette Valley residents, and local politicians, began to view sprawling urban development as an environmental disaster wasting irreplaceable scenery, farmland, timber, and energy. Governor Tom McCall summarized the fears of many Oregonians when he spoke to the Oregon legislature about the “shameless threat to our environment and to the whole quality of life-unfettered despoiling of the land.” On May 29, 1973, Oregon Senate Bill 100 (SB 100) was signed by Governor Tom McCall after being passed by both houses of the Oregon Legislature, creating an institutional structure for statewide planning. The new law required every Oregon City and county to prepare a comprehensive plan in accordance with a set of general state goals. Since the adoption of SB 100, and the subsequent creation of the Land Conservation and Development Commission, statewide planning goals have shaped comprehensive planning and the growth management

strategies implemented in every Oregon county and city. The first of these goals is Citizen Participation, which shows a commitment to public involvement in planning, and acknowledges that citizen participation in land use planning yields better decisions.

Oregon Statewide Planning Goals 3 and 4 are influential in the growth management strategies of Willamette Valley communities. They highlight the economic value of agriculture and forest lands to the state economy. Goal 3 addresses conservation of agricultural lands for productive use and provides protections against uncontrolled development, and Goal 4 speaks to the primacy of Oregon's forest economy and requires "sound management of soil, air, water and fish and wildlife resources". These goals and their supporting statutes provide strict definitions of allowable uses on farm and forest lands. Because of their prescriptive nature, Goals 3 and 4 are criticized for being too rigid and not allowing for local definitions of resource lands. In the Portland Metro region, the establishment of urban and rural reserves provides assurances of the continued viability of the area's highest valued farmlands. A rural reserve designation establishes protections against development for at least 50 years.

Transportation Planning

During the last 50 years, the public dialog about transportation in the Willamette Valley has shifted significantly from a narrow focus on automobile infrastructure to one of more balanced transportation options. Since the construction of I-5, completed in the 1960's, much of the Valley's development has been driven by direct access to this north-south oriented interstate. Prior to its construction, transportation planners had extraordinary aspirations for massive freeway expansion beyond I-5. In 1943, based on a model engineered by famed (and infamous) New York City planner Robert Moses, the City of Portland developed a transportation plan featuring an extensive network of freeways to modernize the city

in order to prepare for what they believed would surely be a high-speed auto-centric future (Mirk, 2009). Several of these freeways were eventually constructed, resulting in the displacement of long-time residents and destruction of city neighborhoods. These negative consequences spurred a fundamental change in the political discourse during the late 1960s and beyond; a change which was backed both by public support, public investment, and new environmental regulations.

The fully funded "Mount Hood Freeway" project, which, if built, would have bisected SE Portland and Gresham and demolished hundreds of homes, was defeated. A large portion of its funding was instead diverted to a new light rail transit system. In addition to the defeat of the Mount Hood Freeway, the remainder of the freeways proposed in the original plan were likewise abandoned, including the "Laurelhurst" and the "Prescott" Freeway; a shift which altered the future of the Willamette Valley.

During the same time period in which the Mount Hood Freeway was halted, the existing "Harbor Drive Freeway," which ran along the west bank of the Willamette River in downtown Portland, was demolished to make way for Tom McCall Waterfront Park. More recently, in West Eugene, plans for a new freeway were scaled down and eventually abandoned due to public opposition to the project (Oregon Department of Transportation). This paradigm shift suggests the unwillingness of Willamette Valley residents to sacrifice their sense of place and community for additional auto-centric transportation infrastructure. Despite this, the automobile remains the primary mode of transportation in the Willamette Valley. On the other hand, Willamette Valley residents share a commitment to provide transportation alternatives and consider the effects of transportation decisions on surrounding land uses when implementing plans.

Lessons learned during the freeway revolts of the 1970s are

reflected in Goal 12 of Oregon's Statewide Planning Goals. Major elements of Goal 12 include planning for all modes of transportation and considering the social, economic, and environmental implications of transportation plans. The Transportation Planning Rule, adopted in 1991, mandates that land uses and transportation facilities need to be systematically planned together, focusing on transit in high density areas, and considering the benefits of mixed-use development on travel patterns (Oregon Secretary of State).

Watershed and Environmental Planning

The Willamette River watershed is a dynamic and diverse landscape. It is easy to understand the regional emphasis placed on environmental quality. Its ecological importance to the region as a whole is immense: the EPA reports that "Although the [Willamette River] Basin accounts for only 12% of the land area in Oregon, it produces 31% of the State's timber harvests and 45% of the market value of agricultural products, and is home to 68% of Oregon's population (United States Environmental Protection Agency, 2002)."

Thus, conservation and preservation of the unique environmental resources present in the Willamette watershed are key to the region's values and character, and responsible utilization of the resources is essential to the Willamette Valley's continued economic vitality. This delicate balance between maintaining scenic recreational assets and functional ecological resources amidst viable timber harvests and crop production has led to a strong regulatory framework and a deep-seeded grassroots activism, making environmental protection a value endemic in the Willamette Watershed.

Virtually all of the myriad regulations protecting and regulating environmental resources throughout the region are reflected in Oregon's Statewide Planning Goals. Goals 3 (Agricultural Lands), 4 (Forest Lands), 5 (Natural Resources, Scenic and Historic Areas, and Open Space), and 8 (Recreational Needs)(Oregon

Department of Land Conservation and Development, 2010) speak directly to environmental issues present in the Willamette Valley. Together they create a mandate for local jurisdictions to plan for sufficient protection, access, and utilization of the region's natural resources. Furthermore, Goal 15 (Willamette River Greenway) explicitly identifies the Willamette River as an integral regional resource worthy of special protection. These goals speak not only to a statewide valuation of environmental quality, but also to a specialized commitment to protecting and responsibly utilizing the natural qualities of the lands within the Willamette Watershed. As a consequence of statewide planning goals, many cities and counties in the Willamette Valley articulate value statements that declare the importance they place on the environment. These are not mere idle declarations; these values are uniformly backed by codes, which apply an extensive web of environmental regulations.

Activism, volunteerism and non-governmental organizations play crucial roles in ensuring the present and future quality of the region as well. One such example is an effort facilitated by the State of Oregon called the Oregon Plan for Salmon and Watersheds, which facilitates volunteer restoration efforts involving citizen groups, businesses, local governments, and regulatory programs to improve water quality and habitat for the purpose of restoring native fish populations. This is one of many efforts which exemplify a shared recognition of the Willamette's unique resources (Oregon Coastal Salmon Restoration Initiative, 1997).

Health and Equity in Planning

Oregon's Statewide Planning goals and the 1999 Willamette Valley Choices for the Future Report address public health. Goal 6 (Air, Water, and Land Resources Quality) requires local jurisdictions to enforce applicable health codes and other government health and environmental regulations. Many of the goals requirements appear to be implicitly driven at least in part

by health considerations. The same is true of Goal 11 (Public Facilities and Services), which requires local governments to plan for health facilities and for sanitary infrastructure to protect public health. The Willamette Valley Choices for the Future Visions makes numerous statements linking human health to the environmental health and economic prosperity. Willamette Valley Choices for the Future also highlights the need to plan for an increasingly diverse population, and to foster caring and open communities. “Valley residents take great pride in working together to build distinctive, caring communities with open, safe, and secure neighborhoods; affordable housing; high-quality education; available social services;

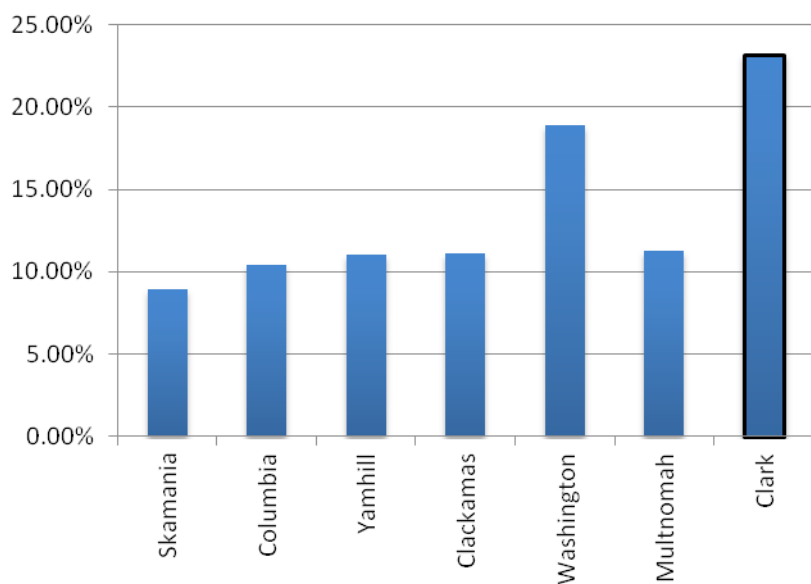


Figure 5. Population growth of Clark Co compared to the other counties within the Portland-Vancouver MSA, 2000 to 2010.

Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder

accessible parks, natural areas, and recreational opportunities; and a healthy environment. Valley communities are close-knit, but not closed off.” Numerous other local and regional efforts also seek to address health and equity.

In the Equity Atlas created by the Coalition for a Livable Future (CLF), one environmental issue explored was the equity of air quality within the region. The atlas states that “particulate pollution...is the primary air pollution problem in the Pacific Northwest (The Coalition for a Livable Future, 2010).” While air quality along the Willamette Valley is improving, many counties in the region continue to have significant air quality concerns and many of which due to mobile sources; 77% of outdoor air pollution in Multnomah County is the result of mobile sources (Oregon Department of Environmental Quality, 2003). In 2008, the Oregon Department of Environmental Quality (DEQ) reported that 72% of Oregon counties exceed the DEQ exposure benchmark for ambient air levels of benzene (mostly from vehicle emissions); furthermore, a study done by DEQ reports that benzene is associated with ¼ of the cancer risk in Portland (Oregon Toxics Alliance, 2009). As would be expected, particulate matter is an even greater issue for heavily urbanized areas, such as Portland.

While an influx of climate refugees would put additional strain on existing air quality, planning for this new population will provide opportunities for continued improvement in that area. The very fact that there exists an organization such as Coalition for a Livable Future to combat this inequity speaks in part to the environmental values of the region. In addition to CLF’s efforts, equity emerged as a focus of the Climate Change Integration Group’s framework for addressing climate change (2008). In their report, they stress the importance of prioritizing the most vulnerable, which are the communities that lack resources and capacity to deal with climate change impacts. The group also calls for public health interventions to be incorporated into local and regional policy and planning

decisions around climate change mitigation and adaptation, specifically in decisions that impact air quality and access to active transportation.

Transportation policies have often burdened neighborhoods that have a disproportionate number of minority and low-income (Frokenbrock & Schweitzer, 1999). Low-income and minority populations are concentrated along the I-5 corridors and other major thoroughways in the region where heightened particulate levels is a concern, which places them at a disproportionate risk of asthma and other related air quality health concerns.

The 2009 report by the Coalition for Communities of Color, titled “Communities of Color in Multnomah County: An Unsettling Profile”(2009), highlighted several health disparities (defined as differences between population groups in regard to disease and health outcomes)(U.S. Department of Health and Human Services, 2010) among non-white communities in the Portland-Vancouver Metropolitan Area. The report suggested that such disparities are the result of disproportionate access to health-promoting societal benefits, as well as a disproportionate distribution of societal burdens. Policies and decision-making around education, housing, transportation, land use, and economic development can mitigate or advance health disparities and inequities, particularly for vulnerable populations.

Several recent plans in the state and in the Willamette Valley emphasize the recent demand for health and equity considerations in planning. One of the most recent comprehensive plans in the Willamette Valley is the 2011 Portland Plan, which is built off of comments and input from City residents and businesses. The Portland community wants to see a plan focused on living wage jobs, quality education, and healthy environments; and to focus on these values, the Portland Plan is built around an equity framework. The Portland Plan states that “without healthy, thriving, prepared



people we cannot achieve our highest goals, [and/or] implement our best plans for dealing with climate change or a secure position in the global economy (City of Portland Bureau of Planning & Sustainability, 2011).”

In 1999, the City Council of the City of Eugene adopted Resolution No 4618, which adopts the concepts of the Triple Bottom Line (environmental, equity and economic impacts, benefits and trade-offs) for future planning in the City. Key points in the resolution focus on an equitable economy for its residents, and on protecting the air and water quality for all residents. Furthermore, the City

of Eugene partnered with Upstream Public Health to implement a Health Impact Assessment (HIA) on a local Climate Action Plan, which made several recommendations to mitigate health impacts that the project may have. The City of Gresham adopted a Council Work Plan in 2010/2011 that strives to achieve the goal of equitable access and opportunity to healthy, affordable food and to active living for its residents. They partner with Multnomah County Public Health to promote changes, such as equitable access to transit and parks, in the built environment to achieve this goal. After public input, the City of Gresham considers adopting a health and equity lens for its next comprehensive plan.

In addition, the Oregon Health Authority (OHA) developed an Oregon Health Improvement Plan (2010) for the coming decade. The 2011 to 2020 plan strategizes to improve the health of all Oregonians where they “live, work, learn and play to ensure individual health long before health care is necessary.” To inform the plan, an extensive community engagement process took place to capture Oregonians’ values concerning community health. Two of the top core issues in communities around Oregon were poverty and education, which are also identified as core issues in the Portland Plan participatory process. According to the OHA, local and national research also suggests that poverty and education are top issues in Oregon communities. The Health Improvement Plan focuses on achieving health equity and population health, which involves the promotion of opportunity and access for all Oregonians of healthy food, increased physical activity and clean air quality by improving neighborhood design, transit systems, education systems, and parks and workplaces—all influenced by planning decisions.

The commitment to health and equity in planning is apparent with the efforts of many local governments; however, commitment to these principles can be improved and these principles should be incorporated into more planning efforts.

Considerations from the North: Clark County, Washington

While the entire Willamette Valley is contained within the state of Oregon, it is important to consider Clark County, Washington when taking a regional view of the valley. In many ways Clark County is a cultural and economic extension of the Willamette Valley. Vancouver is the largest city in Clark County and the second largest city in the region after Portland, with 162,000 people in 2010 (U.S. Census Bureau). Several more residents of the urbanized area live in smaller satellite cities and unincorporated areas surrounding Vancouver, with a total county population of 425,000 (Bae, C. H., 2001).

Growth in Clark County in relation to the remainder of the Portland Metro Region has followed an interesting trajectory since the inception of the Urban Growth Boundary (UGB) in Portland. Since this time, Clark County has experienced more rapid growth than Portland City. Up until 1990, growth in Clark County paralleled the growth that was occurring in other suburban areas in Clackamas and Washington County. However, since 1990, the population growth rate in Clark County has exceeded all other Counties in the Metro Area. Growth rate differences have been attributed partly to differences in growth management laws and taxation laws, among other unknown factors. As noted earlier, under SB 100, all cities in Oregon are required to develop comprehensive plans with UGBs to accommodate projected growth for 20 years. Washington developed similar legislation in 1990, entitled the “Growth Management Act” (GMA). Like SB 100, Washington’s GMA contains state planning goals, including a provision to establish Urban Growth Areas (UGAs) or Boundaries. However, this legislation was passed 20 years later than the legislation for UGB’s on the Oregon side. Some claim that a few years after the inception of the UGB in Portland development was “tightened,” driving up land prices, whether it was through increased quality of life or a decreased supply of land. After this occurred, development in Clark County

not only continued, but accelerated, becoming a “release valve” for the more contained growth in Oregon, explaining the growth rates mentioned above. In addition to the UGB, other factors for the growth differential include lower state property and income taxes and the construction of the Glenn Jackson Bridge in 1975, which connects Eastern Vancouver and Portland.

Looking to the future, the unbridled growth that has occurred in Clark County is unlikely to sustain itself without substantial job growth to accompany it. Over 35% of the residents in Clark County commute to the City of Portland, and many more commute to other areas in Washington and Clackamas counties. This creates congestion problems on the two Columbia River Bridges (I-5 and I-205).

