

Thinking about the Future Vision: a Primer for Action

June 16, 2009

Table of Contents

I.	Introduction	3
II.	Territory and Boundary	5
III.	Carrying Capacity and Sustainability	13
IV.	Climate Change	25
V.	Urban Form	41
VI.	Future Vision Process	50
VII.	Metrics and Monitoring	62
VIII.	Participation	73

I. Introduction

Metro, according to its Charter, must develop a Future Vision in 2010. The Future Vision is a long term look at the major issues that will provide a context for the planning to occur at Metro. It is not confined to Metro's jurisdictional boundary, and it is specifically prevented from being the basis for Metro's actionable planning powers. Consequently, the Future Vision represents a special opportunity to ask and discuss questions about the future for the broader region outside of the usual confines of jurisdictional authority and responsibility.

How will Metro take advantage of this opportunity? What kind of dialog could the next Future Vision enable? What topics are on or just over the horizon that promise to challenge our notions of what it means to live in this metropolitan area, our very quality of life? On one hand, the Future Vision could be done with the stroke of a pen. Simply change the dates in the 1995 version and move on. On the other, the 2010 Future Vision could be the start of a new and productive exploration of what we'll need to become good at, and what will be regarded as our legacy decades from now.

This year in USP 594: Planning in the Pacific Northwest we adopted the next Future Vision as the focus for the class project. The class divided itself into 7 working groups of three people each to address topics likely to be important to the next future vision. The first four—territory and boundary, carrying capacity and sustainable development, climate change, and urban form—address topics either specified in Metro's Charter or that are likely to be important in the years ahead. The remaining three—participation, process, and metrics and monitoring—address topics associated with the creation of the next Future Vision itself. Together, we hope that these papers assist Metro with sorting through the issues and opportunities associated with the next Future Vision.

Contact information for the authors of each of the papers is provided below. Please contact the students directly for additional information or should you have questions about their findings and recommendations. Stacey Triplett was our client at Metro, and Mike Jordan was also involved during the term. Their help was invaluable. Finally, the instructor for the course was Ethan Seltzer. He can be reached via email at seltzere@pdx.edu.