Perhaps the best path for the future of Clark County can be found through more effective coordination with the remainder of the Metro Region. The similar structure of UGBs in both states, in addition to the provision for local control under Washington’s GMA (Carson, R. H.). lends itself to a unique opportunity for bi-state planning coordination. Some coordination does exist between Clark County and the rest of the Portland-Vancouver metropolitan area. However, the only official bi-state body is the Joint Regional Policy Advisory Committee on Transportation. Although the two areas discuss plans with one another, a greater focus on coordination of UGB delineations that will prevent Clark County from continuing to absorb unwanted sprawl in the region. With more local control, Clark County can coordinate growth management with Metro, focusing on common values, including: compact development, supporting a variety of housing options, and preserving open space with a healthy eco-system (Clark County Washington, 2011).

Recent Planning Efforts Regarding Future Settlement in the Willamette Valley

Various planning efforts have attempted to engage regional stakeholders and the public in planning for the future since the original 1972 Halprin Study. In 1999, Governor Kitzhaber’s Willamette Valley Livability Forum released the Willamette Valley Choices for the Future Report (Choices for the Future) (Willamette Valley Livability Forum, 1999). The report describes trends from previous decades that have shaped the valley, envisions how the valley should look in the future, and summarizes appropriate actions to bring that vision to reality.

The future visions for the valley presented in Choices for the Future draws on polling conducted by DHM Research. They found many diverse, and many relatively common values in the Willamette Valley. The top five concerns of Willamette Valley residents were “quality of education, crime, traffic, preservation of open space and natural areas, and protection of fish and wildlife.” Valley residents rated the following potential future community outcomes as the most desirable out of a list of 13 outcomes: “good air quality and water quality; sufficient supplies of water to support communities, industry, fish, and wildlife; maintaining the unique character and livability of communities in their county; and a significant amount of open space, natural areas, fish and wildlife habitat, and public parklands in their county. The top concerns of other forum participants who took the poll were “Overpopulation,” “loss of open space and natural areas,” “quality of the education system,” and “traffic.”

Choices for the Future 1999 envisions the following conditions for the Willamette Valley in 50 years: Compact development coordinated regionally and across jurisdictions creates vibrant town centers, affordable public services, viable agricultural landscapes, and affordable and diverse housing and transportation options.

Within population centers, accessible places are made for diverse outdoor recreation activities. Coordinated public investment in ecosystem services has created healthy habitats for fish and wildlife, and healthy environments for people to live and recreate in. Both urban and rural resources have been restored relative to their previous conditions. Many communities are diverse, close knit,

and engaged in improving their environments and opportunities for all members to live healthy and productive lives. Residents are prepared to fill the jobs created by our growing economy. The economy increasingly sources labor, service, and material inputs locally, benefiting the entire Willamette Valley economy.

	Population inside UGB at time of forecast	2035 Population Forecast and % Growth	Capacity for accommodating new population within existing UGB (based on buildable lands inventory)
Portland Metro UGB*	1,531,500 (2009)	2,156,683 (41%)	2010 UGB Expansion met need for additional 30,300 units, average density of >10 units/acre.
Eugene-Springfield UGB^{1**}	242,156 (2008)	303,900 (25%)	2624 acres of developable residential and mixed use land within existing Eugene and Springfield UGBs. Average density of 7.2 units/acre ²
Salem-Keizer UGB^{3***}	239,760 (2011)	307,783 (28%)*	6033 developable vacant residential and mixed use acres, existing average density of 5.2 units/acre

Table 3: Existing data on Population within UGBs, Forecasts for Future Population, and Anticipated Housing Capacity Needs

**The UGR used historical trends to assume a capture rate of 60.8% of new growth to the PMSA will be inside the Portland Metro UGB. The 2030 population forecast selected by Metro to use for planning purposes was the lower end of the middle third of the population growth range. Portland Metro data is allocated by subarea unit densities, and therefore is not reported in acres.*

***Eugene and Springfield are in the process of creating separate urban growth boundaries.*

****Marion County Forecasts were actually for 2012-2032, but 2035.*

The Willamette River Basin Planning Atlas, created in 2002, builds on the previous study and describes three possible land use scenarios for 2050, based on hypothetical land use regulation and conservation investment scenarios, assuming a 2050 valley population of 3.9 million people (Pacific Northwest Ecosystem Research Consortium). Under all three scenarios, forested lands will continue to occupy over ⅔ of the Willamette Valley's land area, and water demand will not exceed supplies, although in stream flows will decline under the trend scenario. The scenario outcome differences primarily relate to the amount of agricultural land converted to urban and rural residential uses and native vegetation, the extent to which Rural Residential Zones are built out and/or converted to urban uses, and the extent of natural area, riparian, and flood zone protection within UGBs. No new UGBs were created under any scenario.

The Conservation Scenario, which received the most support, would result in UGBs expanding to contain 54,000 additional acres; developed area in Rural Residential Zones (RRZs) will decrease and clustered development will occur in areas adjacent to the rural residential zones; 248,000 acres will be converted from agricultural



Photo of a Willamette Valley rainbow, by Rob Robinson



www.duntonfarms.com
The Willamette Valley Southern Railway Electric Locomotive ca. 1915

uses, and over three fourths of the conversion will be to native vegetation. Under this scenario, UGBs are expanded more than they would in the Plan Trend scenario, to accommodate more urban natural areas and more protected areas adjacent to urban water bodies. RRZs will be less developed, and areas adjacent to them will be developed at relatively high densities. More agricultural land will be converted to other uses than in either of the other scenarios; however, most of the conversion will be to natural vegetation.

Each of these require require public interventions used to model the three scenarios (respectively), primarily in relation to within-UGB development density standards, development prohibitions in hazard-sensitive and environmentally-sensitive areas, conservation incentive and easement acquisition programs for converting agricultural land to native vegetation, protections for agricultural uses depending on soil class, and regulations and incentives for clustered rural residential developments. Some of the primary public interventions necessary in order for the Conservation Scenario to play out include: increase within-UGB



Portland's Urban Growth Boundary

residential densities to 9.3 units per acre, instead of to 7.9 units per acre projected by the continuation of current policies; prohibit new construction in the Federal Emergency Management Agency (FEMA) 100 year floodplain and in riparian areas; publicly finance acquisition and restoration of some agricultural lands to native vegetation habitat; create new conservation incentive programs and promote existing programs that encourage agricultural land owners to convert stream edge areas and field borders to native vegetation areas; change land use regulations and taxes incentives to encourage clustered development in and adjacent to existing rural residential zones; and allow some clustered rural residential development on prime agricultural lands.

Each scenario represents a set of possible land use outcomes in the Willamette Valley based on a different set of assumptions. The authors implicitly value something like the conservation scenario, which most closely mirrors the residents' values identified. The assumed policies for the scenario could be picked from and altered to create outcomes that more broadly reflect Willamette Valley values. For example, to retain some of the scenario's ecosystem function values that Willamette Valley residents have expressed

support for, while giving greater protection to prime agricultural lands, programs to convert entire prime agricultural parcels to native vegetation habitat could be forgone, and rural residential cluster developments could be encouraged only within existing rural residential zones. This scenario may still have many viable components to incorporate in valley-wide planning efforts.

The Willamette Valley Livability Forum polls revealed that Willamette Valley residents ranked population growth as a significant concern. Many of the other identified concerns are associated with population growth, and maybe cannot be addressed by growth management and other policies traditionally used in Oregon. The report is a response to the challenges faced by population growth, as the original 1972 Choices for the Future Report was. However, the details offered in the 1999 study mostly describe how population growth continues to deteriorate the things that Willamette Valley residents value most, and that we aren't much closer than we were then to having systems that respond effectively to the changing growth trends.

A few years later, in 2005, the Oregon Task Force on Land Use Planning, also known as the Big Look Task Force, was convened and



Photo of a Willamette Valley rainbow, by Rob Robinson

appointed by Governor Ted Kulongoski and legislative leaders. An array of interests and viewpoints were represented in the members of the task force, which included actors from both the private and public sectors. The mandate of the 10-member task force was to conduct a comprehensive evaluation of Oregon’s Statewide Land Use Planning Program and provide recommendations for improvements. Task force members solicited expert and citizen feedback through town hall meetings, public opinion and statistical surveys, and meetings with stakeholder and working groups. A series of twelve town hall meetings were held across Oregon in September and October 2008. Citizens were asked to comment on the preliminary findings of the Task Force.

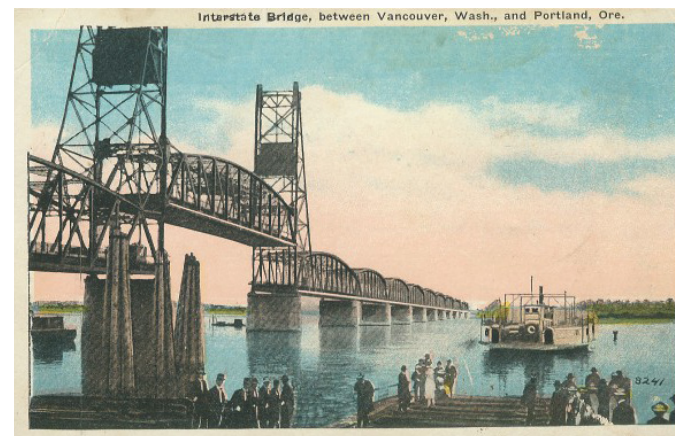
Early in the effort, over fifty stakeholder groups were tapped to guide the project. Draft recommendations were subject to review and testimony from diverse interest groups from across Oregon, which resulted in a series of amendments. The results of this effort were compiled in a final report presented to Oregon’s 2009 legislature. The final report identifies four broad values shared by Oregonians: support environmental protection; support sustaining and building a prosperous economy; support a high quality of life

and the creation of livable communities; support a land use system that has a fair and equitable process and outcome (Oregon Task Force on Land Use Planning, 2009).

The final legislative recommendations of the task force were codified in Oregon House Bill 2229, which passed by the 2009 legislature and then signed into Oregon law by Governor Kulongoski. One major takeaway of this legislation is to allow counties to work with DLCD to remap their rural resource lands.

Population Forecasting in the Willamette Valley

Oregon cities and counties use various population estimation methods to guide expectations and to consider ways to accommodate population in their cities and counties. Oregon State Law (ORS 195.036) requires every Oregon County to adopt a coordinated population forecast for the rural county and for each city’s urban growth boundary (UGB). With assistance from the state, cities must conduct their own forecasts to inform their UGB assessments. Goal 14 of Oregon’s statewide land use system requires UGBs to maintain a 20-year supply of buildable land. Since a population forecast determines how many new residents a city



must plan for, these forecasts are significant in influencing whether or not a city will expand their UGB. Buildable Lands Inventories are conducted to assess the developable land to meet residential and employment needs. Most buildable lands inventories find significant vacant and potential land for redevelopment for new housing, but much is zoned for “low-density residential” and, therefore, the analyses are constrained to that limit.

Current planning for housing within UGBs is conducted in accordance with Goal 10 of Oregon’s Statewide Planning program. Goal 10 defines needed housing types as “housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels.” A population forecast and buildable lands inventory are conducted to assess the capacity for accommodating new growth. The most relevant points to note regarding population forecasts for the Willamette Valley’s largest UGBs is that there is a need to maximize potential for redevelopment and a need to consider ways to prioritize new growth close to existing centers and corridors in capacity assessments. For instance, the Salem-Keizer Housing Needs Analysis identified that their UGB has a need for more multi-family land and an over-capacity of single-family homes, but average densities as low as 5 units per acre throughout much of the urban area (Parker, R., & Goodman, B., 2011). The Portland Metro area completed a capacity analysis of its urban growth boundary, the Urban Growth Report, in December 2009 (Metro). Though it recognizes there will likely be slower rates of growth in the short term due to current economic conditions, it prioritizes significant new population and employment growth in existing regional centers, and the resulting UGB expansion for residential uses will plan for densities of 12-20 units per acre in the South Hillsboro area.

The assumptions that inform forecast estimates and scenarios are based on land supply and the demand for various housing types. Demand for housing and jobs is based on population forecasts and

demographic and employment trends. National demographic and housing trends are expected for many areas of the Willamette Valley, including smaller household sizes with fewer children, aging residents with a greater demand for services, a diversifying population and a need for more affordable rental housing options due to declining home-ownership rates. Most researchers assume that a household of a given type (income, age of householder, and number of occupants) will have the same housing preferences in the future as they have today and that as the relative share of that household type changes (e.g. more high-income, middle-aged, two-person households) so too will the demand for their historically preferred housing type (e.g. owned, multi-family). For example, some researchers have posited that an increased share of one and two-person households will translate into an increased preference for compact residential development (Metro, 2010). Growth reports are slowly beginning to consider that increases in traffic congestion may impact locational preference by causing individuals to reassess the tradeoffs of more time spent in traffic, rising costs of automobile ownership with their potential interests in owning a traditional suburban home, which could result in a shift in housing preferences towards more central locations with mixed uses and access to transit. Metro uses market research, home ownership and rental data to evaluate neighborhood desirability and these predictions could be exported to other areas of the Willamette Valley to better estimate where new types of residents may be most interested in and economically able to settle upon arriving.

In the Portland Metro area, three counties (Clackamas, Multnomah, and Washington) provide Metro with quarterly updates to the Regional Land Information System (RLIS) zoning data to evaluate housing supply. Local zoning designations are translated into 44 generalized zoning classifications, each of which has an assumed maximum zoned capacity (Metro, 2009). These

projections use the 2007 buildable lands survey to consider which areas to include in the analysis, and to consider existing potential for refill and infill. In the Portland Metro area, infill is defined as the development of new structures on an already developed space, and refill is the removal and replacement of development. The analysis for infill and refill does not take into account the potential for up-zoning to accommodate more infill than is currently zoned for. Infill and redevelopment potential is considered and calculated differently in other jurisdictions outside the Portland Metropolitan area.

Low-density suburban growth patterns, built both before and after the creation of urban growth boundaries, have created significant opportunities for infill and refill development throughout the Willamette Valley. Cities across the Willamette Valley employ different strategies to accommodate new density without further UGB expansions, and a more comprehensive assessment would be necessary to fully evaluate the changes in density/land area over time since urban growth boundaries were created. The City of Eugene has been recognized for its stakeholder engagement in the Envision Eugene process to take a closer look about ways to use infill and redevelopment to respond to anticipated changes in population.

Planning for Jobs

With consideration of the supply of available land for population growth, counties must conduct an Economic Opportunity Analysis in accordance with Goal 9 of the statewide planning program. The DLCDC explains this as “a technical study that compares projected demand for land for industrial and other employment uses to the existing supply of such land. The Economic Opportunities Analysis (EOA) process helps communities implement their local economic development objectives and forms the basis for industrial and other employment development policies in the comprehensive plan.”

The EOA includes a trend analysis of existing and likely employers, strategies to attract and retain jobs as well as site suitability analyses of the existing and potential (inside and outside existing UGB) land supply as it relates to the need for additional jobs. There will need to be increased attention to the strategies used to retain primary industries that pay high wages, attract contributory companies and have a strong small business cultivation program when considering higher migration rates in the future.

Willamette Valley regions have different industry mixes based on their geographic desirability, workforce potential and incentive structures. Appendices B and C show the distribution of industry within the Willamette Valley as it exists at the time of this writing (2011). The appendices list the quantities of nonagricultural, non-governmental jobs by industry for each MSA within the Willamette Valley region, and provide an informative picture of how industry is concentrated at present as well as a suggestive insight into how that distribution may influence future settlement.

Planning for Climate Change

In 2007 the Oregon Legislature recognized the need to create a substantial plan and engage stakeholders in planning efforts to prevent and adapt to climate change. The legislature set a target to reduce greenhouse gas emissions per capita to 10% below 1990 levels by 2020 and to 75% below 1990 levels by 2050. (Oregon Sustainable Transportation Initiative, 2007) The Oregon Global Warming Commission was formed in 2008 to make recommendations of the actions required to meet these goals from all sectors and individuals. To specifically address these goals in land use and transportation sector, in 2010, the legislature created the Oregon Sustainable Transportation Initiative (OSTI) through Senate Bill 1059. OSTI is an integrated effort between the Oregon Department of Transportation (ODOT) and the Land Conservation and Development Commission (LCDC) to reduce greenhouse

gas emissions from transportation while also considering ways to improve the built environment for healthier, more livable communities and greater economic opportunity for everyone. OSTI created a toolkit for Oregon metropolitan areas to use to meet greenhouse gas reduction targets, which will assist communities throughout Oregon with planning for growth. This effort is closely aligned with Least Cost Planning for transportation projects, which will ultimately evaluate the social, economic and environmental costs of transportation projects and plans across Oregon.

The Global Warming Commission has recently released its Roadmap to 2020, on preventing and adapting to climate change, and conducted public outreach on the recommendations. There is relevant information to draw from the surveys regarding existing Oregonians' attitudes towards climate change and efforts to slow its effects in Oregon. Though this is statewide and not Willamette Valley specific, the findings of the June 2011 survey are relevant for informing values and policy recommendations. Some takeaways from this survey include:

- Carbon reduction strategies related to energy generation and conservation have a broad appeal among Oregonians of various political backgrounds.
- There is a strong value placed on Oregon making investments in energy generation to reduce dependence on fossil fuels by investments in smart grid and renewables, and reductions of coal-based generation.
- Strategies to reduce carbon emissions that do not result in financial incentives for consumers had lower levels of appeal among respondents who did not self-identify as liberal. (Oregon Global Warming Commission, 2011)

And lastly, in attempting to apply values of residents across the Willamette Valley to planning principles and scenarios, it is helpful to consider how voters have responded at the ballot box to land use

issues. The results of Measure 49 are a reliable indicator of valley-wide support for protections of Oregon's farms, forests, and natural resources. Measure 49 was referred to voters by the 2007 legislature for them to reconsider the impacts of Measure 37, which allowed landowners to file claims to waive land use regulations in order to allow for more development, at the expense of protections written into law. Measure 49 passed by a wide margin in most of the state, and in every Willamette Valley county, to restore the protections of land use planning, especially to farms, forests and natural resources but also allowing some opportunities for property owners to build up to three excess dwelling units on their property. The results of Measure 49 are the most recent, comprehensive representation of how Willamette Valley residents support much of the statewide planning program's protections.

Values and Principles for Planning in the Willamette Valley

Section II and III reviewed some values that are widely held throughout the Willamette Valley, using existing plans, policies, and public opinion polls as a guide. Appendix D summarizes the information sources and associated values. Some of the information sources contained extensive lists of values that at least some people hold. Re-presented here are some of the more widely held values. This review did not consider how the existing plans, policies, and polls are representative of the entire Willamette Valley population. The review also did not consider how the polling instruments and participation processes that inform our information resources, bias the values that are ultimately represented. Willamette Valley planning should be informed by widely held values of its residents. Polls and participation processes to identify values should be designed to capture the full diversity of values held by Willamette Valley residents.

TAKEAWAYS, CHALLENGES, AND RECOMMENDATIONS

We have developed a series of planning and policy recommendations corresponding to the values and principles identified in Section II and III. Some of these can be represented spatially and are discussed in more depth in the synopsis of how the events were used to workshop

Health and Equity

When planning in the Valley, it is critical to consider the impacts of decision-making for vulnerable and under-represented populations. Minority and low-income populations are disproportionately burdened by negative impacts of decisions that have health impacts. Equity and health have become increasingly recognized and practiced planning principles. The promotion of equity and health in planning supports the opportunity for all residents to have access to a healthy, viable community. Recommendations to influence the inclusion of health and equity into policies and decision-making in the Willamette Valley include:

- Planning in a co-productive framework—collaboration among public health, transportation, and planning professionals along with businesses, residents and communities to guide decision-making in a democratic problem solving process.
- Invest in public participation trainings. Low income and minority residents, especially those new to the valley, are less familiar with how to effectively participate in various planning processes. The Department of Land Conservation and Development and other agencies that have a concern about effective public involvement should prioritize trainings for new and traditionally under-represented residents to ensure their values are represented in the planning process.
- Incorporation of health and equity indicators in analysis to guide decision-making.

- Incorporation of tools and methods, such as Health Impact Assessments, that promote health and equity in the planning process.
- Build state policy that requires municipalities to incorporate health and equity measures into their comprehensive land use and transportation plans.

Environment

Oregonians are committed to environmental stewardship and consistently support policy choices that prioritize protections of our state’s natural resources and assets. With regard to statewide planning efforts concerning Oregon’s preparedness for climate change and greenhouse gas reductions, increased attention will need to be paid to which strategies will work for each community.

- There should be increased coordination between Willamette Valley jurisdictions about ways to provide access to natural areas within and outside of the city.
- Willamette Valley communities should participate in processes related to Governor Kitzhaber’s 10-year energy plan to improve energy provision, production and efficiency around the Willamette Valley and consider the impacts that increased population will require for energy availability and/or improved energy efficiency.

Economy

While jobs are the buzzword in our current economic downturn, there are significant opportunities to assess and build on the Willamette Valley’s economic strengths to ensure that we provide a business climate to provide jobs for existing and future residents.

- Oregon has the structure in place to vision and guide land development, so economic opportunity analyses could become a more enforceable process to guide new job creation, and not a wish-list tied to population projections

for new plots of land for a UGB.

- Small business cultivation and minority business development is an important component to cultivating start-up businesses. Improving these efforts could be directed from the state level or through providing resources and funds to small business associations.
- Job training programs should focus on the Valley's assets including in building upon existing agriculture and green job training centers across the state.
- Opportunities for industrial development and redevelopment within existing UGBs should continue to be considered under the recent legislation, SB 766. Creation of incentives for communities to redevelop unused industrial areas could be an improved tool for job growth.

Resource and Rural Lands

Oregon's land use planning system has created strong legal protections for agricultural and forest lands. An influx of population in the future will put an increase in pressure to convert these lands for residential and industrial uses. Any future planning efforts should maintain or strengthen existing protections and direct growth to lands more suitable for development. The continued production and preservation of rural and resource lands in the Willamette Valley is crucial to the economy and identity of the Willamette Valley. Recommendations for continued protection and production of rural and resource lands in the Willamette Valley include:

- Designate urban and rural reserves throughout the Willamette Valley, to ensure long term protection of high value farm and forest lands from development.
- Encourage infill and density within urban growth boundaries, to relieve development pressure on rural and resource lands.

- Establish buffer areas of open and undeveloped space between incorporated cities to preserve the character of both the communities and the rural lands between.

Transportation

Over the last century, Oregon's transportation system has evolved dramatically. A few planning principles currently being pursued in the Willamette Valley will maintain and provide transportation options into the future.

- Transportation and land use planning efforts should include greenhouse gas reduction in each of the existing metropolitan areas.
- Implement Least Cost Planning at the state level requiring municipalities to consider the environmental and economic impacts of transportation projects before implementation.
- The state should seek a dedicated source of funding for alternative transportation projects to ensure there is a stable level of funding for maintenance of existing facilities and funds for transit, biking and pedestrian improvements.
- Communities should continue to prioritize new housing and job growth along existing alternative transportation corridors to improve transit efficiency by increasing the density along dedicated corridors.
- Pursue further opportunities for consideration of enhanced rail transportation in the Willamette Valley. Existing freight and Amtrak lines are important resources to move people and goods efficiently and there is high demand for inter-city transportation.

Urbanization and Livability

Strong leadership from the state will help communities accommodate and incentivize infill development within existing

cities so UGB expansions are infrequent.

- Standardize population forecasting methodology at the state level or through PSU's Population Research Center so cities make more informed decisions to accommodate and prioritize growth within their urban areas.
- Continue to coordinate planning between Clark County and Metro to achieve common planning goals.
- Improve housing choice and mix in existing urban areas. New residents and a changing demographic will have a variety of needs and expectations beyond the single family home, especially more affordable housing close to transit.
- Goal 14 should guide communities through the best strategies to prioritize infill development that should avoid displacing existing residents and diluting community values. Metro's Climate Smart Communities planning could also consider and export strategies to allow for people to continue to live and work in communities as they redevelop.
- Some future development should occur in designated urban reserves, which should be developed at densities that support transit and maintain connection to existing urban areas.
- The Willamette Valley Livability Forum recommended that the urban areas of Salem/Keizer, Albany/Corvallis, and Eugene/Springfield; neighboring cities within a 30-minute commute; and applicable county governments work collaboratively through their Councils of Governments to develop and adopt inter-jurisdictional growth management framework plans for their region. Someone should evaluate the extent to which this has happened, and what other support or incentive structures local governments need in order to plan collaboratively across regions.

CONCLUSION

Oregon's visionary land use planning system will be tested in the coming years. The expected in-migration of climate refugees from across the United States and around the globe in the next several decades will place additional burdens on existing social structures and public services. Maintaining the existing system and creating new ways to manage growth in the Willamette Valley are essential for accommodating the growing population.

In addressing the question of how to plan for unanticipated growth in the Willamette Valley, we consider a range of measures at different scales and levels of government. While some planning policy efforts can be considered at the state or the Willamette Valley scale, other grassroots initiatives must be focused at the jurisdictional level of counties and cities. We have identified growth management recommendations in accordance with the values and principles identified by Willamette Valley residents. Adaptive growth management efforts in the Willamette Valley should consider regulating and/or incentivizing urban growth based on the following basic criteria:

- Within existing urban growth boundaries.
- Where urban infrastructure and services exist.
- Around existing transportation corridors.
- Around existing urban cores, where density fits into the character of the area.
- On vacant or underutilized properties within existing urban growth boundaries.

Planning and growth management must happen at multiple scales to effectively promote growth in areas of the region where it can be most sustainably accommodated. The following recommendations outline important factors that should be

mapped at the Willamette Valley scale in order to preserve open space, utilize existing transit infrastructure and support regional economic development. At the local level, detailed analysis of urban land is an important step for cities and counties to enhance their ability to grow smarter, and avoid the expansion of urban growth boundaries by identifying innovative ways to better utilize their existing developed areas.

Willamette Valley Scale Mapping Conclusions:

- Identify and map open and green space to buffer between incorporated cities.
- Identify and map transportation corridors in the Willamette Valley to anchor and direct growth.
- Identify large employment clusters in the Willamette Valley – new economic development should build around these existing hubs.

City/ County Scale Mapping Conclusions:

- Focus growth inside existing urban growth boundaries and urban reserves when necessary.
- Conduct a more strategic inventory of sites for infill development in proximity to existing urban cores.
- Jurisdictions should inventory and map vacant or underutilized industrially zoned parcels within their UGBs.
- Upzone some Single Family Residential zones to higher-density residential or mixed use zones.

Each incorporated city within the Willamette Valley should undertake an effort similar to that accomplished with Metro’s 2040 Growth Concept plan. Cities should identify and map regional centers, town centers, corridors, and main streets. By making these designations, jurisdictions can prioritize where growth should occur, and can better predict the appropriate level and intensity

of development. Hillsboro, Tigard, Salem, Eugene, Corvallis, and several Yamhill county cities all have capacity for increased density to enhance their urban cores, while the extension of light rail service to Milwaukie has the potential to catalyze new commercial and residential investment in adjacent areas. Increasing density in traditionally suburban areas is a top priority to accommodate population growth in areas that have convenient, yet under-utilized, public transportation and urban infrastructure.

In accordance with the values and principles identified by Willamette Valley residents, areas targeted for new growth should be within existing Urban Growth Boundaries, and on vacant or underutilized properties rather than fringe greenfield sites. Jurisdictions lacking vacant and underutilized land should direct development to urban reserves. Ideally, new residential development should occur within two miles of existing transportation routes, in areas identified in the 2040 growth concept plan, and in urban reserves.

SYNTHESIS: ENVIRONMENTAL MIGRANTS AND THE FUTURE OF THE WILLAMETTE VALLEY

On November 30, 2011, we invited planners, public health, and other experts from our community to join us as we took initial steps towards the synthesis of the findings of community to join us as we took initial steps towards the synthesis of the findings of the Willamette Valley Planning Principles and Climate Migration teams. Prior to that meeting, the class developed a base map and used it as the basis for a discussion between members of both teams directed at how we might anticipate and plan for the possible impact of climate-induced migration on livability in the Willamette Valley.

On November 30th, those in attendance received brief presentations of the key findings in each of the reports generated by the class. Following that introduction to the project and to what we found, those in attendance were divided into teams, the “West Wall” and “East Wall” groups, to make their own attempt at synthesis.

What follows are the notes from each of those discussions. Synthesis is a difficult task. Getting agreement on livability and planning principles, let alone the rate at which climate-induced migration might affect local communities and their planning represent substantive challenges. Nonetheless, we found that groups could engage this issue and these tasks in an engaging and insightful way.

Consequently, the notes, below, are presented not as a conclusion but as the seeds for a longer, more substantial dialogue about the future for the Valley and the ways we might begin to better prepare for it now. More work clearly remains to be done. This is just the beginning.

WEST WALL GROUP: DISCUSSION NOTES

High speed rail would need to connect PDX to Salem and ultimately Eugene too. Strong Intra-UGB transit networks would compliment high speed rail.

Planning at the Valley grain is to blunt to completely consider health and equity. Even if there is a role for regional or state government to consider health and equity in Valley scale land use planning, data infrastructure is to inform those considerations is lacking.

The valley could benefit from stronger interregional governance, but resources should focus on getting a more comprehensive understanding of Willamette Valley residents. That comprehensive understanding will suggest appropriate governance structures.

Food security should be explicitly incorporated into Valley grain land use planning. Many organizations including the Oregon



Food Bank are increasingly concerned about producing local food supplies. To that end, we should plan for viable agricultural economic nodes in addition to agricultural land in land use planning.

Provision of additional social services should be considered in Valley grain land us planning. Social services might be more realistically provided if a subset of cities are targeted for growth and social service.

Climate change migrants will pose greater challenges to the valley than local biophysical climate change impacts.

Social determinants of health and social determinants of resiliency are heavily intertwined, so health can help make the case for investments in resiliency.

OSU's Climate Change Research Institute models should inform planning

Equity is increasingly considered within Metro government and other governments. Staff are still learning how to consider it, and how to coordinate across programs on considering equity. The same challenge exists among agencies across the valley. There will be opportunities for increased coordination on equity issues, but right now, everyone is still working on their own.

Diversity should be incorporated into the instruments used to understand the Valley's values related to land use planning. Using multiple languages is one part of doing of doing that.

Directing growth should build on the strengths of the Oregon University system. Directing growth to research centers could be modeled on UNC Triangle. The distances are greater in the Willamette Valley, but the model could be applicable with high speed rail.

Growth will continue in the places that are already growing. Relative amounts of investment will direct growth to some of those places more than others.



Response to climate migration and all other future challenges in the next 50 years will have to be dealt with using fewer resources than we have had in the past

There is lots of room to accommodate population growth within existing UGB's. Metro's SW Corridor exemplifies this.

Climate change and other economic pressure migrations have happened in the Willamette Valley's past. Those events should be studied for applicable lessons.

When trying to understand values of the Willamette Valley, we should look at data that wasn't collected in addition to data that was collected, and think critically about who is represented in past data collection efforts on values.

There are no staff resources at the state level dedicated to considering climate migration settlement. Maybe there is a need for something like this.

Look at the scenarios you see happening today in The Oregonian. Then imagine 1.2 million more people. Think about how this would exacerbate those scenarios.

East Wall Group: Discussion Notes

After breaking into two groups, we had the guests apply their own expertise and consider our recommendations before revealing the map we came up with. We posed the question “based on what you know from our presentation and from your background, where would you prioritize new population growth and where would you limit growth?”

Mapping considerations and conclusions:

Guests initially asked questions about other information to consider such as water resource availability. They noted that the water master plan happening should be more seriously considered when assessing areas to densify or to attract water intensive industries.

We used the chain migration theory as a driver for the conversation and agreed that because growth occurs where it has occurred in the past, focusing infill within the Portland Metro UGB should be a priority.

The group chose not to prioritize new growth within the Damascus area but recognized it is a major unresolved question preventing certainty about the true amount of land available for urbanization or densification.

The guests had questions about whether specific industries are job drivers of new migrants and we agreed that Oregon can better capitalize and market agriculture as a core industry, and identified known agriculture reserves.

As the guests began to map high value farmland to protect, we agreed that identifying areas with strongest food-growing potential would be an important component in strengthening our local food supply and food security. We import a large amount of food supply now, small improvements could go a long way.

There was strong support among the group for Valley-wide



rural reserve designations.

When considering wine country, we agreed that we should more closely consider development pressure in wine country and create a plan to balance that with increased demand for land to grow grapes due to Oregon’s favorable changing climate.

High Speed Rail will prevent expansion of I-5 and hopefully be an economical investment in the long run. We prioritized only having stops in the major cities.

Floodplains are a restricting factor in development. If this is going to be more variable in the futures then we need less new construction on steep slopes due to run-off and fires, etc.

We identified areas where there is a jobs/housing imbalance and prioritized employment or housing growth accordingly.

Public engagement during Metro 2040 Growth Concept showed prioritization of up, rather than out growth. However, the level of growth will dictate the extent to which we can only grow up and not out. We should identify a second tier of cities that might

grow, outside existing Metro areas, such as McMinnville, Sandy and Albany.

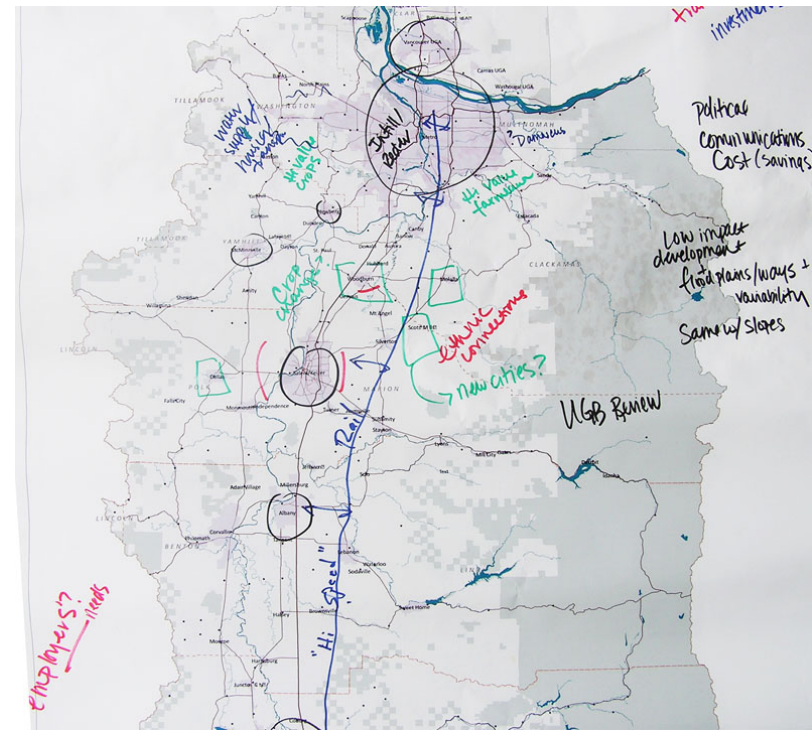
Additional information needed:

We recognized that we don't have much information about potential migrant values and employment skillsets. This would be harder to identify but helpful in identify industries to cultivate or invest more resources in.

The relationship between high speed rail and the rest of our recommendations should be more fully developed.

What do we know about removing freeways? Is taking out I-5 through Portland a good idea to remove congestion and traffic from the central city and investing in rail instead?

We discussed whether the process to expand a UGB should be easier, or if the difficulty of this process helps prevent sprawl, and forces deeper consideration of alternatives. of achieving a



balance for the planning processes for numerous areas physically and culturally

Political aspects: a main challenge will be how to stage public engagement on both the technical and political aspects of planning at the valley-wide scale, and to make the case for the importance of these considerations beyond the Portland metro area.

SYNTHESIS: IN MY OPINION - RECOMMENDATIONS FOR DECISIONMAKERS

The task of synthesis can be approached in a number of ways. To conclude our work this term, each student was asked to use the form of an “In My Opinion” editorial to address the following question:

Given what we know about “climate refugees,” their likely appearance here in the Willamette Valley, and the things that Oregonians hold dear about the Willamette Valley as a place, what should be done now to prepare for a climate-motivated population influx, who should do it, and how will we know if we’re successful? In essence, using the In My Opinion format, what is your advice for decisionmakers?

The students were allowed a maximum of 700 words, and directed to the guidelines used by the Oregonian newspaper. Presented, below, are the final results.

Willamette Valley needs plan for climate migrants

By Michael Ahillen

The Willamette Valley is completely unprepared for climate migration; we lack experience, data, and a vision for how to integrate climate migrants into the Valley. Above all else, we lack direction for how to address the influx of new residents.

Although many planning documents suggest that climate migration from the Southwest is imminent, government agencies have backed away from planning because of the unpredictability of climate-related events. Without any plans, we could find ourselves in Atlanta’s position following Hurricane Katrina: blindsided with 100,000 new migrants needing jobs, housing, healthcare, and education.

We cannot afford to remain idle. The Willamette Valley, though it will be affected by climate change itself, will not have the extreme conditions that will make other areas of North America uninhabitable. Thus, we should expect our amenities, most notably our water resources and vibrant economy, to attract climate migrants as they look for a new home.

To prepare, the counties of the Willamette Valley must examine existing conditions through a climate migrant lens. County agencies should develop a report determining how thousands of new migrants would impact the current health, energy, food, education, transportation, and water systems. The reports should outline the needs of the counties’ systems through high, medium, and low migration scenarios.

These reports should be distributed to both the State and the cities of the Willamette County. The Governor should invite all cities and counties to a climate migrant summit in which the State will respond to the common concerns found among the reports. From there, counties should work with the cities in their jurisdiction to plan for how to accommodate new arrivals, assessing land use, transportation, and the security of various systems.

Success for this project will be measured by the completion of the county reports, the willingness of the State to organize the concerns of the Willamette Valley into a regional conversation, and the ability of municipalities to integrate the climate migrant conversation into their plans.

Opponents to planning for climate migrants argue that there is not enough good research and data to make any concrete plans. Although this argument points out some limitations, it fails to provide a reason not to plan. By reporting on existing conditions and sharing it with the state and local municipalities, counties are starting a conversation that could avoid a disaster.

This is less about predicting the future and more about developing an ideological framework that will prepare us. Once this framework is in place, cities and counties can take into consideration a more rapid growth rate when mapping their future UGB expansions and job centers.

The City of Atlanta had their climate migrant conversation in a matter of days. Before the conversation had ended, crowded hospitals, housing shortages, and congestion crippled the city. Six years later, their systems still face challenges, as more than 30,000 Katrina migrants have remained.

If we start the conversation today, we have the luxury of time. We can avoid the misuse of our resources and the loss of our values. The governments of the Willamette Valley are known for translating regional concerns into regional plans. Without any plans, we will sail into the greatest challenge our region has ever faced with no direction, tools, or ability to interpret the consequences of inaction.

Let's start the conversation now, as time is still on our side. After all, idleness is not a regional value.

Oregon, Porous.

By Chad Armstrong

When envisioning the future landscape of our Willamette Valley, both the State of Oregon and her individual communities are challenged with the maintenance of a vexing balance: to what

extent should we plan in order to preserve the quality of life for current residents, versus planning to accommodate of the imminent influx of new ones.

Every demographer to have turned their sights on the Willamette Valley region predicts tremendous population growth over the next 50 years, with some further suggesting that climate change will play a major role in increasing those trends. Push factors, such as water scarcity and crop losses due to changes in climate patters, could pressure many from elsewhere to seek a new region.

The Willamette Valley, with its comparatively mild climate and relative abundance of both water and cropland, is expected to receive many such environmental migrants. Yet whatever your opinion on climate change or the veracity of such predictions, the underlying point is inescapable: growth is coming. In the face of this fact, we must remain both honest and realistic as to how best we can address it.

We cannot afford to grow out. Our region has the wonderful obstacle of being mainly comprised of some of the finest agricultural lands on the planet; key to our economy yet constraining to where urban growth is appropriate. Our State Planning Goals have been integral to guiding growth since their 1973 inception, but more is needed to meet the coming boom. There is no viable solution to our future which does not involve higher density.

A day will surely come when buildable lands within our Urban Growth Boundaries are exhausted and their borders require expansion; but that day is not today, nor anywhere in the foreseeable future. Despite our sterling reputation as a state and region on the forefront of progressive urban planning, the reality is that the vast majority of our cities and towns exhibit the same patterns of low density and urban sprawl omnipresent throughout the rest of nation.

In this sense, environmental emigrants and newcomers from other regions of the United States will find themselves right at home, though perhaps not in the sense they would like. For our own sake (and theirs), we should strive to make the Willamette Valley less like home for these new residents in the best possible way. But coming to terms with our need for increased density requires first coming to terms with the nature of our State and our region.

With the notable exception of American Indians, Oregon has since its very founding been a land of newcomers. And yet Oregon, the porous, possesses that ineffable quality wherein even the new feel native. By the hundreds of thousands we have come, through the years, to stumble upon this secret party. And so relieved are we to have been admitted, that we immediately conscript ourselves as defenders of the secret, lest one more searcher spoil this tenuous thing we have found.

Former Governor Tom McCall once said famously to prospective newcomers: “We want you to visit our State of Excitement often. Come again and again. But for heaven’s sake, don’t move here to live. Or if you do have to move in to live, don’t tell any of your neighbors where you are going.”

Though this statement deftly summarizes the protectionism felt by many Oregonians, consider for a moment that Tom McCall hailed originally from Massachusetts. And catch, too, the subtle meaning on the edge of his words. His deterrent was in fact a veiled invitation; one which so many of us have, from some other fine state, happily accepted.

Governor McCall understood that Oregon is newcomers, and that newcomers are Oregon. As we plan for the burgeoning future, our communities and decision-makers would do well to follow McCall’s example, and strive to strike that delicate balance between preserving the Oregon of today, and ensuring the Oregon of tomorrow.

Spilling your lattes over visions of Rick Perry in the Pearl? Pick up a pencil, Portland

By Michael P. Burnham

Bone-dry lakebeds exposed pioneer tombstones, a blazing sun withered crops, and wildfires scorched thirty pine forests this year as Texas experienced the most acute drought in its history¹.

The Lone Star State could be in store for worse weather in coming decades. By 2040, Texas and other southern states could see their average annual temperature increase by about 2 degrees Fahrenheit, government climatologists project². Houston could get an additional 4-11 days above 100 degrees F and dodge stronger hurricanes catalyzed by a warmer Gulf of Mexico.

So what does a hotter Houston have to do with perfect Portland? More than you might think.

Climatologists project that the Willamette Valley, endowed with temperate weather and abundant water, will be more resilient to droughts, rising seas and energy price spikes than other parts of the world in coming decades. That means the Valley could become a magnet for climate migrants, from Texas to Tuvalu to Tanzania.

It’s impossible to predict how many migrants could come and when, but studying global climate projections, as well as local values and migration patterns, can help us plan for the arrival of climate migrants, folks who, “by choice or necessity,” leave their habitat because it “no longer meets their basic needs as a result of persistent and pervasive climate change.

If you’re still thinking about Texas, perhaps you’re worrying about a colossal collision — Rick Perry in the Pearl District — gun-toting cultural conservatives sharing the streets with latte-sipping liberals. Planning policy in Oregon today is based on shared, place-based values — including diversifying the economy, conserving natural resources, preserving rural areas and enhancing urban

livability.

Existing residents wishing to welcome new neighbors with new values could begin by hosting barbecues — Texans are rumored to love the stuff — but the chief task of preparing the Valley for a population influx will fall squarely upon planners and policymakers. How should they do it?

To start with, they should use new tools — such as the demographic variable matrix my classmates and I created — to assess potential climate migrants' wants and needs. Policymakers might also want borrow a page from the Oregon Global Warming Commission (OGWC), which is developing a transportation and land-use “roadmap” for meeting the state’s 2020 greenhouse gas-reduction goals. The OGWC and the Portland planning firm Cogan Owens Cogan are hosting community forums around the state, asking residents of all economic and social stripes to weigh in about where their tax dollars should go to mitigate and adapt to a warming world.

This form of collaborative planning is vital to the Valley’s future, but how will we know we’re successful? The answer is simple: We won’t have a repeat of 2004 and 2007, when Oregon voters passed ballot measures that weakened and ultimately restored land-use protections.

Success, rather, will mean letting policymakers make policy. In the case of the Metro Council, that means eliciting public input and tweaking the urban growth boundary every few years. It may also mean hosting mapping exercises where members of the public get to pencil in where they think growth should occur.

We don’t pretend that new and old folks will get along immediately. Immersion will be messy and difficult, but it will be essential. My classmates and I echo OGWC Chairman Angus Duncan’s prediction that Oregon’s visionary land-use system — the manifestation of our shared values — will be tested in coming

decades. The influx of climate migrants will place major burdens on existing social structures, public services and natural resources.

Not every climate migrant will want to or be able to live in the Pearl District, but the Valley has dozens of socially and economically diverse cities and towns that want to grow. How should they do it? We recommend that each incorporated city within the Valley start by undertaking an effort similar to Metro’s 2040 Growth Concept plan. Should cities and towns focus growth around existing transportation corridors and urban cores? My classmates and I think so.

Got a better idea? Grab a pencil.

Michael Burnham is a master of urban and regional planning candidate at Portland State University and intern at Cogan Owens Cogan. He was born in New York, grew up in Texas and migrated to Oregon in 1995.

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2) U.S. Global Change Research Group. “Global Climate Change Impacts in the United States.” 2009. Accessed Oct. 20, 2011 at <http://www.globalchange.gov/what-we-do/assessment/previous-assessments/global-climate-change-impacts-in-the-us-2009>.

Future of the Willamette Valley

By Dawn Hanson

Climate change is here now. It has displaced and it will continue to displace populations around the globe. The Willamette Valley is a magnet for Oregon's population growth. The valley population grew significantly in the last two decades, and is expected to have an increase of 60 to 70 percent in population growth by 2050.

This growth could be further impacted by potential immigration from climate migrants—it could place added strains on existing infrastructure and services, undermine economic growth, and potentially threaten the housing for low-income populations. If not effectively planned for, those displaced by climate change could potentially displace current vulnerable, low-income residents in the Willamette Valley.

Managing growth and planning for a potential surge in climate migrants are complex tasks given the uncertainties, but it is easier to be proactive than reactive. There should be caution as to how it is done, and it needs to be a slow, continuous planning process.

Frequently smart growth is chosen to evenly distribute growth among existing city centers and existing infrastructure. Many cities that have adopted smart growth and high-density development as a way to manage growth have created environmentally sustainable and viable neighborhoods by containing development and preventing sprawl.

However, these benefits do not often reach the poor and many times leave them worse off. The benefits of smart growth often displace low-income residents. Added development that increases urban density can remove what is remaining of low-income housing. Attention should be paid to who benefits and who loses in such choices of high-density urban development.

It is likely that recommendations will be made for higher density development in the Willamette Valley. They need to be developed alongside specific low-income housing requirements

(not recommendations). There needs to be a requirement for developers to set aside a percentage of low-income rental units, and a requirement for new development to replace every low-income housing unit that they demolish with another low-income housing unit (a one-to-one replacement).

Current state statutes don't support these requirements. The current rule states, "[available] lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density."

The problem and the solutions are complex given the number of factors that can affect displacement, the collaboration that is necessary to prevent it, and the unknowns of climate change and future growth. Further research is necessary to better assess the issue of climate migration and its potential impact on growth, and effective solutions that can be developed to not displace current residents with adopted planning procedures. This research can help guide effective decision-making and guide action that improves the well-being and quality of life for all existing and incoming residents.

With growing population it is critical to minimize growing inequality in access to affordable, decent housing in the Willamette Valley. This will require great leadership and new legislation. The leaders need to be well-respected, trusted, and open-minded individuals. They should provide leadership to promote the viability of the Willamette Valley while promoting social equity.

A real commitment should be made to expand access to decent, affordable housing during periods of population growth while not displacing current low-income residents; creativity is necessary to carry it through. The well-being of all Willamette Valley residents, and the viability of the Willamette Valley are dependent on this.

Conflicting Cultures and Climate Change Migrants

By Katrina Johnston

The Pacific Northwest as a place has been attractive to many people for many different reasons, whether for its moderate climate, fertile soil, clean and abundant water, recreation destinations, or the progressive cultural stereotypes which dominate the region. As a migrant to this region, I am no exception.

Living in Phoenix for five years while finishing my bachelor's degree drove me to seek out a different destination when applying to graduate schools. As a person who prefers walking and public transportation, I craved community and more lively neighborhoods than the sprawling streets of that desert metropolis.

The stories heralding from the small (and strange) city of Portland read like a dream. Local beer flowed on every corner where businessmen in "Portland-casual" jeans and Columbia jackets parked their bikes for their regular happy hour session, before adjourning to hiking on the weekends. In some cases these reports came back from young, educated migrants who frequently went from one city to the other. As a student, I also read reports of bicycle boulevard studies and walkability assessments.

The difference in culture between Phoenix and Portland was everything I hoped for: all of the above and more. While not a mythical Babylon necessarily, I still recall (fondly) the culture shock a year ago when walking down the street in my new neighborhood people were not only present (a rarity in Phoenix), they looked you in the eye or even greeted you with a "good morning" and a smile.

My experience, however, is one that I specifically sought out in an effort to complement my lifestyle. This sort of self-selection, though also full of sacrifice, is more than what some people are able to do when faced with economic insecurity. We have seen this sort of strife and lack of choice in sudden disaster situations like

Hurricane Katrina.

But what if we could better plan for an event like this? And what about situations that happen more gradually like a drought, which raises food costs and endangers the water supply? Even more than standard disaster planning, these types of phenomena will become more common and threatening with the effects of climate change.

While places like Portland in the Pacific Northwest may not be affected as strongly by the changes in temperature and weather patterns, places like Phoenix may only become hotter and drier than it already is (worse than the 115-degree summers). That sort of economic pressure may cause a migration to places like Portland, potentially due to a more abundant water supply.

While the number and nature of these sudden and more gradual "pulse" and "pressure" events is unknown, it is still likely that more migrants than usual will find themselves in this corner of the country. In Oregon in particular, the Willamette Valley houses most of the population of the state, with most people further residing in Portland and Eugene. As it is known that migration patterns typically follow already existing settlement patterns, we can expect most people to choose the Portland metropolitan area, Eugene, or even Vancouver, Washington.

An important component in this situation is the culture of the incoming migrants in relation to already existing residents. Having personally come from Phoenix, public transportation was not as accessible and most people drove instead. Single-family homes are the norm as compared to multi-family buildings in mixed-use neighborhoods.

This doesn't mean we should widen our roads to accommodate an influx in automobile traffic or expand the Urban Growth Boundary to make room for suburban sprawl. The difficulty may be in supplying these newcomers with housing or providing ample parking spaces, but that doesn't mean it has to be done without

consideration for the values held by those in the Willamette Valley already.

Despite being a newcomer myself, I'm sure most of us agree that we prefer to protect our wilderness, encourage more local farms and businesses, reform our water supply to benefit people and nature, and continue working towards more livable and sustainable neighborhoods. As beneficial motions, while we welcome those in need as migrants hoping to escape climate change complications, we must hold on to our values and "quirky" culture in the end.

Preparing for Climate Change-Induced Migration to the Willamette Valley

By Kelly Moosbrugger

The Willamette Valley's population is growing. Data show that a lot of the growth is due to migration, primarily from western states. Lots of folks are drawn to the Valley for one reason or another – for a job, for outdoor activities, or to live near relatives, to name a few.

In the future, those reasons could include a new one - that the Willamette Valley is a climate 'refuge,' while climate change impacts in other parts of the world make those places less livable. What do we do if migration to our region swells as a consequence?

1) Monitor Migration and Climate Patterns

The Willamette Valley needs to be prepared for these potential 'climate migrants.' Right now, there is no way to predict who they might be or how far above normal population projections we could go. But we can begin monitoring migration patterns to see who is moving here and where they are settling, along with where climate impacts overlap with places where migrants are moving from.

If southern California experiences a severe drought, we can look

at who has been moving here from that area and the demographics of people there who are more likely to move – younger people and renters, for example.

Newcomers could be desperate for jobs and housing, they might be seniors with specific needs, or families with children that will put pressure on our school system. Knowing who might come will help us be prepared, so our cities and towns can absorb more people without major disruptions to their systems.

2) Further Protect Our Farmland

Agriculture in the Valley is second to none - our rich soils provide a variety of healthy and delicious food for many inside and outside of our region. But climate impacts of our own, like predicted longer summer droughts, will put pressure on our farmers. At the same time, the demand for food will be higher due to a larger population and probable increased costs of importing.

Protecting agriculture is going to be more important than ever. This will mean limiting the expansion of Urban Growth Boundaries and conserving water. There is tremendous opportunity in our urban areas to grow taller and denser rather than building on valuable farmland.

3) Talk the Walk

One can assume that many of the people who move to the Valley now move here because they share our values. But if people are moving here to escape from drought, flood, or natural disasters, they might not notice or understand the values of the people living in our region.

Evidence shows that people here value equity, environmental and natural resource protection, and access to open space. A lack of understanding of these values could lead to more situations like the passage of Measure 37, which hurt Oregonians' ability to limit

sprawl. In a future characterized by an uncertain climate and a shortage of resources, setbacks like Measure 37 will be even more damaging.

We must find effective ways to communicate to newcomers what it means to live in the Pacific Northwest, Oregon, and the Willamette Valley. If people know things like where their food comes from and how our system of Urban Growth Boundaries has contributed to their quality of life, they will be more likely to support those efforts.

4) Form a Willamette Valley Governing Body

Accomplishing these tasks will be challenging to say the least. The Willamette Valley needs both leadership and unity. While it may not be the most exciting proposal, I recommend the formation of a governing body to take the lead on monitoring, planning, and advocacy. One way to do this would involve local governments in the Willamette Valley, including the Vancouver area, forming a coalition that coordinates efforts to study migration patterns, build transportation networks like high speed rail from Eugene to Vancouver, and protect farmland.

Climate change and population growth don't have to harm the livability of the Willamette Valley. If we take steps to accommodate climate migrants, we can all enjoy our 'refuge.'

Kelly Moosbrugger is a Masters of Urban and Regional Planning student at Portland State University.

Plan for the Possibilities

By Garrett Phillips

The high quality of life in the Willamette Valley draws people from around the nation and the world. The effects of climate change on other communities could offer an extra motivating factor to those thinking about moving here.

Some of the pressures that climate change will place on other regions might not manifest themselves as strongly in the Willamette Valley. For example, though our water supplies are limited, they are relatively abundant compared with those of some other locales. We also have a mild climate that would remain relatively tolerable despite shifts associated with global climate change.

The greatest effects of climate change on the Willamette Valley might not be changes to local climate and natural systems, but rather large numbers of people moving here. Whether and to what extent this will happen is uncertain, but it is a real possibility. If climate change motivates more people to move here than otherwise would, there will be real challenges for our landscape, our lives, and the things we value most about our communities. Climate-induced migration deserves some real attention from residents, planners, and policymakers.

Local jurisdictions already forecast population growth, and adjust land use, transportation and other plans accordingly. Governments should incorporate climate change variables into those forecasts. Planners and policy makers should understand how climate change migrants might differ from those otherwise moving here, to anticipate their transportation and community preferences, and to understand the types of jobs they can fill and the types of government services they might need.

State planners and universities should partner to get a more comprehensive understanding of the values of Willamette Valley

residents. The Valley's population is diversifying, and the full range of values held by valley residents need to be understood in order to plan for them. Values should be explored in terms of communities and landscapes, and values should be explored in relation to different population growth scenarios and in relation to different scenarios of what it would look like to accommodate that growth. Polling and plan participation processes are typical mediums, however other forms of participation might be needed, that include culturally specific forums for value expression.

If climate change migration materializes, planners and policy makers might have to change the way things are done in response. Without knowing what will ultimately happen, there are some things that can be done to make us more resilient to increases in population growth rates.

Economically related regions should plan collaboratively with each other. Regional planning should center on the economic hubs of Portland, Eugene, Salem, and possibly Corvallis.

Local governments should use Metro's urban and rural reserve concept that sets out rural reserves for 50 years. This system mitigates the risk of losing working rural landscapes in the face of unpredicted population increases.

Local governments, collaborating with their neighbors, should identify regional centers, town centers, corridors, and main streets to prioritize where growth should occur and where investments should be targeted.

Population growth is highly unpredictable over long time scales. Instead of predicting, we should envision many future population growth scenarios, identify parts of them that are relatively plausible, envision a range of future scenarios, and understand what those scenarios would mean for the people who live here now.

The prospect of climate induced migration shows how little we

know about what the future holds. However, it should inspire us to envision possibilities, to think critically about what they mean for the way we live, and to create resilient governance and planning systems that will respond effectively to the uncertainties of climate change and all of the other uncertainties that the future holds.

The More Meaningful Climate Action Plan for our Region

By Levi Roberts

The effects of climate change pose a threat to our quality of life in the Willamette Valley; perhaps in ways we haven't considered. Adapting to these unexpected changes is vital to protecting this place we call home.

Each region across the world is experiencing climate change in very different ways. Drought, extreme heat, and natural disasters scourge many areas, while others experience only slight, incremental effects. Given that Oregon is likely to see relatively mild changes, such as wetter, warmer winters and hotter, drier summers, the region will likely become an option for refuge for Californians, Arizonans, and other dried-out, scorched communities that view Oregon as a more hospitable place to live.

This may lead to unwanted sprawl, increased poverty, and worsened congestion. Are we ready for this influx of climate-induced migrants? What can and should be done to prepare?

The first step is to address adaptation measures for climate-related population pressure in the next iteration of the Climate Action Plan (CAP). Portland's 2009 Climate Action Plan outlines specific goals and targets to reduce climate change-inducing emissions by 80% before 2050.

Still, Portland's efforts to recycle, ride bicycles and build green buildings are worthwhile efforts, working for the "greater good,"

climate change is a global phenomenon and our mitigation efforts will only be felt on a miniscule level. Climate change will invariably still unfold and adaptation measures should be coupled with the mitigation goals in the CAP. Working with population forecasters and climate change experts, Portland and Multnomah County sustainability planners can begin to understand the effects that climate-induced migration will bring to the valley.

Of course, we've heard this growth pressure dialogue before. After all, wasn't this exactly what we were preparing for under the statewide land use planning system of the 70's? Among other measures, this system mandates compact development inside urban growth boundaries. But climate-related population pressures are a new kind of animal, not conventionally considered when managing UGBs.

Population forecasts that gauge the level of growth to plan for do not currently take into account migrants that are induced by climatic conditions and events. Working with climate change technicians, population forecasters can develop a better sense of what to expect. This will require more detailed documentation from migrants about the reasons for moving, among other measures. Collaboration between forecasters and climate change experts will better inform planners about how to prepare for climate-induced migrants.

Each party may feel hesitant to plan for climate migrants due to the high level of uncertainty. But, uncertainty about the magnitude of these changes should not be a reason not to plan. After all, there is always a high degree of uncertainty in all planning efforts, which does not prevent them from achieving meaningful results.

The Willamette Valley has become one of the most distinct regions in the country, with vibrant cities, prime farm and forestland, and a vast richness of culture. Preserving this quality of life while facing increasing population pressure due to climate change will be a challenge to the entire region.

Beginning with collaboration between population forecasters and climate change experts, planners can develop a better sense of what to expect. Implementing their findings into a Climate Action Plan, including other adaptation measures, will give the Valley a better grasp on the measures that should be taken to prepare for climate-induced migrants.

Building upon previous growth management efforts, we can add a new dimension to planning for climate change in the Valley. Failing to do so will undermine a host of other efforts that are geared toward preserving the distinct character of this region.

Eden Redefined: Prepare today for the climate migrants of the future and we will all have a better tomorrow

By Colin Rowan

The Climate Refugees are coming, the Climate Refugees are coming!

Alarmed? No need. New migrants mean new perspectives, new diversity, and new opportunities for Willamette Valley communities. Accommodation of new migrants is an opportunity to change how we plan for growth. It will require an end to planning as usual. Planning for newcomers means creating a better place for everyone, today.

Global images of 'climate refugees' might lead a reader to believe an invasion of exiles will swarm the cities of the world. It is an overwrought image. The Willamette Valley will likely receive a manageable flow of newcomers. These climate migrants, if planned for and properly accommodated, will bolster our communities, bringing new skill sets, worldviews, and, possibly, new business opportunities.

Bold new measures must be put into place now in order to

leverage future improvements. These measures should address regional concerns about climate change and sustainability.

To prepare for new migrants and to improve our communities, let us seek better integration of land use and transportation. Develop densely using the most energy efficient technologies available. Build high-speed rail between cities, light rail and bus rapid transit within cities, and bicycle and pedestrian networks everywhere. Provide affordable housing close to jobs, improve schools, provide social programs to aid climate migrants and all residents, and increase municipal services. These fundamental improvements will make better places for everyone.

Massive systemic changes will not be easy. Nor will they be cheap. That is why we need innovative regionally coordinated funding instruments. Yes, shared revenues. Pay for new infrastructure, programs, and services by pricing the roads appropriately; introduce tolling and cordon congestion charges. Raise the gas tax. Do it again. Financially encourage dense development, sustainable businesses, and clean energy.

Engage the public in planning for change. Above all, end the cycle of 'planning as usual,' it will only put us further away from our current and future needs. We must immediately disrupt our current course of action. To prepare for the first wave of migrants from environmentally vulnerable locations our region needs to develop strategies that will create jobs, housing choices, and transportation options that will allow for new, unparalleled growth and conservation.

Not everyone will be happy. Change is difficult! Historically, the Willamette Valley has not been a singular, static, enshrined entity. It has been the imagined construction of generations of individuals.

Those that argue that our way of life will be ruined do not grasp that 'our culture' in the Willamette Valley has been a constant negotiation of place and meaning. Dynamically developing, this next chapter of the Valley's history must be the most adaptive and

flexible to date. Regional hardiness can be aided by a newly formed consensus that allows newcomers to enrich our conversation about this place. We might learn something about ourselves in the process.

Planning for great population changes and environmental uncertainty today will improve our communities moving forward—regardless if forecasted migration figures prove to be true.

In this effort we are all decisionmakers. To prepare for these new migrants we will need new mechanisms of participation, partnerships, planning, and pricing. All components of the process must be sensitive to this Place.

The preparation begins with a regional conversation that examines what makes the Willamette Valley special. Regional collaboration will require a new, more flexible, political consensus. A rich partnership of governments, institutions, business, and organizations must forge a new collaborative partnership that addresses regional issues. From Clark County to Lane County new alliances are necessary.

This conversation must be ongoing, new decisions and developments need to be run through a feedback loop. As the rivulets of new climate migrants flow into the region they must be seamlessly incorporated into this diverse conversation.

By planning for stark changes in the future we can improve our livability today. Great changes can be absorbed in the Valley while continuing to protect greenspace, agricultural land, and sacred places. Terence O'Donnell, stated, "Seattle and San Francisco were settled by people looking for gold. Portland was settled by people looking for Eden." People will continue to come to this special place seeking a verdant life; collectively defining Eden.

Colin Rowan is a second-year student of urban and regional planning at Portland State University specializing in transportation.

The Willamette Valley as Climate Sanctuary

By Joshua Shaklee

For much of human history, our species has proven resilient and adaptable in the face of change, even catastrophic change. Today escalating temperatures, retreating glaciers and cataclysmic meteorological events are the new normal for planet Earth. Many marginally habitable lands will soon become hostile to human settlement and cultivation, subject to severe water shortages and drought. Experts anticipate significant displacement of populations, as many as 200 million climate-induced migrants worldwide, due to environmental pressures.

The Willamette Valley, on the other hand, remains a relatively hospitable environment. The Valley has supported human populations for millennia. More recently people have been drawn to the Willamette Valley for high tech and service sector jobs and the amenity-rich lifestyle enjoyed here. Those residing here now have largely come of their own volition. Will this be the case in the future?

The Willamette Valley will likely experience two or more distinct waves of climate induced migration, those considered environmentally forced and those merely motivated by climatic pressures. The destination of migrants is related to the demographic characteristics of those individuals. Racial background, life-stage and poverty status of migrants are major determinants.

Migrants of higher socioeconomic status and those with fewer place-based obligations are more mobile and thus more likely to relocate before the effects of climate change become severe. This group includes retirees and young adults.

Another wave of migration will be forced, either by pressure or pulse events. These individuals are likely to be lower income and from beyond U.S. borders, where climate change will likely be felt

more acutely. Chain migration theory tells us that groups are more likely relocate to where social networks and familial connections exist. This might result in a further proliferation of minority enclaves throughout the Valley. It is important to anticipate where these might occur. The Hispanic population of the City of Woodburn, for example, is currently sixty percent of the total population. This is an indicator that future Hispanic migrants will settle in this area.

It is important for planners and policy makers to view the population influx as an opportunity as much as a challenge. Most Willamette Valley residents agree that the statewide land use planning program has successfully slowed sprawl and protected productive farm lands from uncontrolled development. Many have expressed a desire to maintain or strengthen these protections.

To prepare for climate migration, regional planners should undertake an effort similar to Metro's 2040 Growth Concept at the scale of the entire Willamette Valley. Inter-jurisdictional collaboration will be necessary to identify and designate central cities, regional and town centers and corridors. These designations will identify where growth and development should be targeted.

Likewise, the establishment of urban and rural reserves throughout the Valley will direct growth and protect the Valley's most valuable resource lands on a more expansive time horizon. Farm land is not merely interstitial green space, these lands are vital to community identity and sense of place. Future policy should incentivize food production on Willamette Valley agricultural lands over other crops.

Not only must we accommodate migrants spatially, they must be served socially. Are the human systems of the Willamette Valley structurally able to absorb the coming population influx? Many of our institutions are already financially strained to the breaking point. Without careful preparation, social systems and infrastructure will crumple under the strain of increased demand. Significant investment in primary and secondary education and

health systems is needed.

The task of preparing for climate migrants falls to planners, policy makers and advocates. It is not an option to close our borders, or wait for the storm to pass. We must be intentional and realistic about our strengths and limitations.

Regional planners and existing councils of government in the Willamette Valley are in position to track migration patterns over time and use this data to develop practical measures to reinforce existing growth policy. Success in this endeavor will be measured by the extent to which the current quality of life and land in the Willamette Valley is maintained over time. It can also be judged by denser development in urban cores and amount of resource land preserved.

Success, then, looks like the Willamette Valley does today.

Imagining More

By Erica Smith

Imagine what life in the Willamette Valley will be like with 1.2 million more people living here

Find this difficult? Don't worry, that's what planners and elected officials in the region have been doing for at least the past ten years.

Now imagine what life in the Willamette Valley will be like with those 1.2 million people added, plus all the additional people who will move here in the next thirty years due to droughts, rising sea levels, extreme heat events and pulse-like natural disasters in other parts of the country and world.

Find this difficult? Well, you might want to worry. That's what planners and elected officials, with few exceptions, have been doing for the past zero years.

From an academic perspective, I can understand why planning for population increase due to climate change impacts would make even the most fanatical of statisticians cringe in fear, inducing sweat-drenched nightmares of monstrous uncertainties, egregious over-generalizations and unforgivable reductionism.

However, starting to seriously plan for climate migration now is what will keep us from seeing a different, even scarier sweat-inducing nightmare come true—though some of that sweat is arguably attributable to the temperature increase.

There are a few key principles I believe will help us tame the climate migration monster:

1) Focus on what we do know

Develop a rapid assessment method framework to quickly build demographic and value-based profiles of populations projected to have higher likelihood of coming to the Willamette Valley as climate migrants (environmentally motivated or forced).

2) Make as list of what we don't know

Identify important data gaps and possible methods for collecting or accessing that data. Also consider the feasibility of collecting different types of data.

3) Assess the current distribution of resources

Consider how inequalities in resource distribution might be exacerbated by migration patterns to the Willamette Valley (in terms of race and ethnicity, family type, education level, English-language abilities and socioeconomic status).

4) Balance bottom-up and top-down approaches

Build networks of communication between community leaders and social service providers who are most likely to have access to the most detailed on-the-ground context regarding health care resources, preparedness for population growth, and existing social cohesion, among other factors.

5) Make a widespread delegation of planning efforts

Who should do this work? Community leaders, planners, elected officials, service providers and government agencies at the community, municipal, county, regional and statewide levels. In addition, stakeholder groups formed around particular areas of interest or advocacy to give voice to informal-sector workers, minorities and immigrants, non-English speakers and the differently-abled. Stakeholder groups may also be formed around issues that cause people anxiety about the future of place as they know it.

6) Take baby steps – Start the Climate Migration conversation

Initiate conversations among these stakeholder groups and lines of communication about what change is likely to happen, what people would like to stay the same (what they value), and what people would like to see change. What are people's fears? This way we can begin to dispel some misperceptions and myths about climate change migration.

How will we know if we're successful? We'll only know we've successfully accommodated the needs of existing residents as well as newcomers if we have baseline measures to compare against. Communities and governments should work together to develop indicators related to place-based values that have been expressed throughout the planning process, as well as by those new to the Valley.

Together, indicators should be holistic measures of health and well-being, for example:

- Indicators show that preexisting values have been upheld, or, alternatively, that new, overriding values have emerged and planning efforts have shifted to compensate
- Indicators show that natural resources haven't been depleted or harmed (or have been regenerated)
- Indicators show access and income inequality has decreased
- Local and state governments are more fiscally solvent, with increased capacity
- More resources are available for health and social services

The sort of success described above may seem a long way off. However, if by this time next year there are open, dynamic conversations at different scales, if there is controversy, if there are complex solutions being laid on the table, if stakeholders are digging into issues of equity, if the media is paying attention, if people feel optimistic about the future, that will be success in setting the stage for good planning. It will represent a step toward securing the "good life" for all future inhabitants of the Willamette Valley.

Maintaining Agility in the Face of Climate Migration

By Alex Steinberger

The Willamette Valley is at the cusp of a population explosion and we are woefully unprepared to deal with the consequences.

As parts of the country become less hospitable, the forested hills, volcanic peaks, and rushing rivers that shape the values of our region will have to be shared. As stewards of an emerald paradise, we are charged with safeguarding the ideals and resources that have created this unique and wonderful place.

Statewide attempts to forecast and map population growth in the Willamette Valley predict a 40 percent increase by 2040. Even in the unlikely event that this accurately captures the possibility of climate-induced migration, reliance on long-range forecasts will do nothing to help us learn about these newcomers, their values, or how to best weave them into the Willamette Valley's regional tapestry.

The extent to which this population explosion occurs in a way that reflects our regional aspirations will depend on key strategic planning efforts and a re-imagining of how we prepare for projected growth. Rather than 25-year horizons used in traditional population forecasting, our lead-time will be 5-10 years at best. Thus, we will need to continually re-evaluate, not only the values of potential climate migrants, but also those held by our current inhabitants to ensure a vibrant and prosperous future for our region.

To get a better understanding of who will be moving to our region in the future, we need to know who is migrating to our region now: where they are from, their socioeconomic characteristics, and their values. A regional taskforce must be formed to maintain a knowledgebase of migration flows into the Willamette Valley.

Given the uncertainty inherent in predicting climate change, this taskforce will need to continually update its knowledgebase to reflect changing migration flows. Utilizing what we already know about people who migrate – they tend to be young, renters, or families with very young children – we can start to build a clearer picture of the socioeconomic characteristics and values of those who might migrate as a result of an environmental stressor.

It will also be imperative that we ground-truth these surveyed assumptions by maintaining working relationships with partner agencies in other jurisdictions. We will want to confirm our broad socioeconomic assumptions and use them to drill down to less quantifiable characteristics. Historical inequities and predisposed risk to medical conditions will help define the values and needs of

potential migrants.

In order to remain agile in the face of waves of migration, we will need intimate knowledge of our own resources and capacity for growth. An “off limits inventory” of sensitive and regionally significant lands will have to be maintained through our tradition of informed land-use planning and active growth management. While identifying scenic and agricultural resources should be a focus of this inventory, it should also pay close attention to the health of our watersheds, as they are at the heart of what makes the Willamette Valley a viable refuge for climate migrants.

Each jurisdiction in the Willamette Valley will have to submit a detailed housing inventory and should demonstrate a commitment to maintaining a diverse mix of dwelling options. Multi-family rental units with good transit accessibility should remain a top priority to more easily accommodate the resettlement of migrants.

As migrants tend to settle in communities with similar characteristics to their own, it is imperative that we understand the intricate social fabric that makes up the Willamette Valley. Local agencies are the best source of this information, but there is no substitute for on-the-ground investigation through focus groups and open-houses. The values held by local communities help us plan for the future because they will mirror those of the migrants who self-select to settle there.

Anticipating the stream of climate migrants that will soon share this region is not strictly a survey and statistics game. If we have any hope of maintaining what we love about this place, we will have to take a more proactive role in understanding not only who we are, but also what our values mean to those searching for a better, safer, and more prosperous life in the Willamette Valley.

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Visionary Leadership: Setting a path forward from the economic downturn while implementing a long-term vision

By Tara Sulzen

A message to elected officials in the Willamette Valley:

Oregon is a great place to live. With the most significant climate change effect in Oregon likely to be a significant increase in migration and population growth, Oregon will continue to be an attractive place to live in the future.

Because Oregon's leaders took the bold step of implementing statewide land use planning, we are better equipped than most states to prepare for this growth. I challenge our leaders to follow that example in setting a path forward.

To represent and lead is a privilege, which comes with the responsibility to understand what matters to constituents, to legislate in their best interest, and also to consider the long-term implications of policy choices. Here is what our leaders should know to lead the Willamette Valley towards a livable future.

1) Know the history

The 1973 legislative assembly had the foresight to focus growth within existing urban areas while protecting natural resources and valuable farmland by passing Senate Bill 100. To make informed decisions about how to accommodate future population growth, leaders must understand the value the statewide planning goals to lead our region, as well as the process by which those goals were created and implemented.

2) Know the public

According to Metro's Opt-In Surveys (2011) and DHM public opinion research (2009), Portland metropolitan area residents are supportive of policy choices that protect the environment and

keep tight urban growth boundaries. Willamette Valley residents have a strong sense of place, a deep connection to the natural environment, and a strong interest in protecting the working landscape, as well as environmental resources, and open space for habitat and recreation.

3) Know what's already being done

There are many efforts underway to address or prepare for the impacts of climate change in the Willamette Valley, though there is not a coordinated effort to plan for significant population growth likely to occur. Local comprehensive plans and urban growth boundary assessments are the tools currently used to assess ways to accommodate growth, locally, but a broader level of analysis is missing.

Though there are local climate action plans, the Willamette Valley Resilience Compact, the Oregon Sustainable Transportation Initiative, the Global Warming Commission and countless other governmental and non-governmental efforts, there is no concerted strategy to consider the most effective ways to plan for significant new settlement in the Willamette Valley. The Willamette Valley Livability Forum's 1999 recommendations should be revisited to consider the type of collaboration necessary to plan for and accommodate growth more strategically.

4) Know the hard facts

Easing land use regulations in the name of economic development in the short term will not translate into success in the long term. Leaders should advocate for a data-driven analysis of population migration, rather than accepting inaccurate, uninformed, wishful thinking of many local governments that more land available for jobs and housing will automatically translate into increased employment.

5) Lead

Recognize that protecting our best assets, our urban livability, environmental resources and high value farmland, should be a driving principle for leaders with a vested interest in Oregon's future. We need more champions to advocate for prioritizing investments in existing neighborhoods for new growth, who recognize the opportunity for redevelopment. Visionary leaders will work across the aisle, and across borders of existing jurisdictions, to ensure that Willamette Valley cities are not fighting for or against new growth, but capitalizing on their assets and collaborating towards mutually beneficial solutions.

Future generations deserve to inherit the same natural resources, urban livability and natural beauty that we enjoy today. I challenge our leaders to take this advice to heart to prepare for population growth while protecting what makes Oregon, Oregon.

Rethinking Life in the Willamette Valley

By Michael Weidmann

In 1973 the Oregon legislature passed Senate Bill 100, creating an institutional structure for statewide planning in response to increasing environmental degradation caused by uncontrolled urban growth. The comprehensive planning and growth management strategies developed at this time have framed the way Oregon cities and counties have grown over the last 38 years.

Today, Oregon's land use planning system, and local decision makers, face new challenges related to the anticipated climate-motivated population increase the Willamette Valley is expected to incur in coming decades.

Considering new circumstances related to climate-motivated immigration, Oregon will experience even greater rates of

population growth than previously projected. With this in mind, it is more important than ever that planning decisions and new growth management strategies rethink the urban places and spaces where Oregonians live, work, and travel in order to protect what people value most about the Willamette Valley.

Urban Growth Boundaries are the primary mechanism for regulating the spread of Oregon cities. While the UGB system has dramatically slowed the expansion of urban footprints, residential zoning policies have resulted in a slow sprawl of low-density development. In order to protect the natural environments Willamette Valley residents' value, state and local governments must enact stricter zoning policy to result in a more efficient use of a limited land supply. Higher density residential zoning in cities across the valley should be a primary tool for accommodating future population increases.

The location and availability of jobs will be a major factor for where new residents choose to live. A more equitable distribution of jobs around the valley could serve as an effective growth management mechanism, attracting new residents to cities outside the metropolitan area.

The Portland metropolitan area is home to the Oregon's highest concentration of jobs, making it an attractive location for new residents. Yet, as populations continue to increase, it is unsustainable for this region to absorb a disproportionate number of new residents. State and local economic development agencies should consider new policies that make locations around the valley more attractive destinations for businesses and industry.

Regional, as well as local, support for the development of diverse modes of transportation options should be a cornerstone in new policy to accommodate increases in population, while minimizing our dependence on the automobile as a primary means of transportation. As Willamette Valley population continues to grow, current and new residents must have convenient transportation

choices beyond the use of single occupancy vehicles. Combined with new policy initiatives promoting increased population density and the growth of local job markets, cities across the valley should strive to achieve Portland Metropolitan area levels of public transportation service, as well promoting the use of alternative modes transportation; including walking and bicycling.

An assessment of these proposed growth management strategies should be performed in order to evaluate their ability to efficiently accommodate increases in the state's population, while minimizing additional impacts on the environment. The comparison of past rates of UGB expansion, as well as the average density of residential housing, will allow cities across the region to assess how efficiently they are utilizing their urban land.

Each decade new census should serve as a means of evaluating the equitable distribution of jobs across the Valley. With this data, cities and counties will be able to compare past and future rates of employment and job growth to assess the success of new economic development policies in promoting a broader distribution of new residents.

The comparison of past and future rates of road congestion and CO2 emissions will allow cities to assess their ability to promote multi-modal transportation. Successfully accommodating walking, bicycling, and efficient public transportation will increase the health of valley residents and decrease their overall carbon footprint.

I believe a combination of these types of policy choices could serve as a strong foundation in accommodating an increasing number of new Oregonians. With more efficient housing growth, an equitable distribution of jobs, and diversified transportation options, population increases could occur while minimizing stress on the natural environment and increasing the health and vitality of life in the Willamette Valley.

Oregon's Future: Just Another State?

By Matthew Weidner

What does a warmer Oregon look like? Optimists like to point out the numerous benefits climate change will bring to the state: a more prosperous wine industry, a longer beach season for tourists, lower heating costs. Heck, climate change sounds great for Oregon... which is partly the problem.

When you factor in climate change and it's negative effects upon other parts of the country, even people who don't live here will want that Oregon, too. Arizonians, Texans, Californians. Everyone! But this time, despite Tom McCall's famous plea, those who come to visit our pacific paradise will likely stay.

Oregon's climate boon could cause our state to bust at the seams as climate migrants look to Oregon as safe harbor. If we remain unprepared and without a plan, these changes could quickly overwhelm the things that make this place unique. Succumbing to pressure to act fast, we may find ourselves taking shortcuts - solving problems the easy way instead of the Oregon way.

With big changes in store for our climate and our population future, we must begin charting a path that can protect our livable communities and manage growth responsibly for all Oregonians.

We can begin this process by extending our current efforts to create livable, vibrant urban communities to every township, village and hamlet in the Willamette Valley. As it currently stands, these small communities will experience tremendous economic temptation to accommodate climate migrants and cater to their native preferences. Without a plan, policies or coordination among these smaller communities, we could easily end up with towns that look more like the endless Phoenix suburbs than the tight-knit, rural communities that define our state.

With our very identity at stake we need to redouble our

commitments to the very plans and policies that made this identity possible. Our State leaders must expand these efforts beyond the limits of our urban areas and begin the process of growth management on a broad, multiregional level. If we're successful, we can short-circuit the co-option of our Oregon identity, protect the legacy we've inherited, and extend that legacy to another generation of Oregonians, no matter where they live and no matter where they've come from.

We have inherited a legacy from a generation before us that strove to build something different when everything else was looked the same. It's now our turn, in the face of new and uncertain challenges, to build upon that legacy and enhance that which is uniquely Oregon. Without that legacy, we might as well be just another state in the union, another stop along the way, another place which became no place at all.

Currently enrolled in the Master of Urban and Regional Planning program at Portland State University, Matthew specializes in transportation planning for aging and disabled populations.

If only Climate Migrants would RSVP.

By Alison Wicks

Waiting for Climate Migrants is like planning a holiday party when no one RSVP'd. Even one posted on my Facebook page! How am I supposed to know how many guests (migrants) will show up? How many cookies (jobs) will I need? Will they like the board games (values) that I have? Will they bring their own board games (values) to play? Without a mechanism to track attendees and coordinate menu items (policies) the whole event could be disastrous!

Regional population projections and estimates are guesses at best. A catastrophic climate event in California may send huddled masses to the Willamette Valley's door. Prolonged drought in the

Southwest may direct a slow trickle of reluctant migrants our way, decade after decade. Today, without factoring in an influx of migrants motivated by deteriorating environmental conditions, we already expect the Willamette Valley to grow from 2.7 million people to 3.9 million by 2040.

Key to successfully managing climate migration will be to build a resilient regional economy. We'll need a multifaceted economic development strategy that focuses on industry cluster development, retains the primary industrial and manufacturing base, and sculpts an attractive atmosphere for new companies.

Neighborhood-scale policies that support small business owners and local entrepreneurs will build in opportunities for residents old and new. In addition, we will need continued investments education and training to ensure the region's ability to 'grow our own' economic talent.

One way to prepare for the arrival of new residents is get a quick head count. This can be done by using available data to observe regional in-migration patterns. By monitoring migration we can get an idea of who migrants are, where they are coming from, what assets they bring, and what needs they may have. If patterns are not observed on a regional level, vulnerable population groups could slip through bureaucratic cracks.

For example, Beaverton's supportive Islamic community attracts recent Somali refugees. But recently, due to low availability of housing vouchers in Washington County, families have abandoned established community networks and family ties in Beaverton to go after available Section 8 vouchers in Marion County. Migrants should not have to choose between the support of friends and family, and government resources. This discontinuity highlights the need for regional policy coordination.

Through regional governance the valley would be able to share in building a resilient economy and help climate migrants to settle

into their new home. Think public entities can never put aside differences and choose to work together to coordinate policies? Consider the possible consolidation of Troutdale, Wood Village, and Fairview. This is a shining example of municipal entities pooling resources to solve problems.

In addition to asking for coordination among public entities, the challenges brought about by climate migration will also call upon political, civic, corporate and community leaders to co-produce solutions. Like the best parties, if everyone pitches in, we'll be all set for a stellar Ugly Sweater Bash in the Willamette Valley come 2040.

Have questions? Want to get involved now? Check out my Facebook page.

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Appendix A: Case Study of a Pulse Event — The Hurricane Katrina Diaspora

When Hurricane Katrina reached the Gulf Coast on the morning of August 29, 2005, the second largest weather-induced diaspora was already underway. Limited research has been conducted related to the Katrina diaspora, likely because of the lack of reliable data available. Although we know that New Orleans has a 29% smaller population than in 2000 (U.S. Census), we do not know how many people went where or why they stayed. In total, 1.4 million FEMA financial support applications had been filed as of September 23, 2005 (Ericson et al., 2005). FEMA data, however, is problematic. First, the applications are for households, not individuals. So, no source provides us with a reliable number of Gulf Coast residents who fled. Second, once FEMA stopped providing relief, the agency no longer maintained the addresses for the climate migrants. The lack of continuing data makes research on the subject difficult.

The FEMA data, however, does lead us to two theories on pulse migration. First, proximity to the disaster areas mattered. Almost 90% of the applications came from Louisiana, Mississippi, Alabama, and Texas. Forty-six percent of the applications came from within one hundred miles of New Orleans. Less than one percent of applications came from farther than 1600 miles away (Ericson et al., 2005). Although we cannot know for sure, we can speculate that climate migrants in pulse events do not flee to faraway locations. The variability likely plays a role. As opposed to pressure events, pulse events lead people to believe a weather-related event is an isolated incident, not a pattern. People continue to see returning as more of an option than in the case of pressure events.

Another theory that can be made is that race and culture matter to those who flee. New Orleans before Katrina was almost

two-thirds African American. Most applications by September 23, 2005 were coming from counties where blacks made up more than 28% of the population. The national average is 12.3% (U.S. Census). Counties in the southeastern U.S. have a greater share of blacks than the rest of the country, but even within the southeast, climate migrants opted for cities with larger black populations. [For instance, Memphis (63% black) and Austin (8%) are roughly the same distance from New Orleans. Yet, Katrina migrants chose Memphis at a rate three times that of Austin. Similar comparisons can be made of other cities with a high share of blacks, including Atlanta, Birmingham, Jackson, Miss., Chattanooga, and Greenville, S.C. Although other factors, such as available housing, likely played a role, we can speculate that people opted for communities similar to their home community.]

Neither of these theories is meant to be taken as a conclusion. Pulse events are uncommon and unpredictable. With so few examples, anything data gathered may only apply to an isolated event. By examining what did happen, however, we can understand how other, similar events might play out.

Appendix B: Case Study of Pressure Events — The Dustbowl and Great Migration

The Dust Bowl migration took place over a forty-year period, from around 1910 to 1950. From 1910 to 1930, advances in agricultural technology such as tractors reduced the need for farm labor, creating a large surplus labor force. In the 1920s, the farming practice was undermined by degrading environmental conditions. As small farms went under, larger interests bought up and consolidated land—forcing families of all income levels from their homes. Unemployment soared, and families no longer had resources or the means to earn a living, forcing them to relocate.

The Great Migration refers to the migration of African Americans from the south to the industrial Midwest starting in the late 19th century and lasting, by some accounts, until the 1970s. It began as blacks in the south chose to flee from southern Jim Crow laws and saw greater economic opportunity in the upper Midwest. This first wave was followed by technological advancements that reordered the southern agriculture economy, forcing many to relocate as their livelihoods vanished (cheap mechanical labor supplanted the sharecropping system).

Although each migration had different root causes, both can be described as having had two waves: those who chose to leave and those who were forced to leave. The most economically well-off people were primarily those who chose to leave. Skills and wealth allowed them to bring value to the new areas they settle and create new social networks/institutions with others who have migrated. In both cases, this first wave chose their new place to because it presented the greatest amount of economic opportunity relative to other available areas.

When they moved, migrants clustered in specific areas. As clustering patterns began to form, businesses emerged to cater

to the specialized needs of these people and offered services to help facilitate their transition from the old location to the new. Sometimes previous cultural and social institutions were recreated, while others were formed through a synthesis of old and new.

Real estate speculation, alteration of housing stock in unanticipated ways to accommodate different cultural norms and/or the constrained resources of those in transition were the most visible aspect of this transition. Invariably, there was also local backlash. Local governments reacted and attempted to thwart these new patterns by discouraging further accommodations or changes brought by newcomers.

The pattern that can be extrapolated from the examples of the Dust Bowl and Great Migration resonates strongly with network and chain theory; as clusters became established, they acted as anchors for more migrants. The larger the cluster (and hence base of social infrastructure), the easier it is for newcomers to assimilate into the new location and find opportunity in the new setting. In each of the cases studied, there was one central city/region that could be identified as the focal point for migration. For dust bowl migrants from the south it was Los Angeles; for southern blacks, it was Chicago. Immigration occurred to other areas, but the migration pattern was identified mainly as the mass movement of people from a relatively large area of the country to a focal city or region. The tendency to locate in dense, urban cities allows for the more efficient sharing of resources among the migrant population.

In both cases, the bridge that was built by the first wave of migrants (those with resources) was then overwhelmed by the second wave (those without resources). Utilizing the social infrastructure of the focal city/region, this wave arrived with far fewer financial resources and education. They had few prospects for meaningful employment. Due to the initial clustering of the first migrants, quasi-segregation

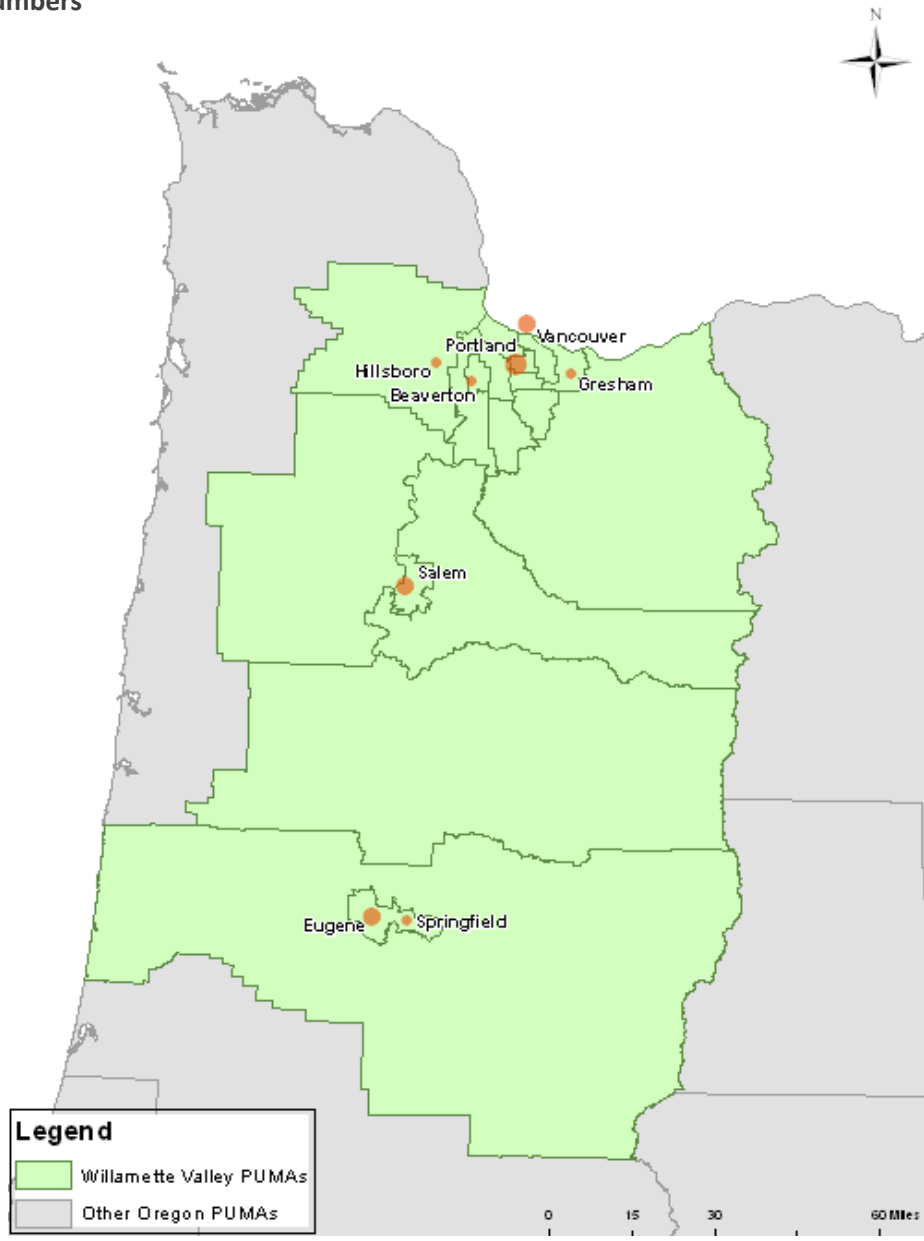
in the cityscape was the result. Burdened with new costs and depressed wages, cities did not have the income to respond, which led to a cycle of social and economic decay in the cluster.

At some point, opportunistic politicians attempted to mobilize the new migrants as a cohesive unit and create a voter base. Political conflicts remained mostly local, though state politics started to shift as the financial and political interests of the new community begin to affect established power brokers. Federal recognition and intervention came last and with good intentions, but led to unintended consequences. In each case, the federal government stepped in to subsidize local governments (both the focal city/region and in the area with out-migration). These efforts eventually failed or created different problems. In time, the affected areas re-adjusted, in some sense, to the new realities.

Appendix C: Willamette Valley PUMA ID Numbers

Willamette Valley
PUMA ID Numbers

- 0600
- 0701
- 0702
- 1101
- 1102
- 1200
- 1301
- 1302
- 1303
- 1304
- 1305
- 1306
- 1307
- 1308
- 1309
- 1310
- 1311
- 1312
- 1313



Appendix D: Using a Matrix for Rapid Assessment of Climate Change Migrant Population Demographic Profiles

Sample – Phoenix, AZ

Area: Phoenix, AZ / Profile Type: Renters / Data Source: PUMS / Year: 2010

	Characteristics Important for Planning Purposes						
		Race/ Ethnicity	Educational Attainment	English Language Proficiency	Age	Industry	Other?
Characteristics that Predict Migration	Owner						
	Renter	★	★	★	★		
	In Poverty						
	Not in Poverty						
	With Children						
	Without Children						
	Retiree						
	Middle Age						
	Young Adult						

Projections – Climate Change Impacts:

2010 – 2040

Within the next several decades the Southeast is projected to see its annual mean temperature increase by about 2 degrees F, with a likely range of 1.7 - 2.7 degrees F. Summers would be characterized by more extreme-heat days. Houston, Texas, for example, is projected to experience a 25 - 75 percent probability of having an additional 4 - 11 days above 100 degrees F, according to the DOT report's high-emission scenario.

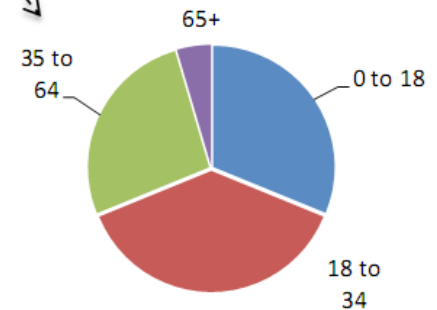
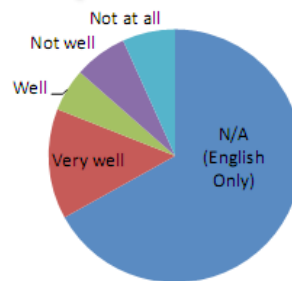
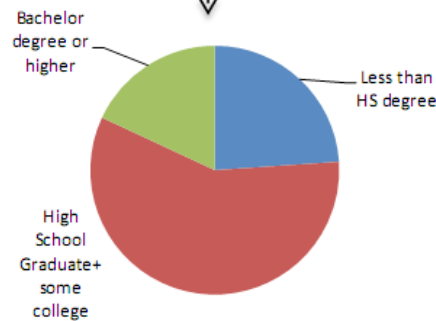
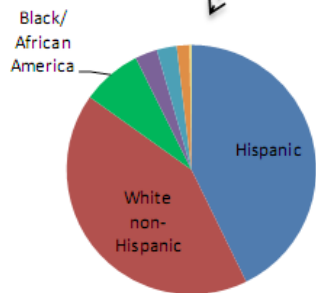
2040 – 2070

By mid-century, the Southeast is projected to see its annual mean temperature increase between 3.2 and 4.0 degrees F, with a likely range of 2.4 - 4.8 degrees F.

2070 – 2100

By the end of the century, the Southeast is projected to see its annual mean temperature increase by 4.5 - 7.8 degrees F, with a likely range of 3.4 - 9.4 degrees F. The summer months, characterized by more heat waves, are projected to experience the greatest warming of all seasons; the likely range for a temperature increase during this season would be 3.5 - 11.2 degrees F.

Source: U.S. Department of Transportation, 2010



Appendix E: Geographic Profile of Nonfarm, Nongovernment Employment in the Willamette Valley for Sept. 2011

	Corvallis MSA (Benton County)	Eugene- Springfield MSA (Lane County)	Portland- Vancouver- Hillsboro MSA	Salem MSA	Total
Mining and Logging	N/A	700	1,000	1,100	2,800
Construction	N/A	5,200	47,800	6,900	59,900
Manufacturing	3,350	11,900	109,800	12,000	137,050
Trade, Transportation and Utilities	4,250	25,800	190,900	22,500	243,450
Information	790	3,300	22,300	1,300	27,690
Financial Activities	1,370	7,400	62,100	6,900	77,770
Professional and Business Services	3,730	15,300	131,500	11,300	161,830
Educational And Health Services Employment	5,600	21,900	144,300	21,700	193,500
Leisure And Hospitality	3,360	14,500	99,900	12,500	130,260
Other Services	1,150	4,900	34,400	5,500	45,950
Total Nonfarm Employment (Not Seasonally Adjusted)	23,600	110,900	844,000	101,700	1,080,200

Source: Oregon Employment Department, <http://www.qualityinfo.org/olmisj/CES>

Appendix F

% Makeup of Nonfarm, Nongovernment Employment Sectors by MSA in the Willamette Valley for Sept. 2011

	Corvallis MSA (Benton County)	Eugene- Springfield MSA (Lane County)	Portland- Vancouver- Hillsboro MSA	Salem MSA	Total
Mining and Logging	N/A	1%	0%	1%	0%
Construction	N/A	5%	6%	7%	6%
Manufacturing	14%	11%	13%	12%	13%
Trade, Transportation and Utilities	18%	23%	23%	22%	23%
Information	3%	3%	3%	1%	3%
Financial Activities	6%	7%	7%	7%	7%
Professional and Business Services	16%	14%	16%	11%	15%
Educational And Health Services Employment	24%	20%	17%	21%	18%
Leisure And Hospitality	14%	13%	12%	12%	12%
Other Services	5%	4%	4%	5%	4%
Total Nonfarm Employment (Not Seasonally Adjusted)	100%	100%	100%	100%	100%

Source: Oregon Employment Department, <http://www.qualityinfo.org/olmisj/CES>

Appendix G: Willamette Valley Values

	Economy	Environment	Transportation	Resource and Rural Lands	Urbanization	Health and Equity
Choices for the Future: The Willamette Valley	<ul style="list-style-type: none"> • Dynamic and diversified economy • A well-trained and educated workforce • Prosperity in harmony with community values and the natural environment 	<ul style="list-style-type: none"> • Healthy and accessible environmental resources 	<ul style="list-style-type: none"> • Balanced, interconnected system • Diverse transportation choices • Reduce congestion and preserve a sense of community and Valley livability 	<ul style="list-style-type: none"> • Viable working landscapes • Accessible outdoor recreation 	<ul style="list-style-type: none"> • Compact urban development 	<ul style="list-style-type: none"> • Air quality
Senate Bill 100	<ul style="list-style-type: none"> • A variety of economic activities vital to the health, welfare, and prosperity • Protect the state’s forest economy • Protect the state’s agricultural economy 	<ul style="list-style-type: none"> • To conserve, protect, or restore the Willamette River Greenway, estuaries, coastal shore lands, coastal beach and dune areas, marine resources and ecological functions 	<ul style="list-style-type: none"> • Safe, convenient and economic transportation system 	<ul style="list-style-type: none"> • Preserve and maintain agricultural lands. • Conserve forest lands 	<ul style="list-style-type: none"> • Orderly and efficient transitions from rural to urban land use • urban population and urban employment inside urban growth boundaries • Efficient use of land • Livable communities 	<ul style="list-style-type: none"> • Citizen involvement in all phases of the planning process
A Framework for Addressing Rapid Climate Change	<ul style="list-style-type: none"> • Climate change is an economic development opportunity 					<ul style="list-style-type: none"> • Public and community health, especially for vulnerable communities.
Communities of Color in Multnomah County: An Unsettling Profile	<ul style="list-style-type: none"> • Planning specifically for communities of color. • Access to living wage jobs 					<ul style="list-style-type: none"> • Poverty reduction • Health equity • Health education and early childhood services

Appendix G: Willamette Valley Values (Continued)

	Economy	Environment	Transportation	Resource and Rural Lands	Urbanization	Health and Equity
Metro’s Opt-In and preceding DHM 2006 and 2009 polls (Regional Attitudes Towards Population and Land Use Issues)		<ul style="list-style-type: none"> • Reduce greenhouse gas emissions. • Improve air quality • Protect rivers and streams. 	<ul style="list-style-type: none"> • Strong transit systems • Reduce traffic congestion 	<ul style="list-style-type: none"> • Preserve farm and forestland 	<ul style="list-style-type: none"> • Keep a tight urban growth boundary in the Portland Metro region • Land use planning regulations protect quality of life 	
Portland Plan	<ul style="list-style-type: none"> • Planning to promote access to living wage jobs 					<ul style="list-style-type: none"> • Comprehensive planning within equity frameworks
City of Eugene Resolution No 4618	<ul style="list-style-type: none"> • Planning for interdependence of physical environment and economic health 	<ul style="list-style-type: none"> • Environmental sustainability guides policy 				<ul style="list-style-type: none"> • Protect clean air and water for residents.
City of Eugene Climate and Energy Action Plan			<ul style="list-style-type: none"> • Improve efficiency of freight systems • Improve vehicle fuel-efficiency 			<ul style="list-style-type: none"> • Reduce human exposure to climate-related disasters • Incorporate public health systems in climate change and energy planning
City of Gresham Council Work Plan			<ul style="list-style-type: none"> • Built environments that provide equitable access to transit and that promote physical activity 			<ul style="list-style-type: none"> • Equitable access to healthy, affordable food • Equitable access to active living

Appendix G: Willamette Valley Values (Continued)

	Economy	Environment	Transportation	Resource and Rural Lands	Urbanization	Health and Equity
Oregon Health Improvement Plan	<ul style="list-style-type: none"> • Access to living wage jobs 		<ul style="list-style-type: none"> • Transit that promotes physical activity and clean air 			<ul style="list-style-type: none"> • Environmental health to prevent personal health problems
Willamette Valley Livability Forum Poll	<ul style="list-style-type: none"> • Diversified economy 	<ul style="list-style-type: none"> • Protect air and water quality • Maintain sufficient supplies of water for communities, industry, and fish and wildlife 		<ul style="list-style-type: none"> • Protect significant amounts of open space 		
Big Look Task Force	<ul style="list-style-type: none"> • Prosperous economies 	<ul style="list-style-type: none"> • Healthy environments 				<ul style="list-style-type: none"> • A land use system with fair and equitable processes and outcomes

Table 1. Changing demographics of Willamette Valley MSAs and their major cities, 1980 to 2010.

	Year	Salem MSA	City of Salem	Eugene- Springfield MSA	City of Eugene	Corvallis MSA	City of Corvallis	Portland- Vancouver MSA	City of Portland	City of Vancouver	Oregon
Total Population											
	1980	249,895	89,233	275,358	105,624	68,211	40,960	1,341,550	366,383	42,834	2,633,156
	1990	278,024	107,786	282,912	112,669	70,811	44,757	1,523,741	437,319	46,380	2,842,337
	2000	347,214	136,924	322,959	137,893	78,153	49,322	1,927,836	529,121	143,560	3,421,399
	2010	390,738	154,637	351,715	156,185	85,579	54,462	2,226,009	583,776	161,791	3,791,075
Percentage change population											
	1980 – 1990	11%	17%	3%	7%	4%	9%	14%	21%	8%	8%
	1990 – 2000	20%	21%	14%	22%	10%	10%	27%	17%	210%	20%
	2000 – 2010	13%	12%	9%	13%	10%	9%	13%	10%	11%	11%
Non-white population by year (% of total MSA or city population)											
	Non-white Population 1990	34,196 (12%)	12,085 (11%)	17,606 (6%)	9,448 (8%)	6,659 (9%)	5,645 (13%)	162,674 (11%)	61,918 (17%)	4,128 (9%)	227,386 (8%)
	Non-white Population 2000	75,940 (22%)	30,954 (22%)	36,817 (11%)	19,333 (14%)	6,654 (9%)	6,905 (14%)	360,000 (19%)	129,770 (25%)	25,602 (18%)	459,776 (13%)
	Non-white Population 2010	113,314 (29%)	26,133 (16.9%)	53,812 (15%)	22,178 (14%)	8,211 (10%)	8,822 (16%)	507,202 (22%)	139,552 (24%)	30,902 (19%)	628,296 (16%)
	% Change Non-white Population 1990 2010	70%	54%	68%	57%	19%	36%	68%	56%	87%	63%

Data Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder, (<http://factfinder2.census.gov/>). *2008 estimates from American Community Survey data.

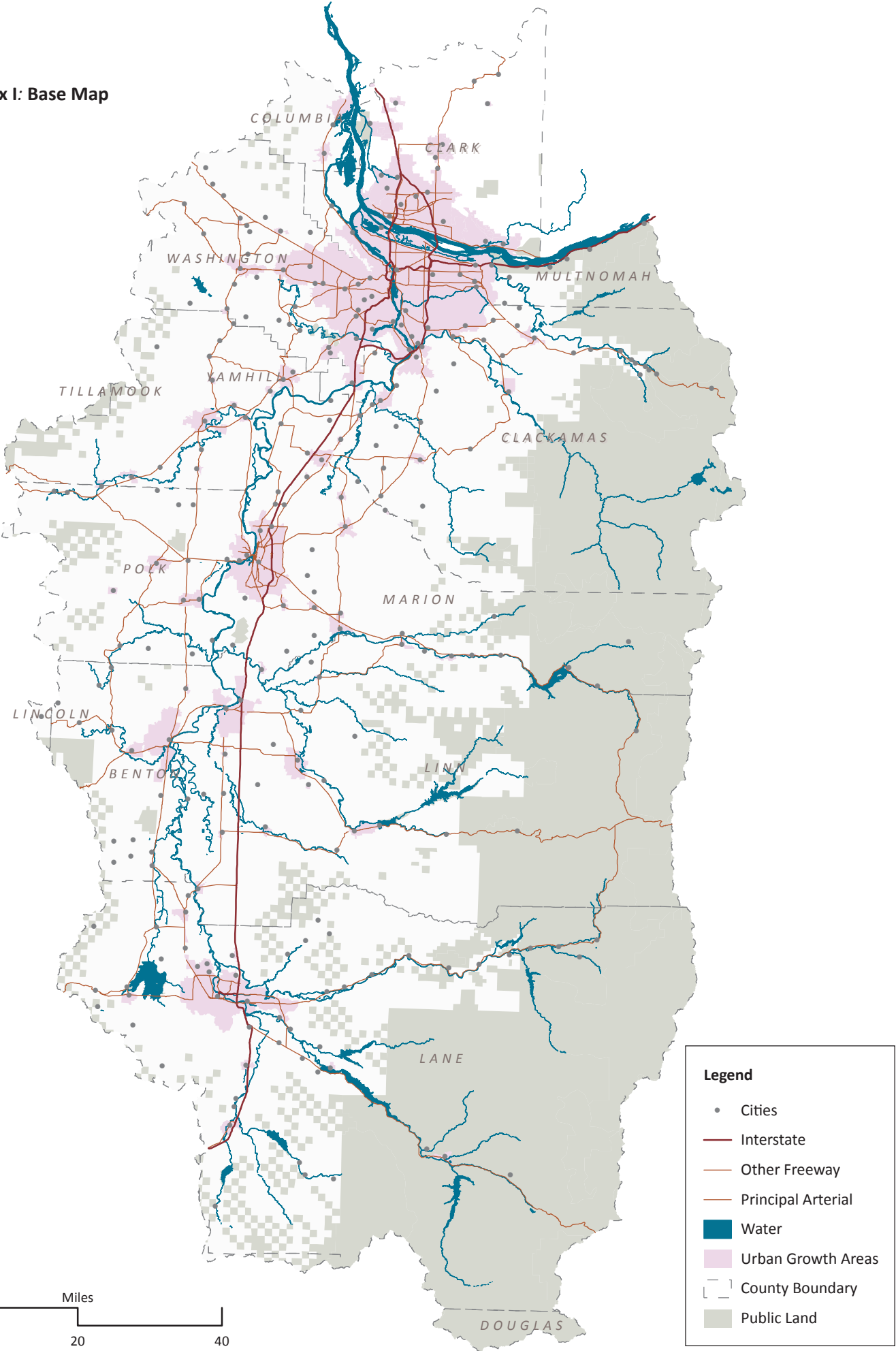
Appendix H: Changing demographics of the Willamette Valley (Continued)

Table 1. Changing demographics of Willamette Valley MSAs and their major cities, 1980 to 2010.

Year	Salem MSA	City of Salem	Eugene-Springfield MSA	City of Eugene	Corvallis MSA	City of Corvallis	Portland-Vancouver MSA	City of Portland	City of Vancouver	Oregon
Hispanic population by year (% of total MSA or city population)										
Hispanic Population 2000	51,194 (16%)	19,973 (15%)	14,874 (5%)	6,343 (5%)	3,645 (5%)	2,811 (6%)	142,659 (7%)	35,980 (7%)	9,035 (6%)	275,314 (8%)
Hispanic Population 2010	85,682 (22%)	22,577 (15%)	26,167 (7%)	12,182 (8%)	5,467 (6%)	4,030 (7%)	*207,666 (9%)	*51,372 (9%)	*14,884 (9%)	450,062 (12%)
% Change Hispanic Population 2000 to 2010	58%	12%	76%	48%	50%	30%	31%	30%	39%	64%
Foreign born population by year (% of total MSA or city population)										
Foreign Born 1990	16,202 (6%)	6,022 (6%)	9,565 (3%)	5,747 (5%)	5,145 (7%)	593 (2%)	88,072 (6%)	33,601 (8%)	2,212 (5%)	139,107 (5%)
Foreign Born 2000	39,993 (12%)	15,968 (12%)	15,961 (5%)	9,131 (7%)	5,959 (8%)	1,187 (4%)	208,075 (11%)	68,976 (13%)	17,506 (12%)	289,702 (9%; increase of 108%)

Data Source: 2000 and 2010 U.S. Bureau of the Census, American Factfinder, (<http://factfinder2.census.gov/>). *2008 estimates from American Community Survey data.

Appendix I: Base Map



**Appendix J: Willamette Valley
Land Use Development Zones**

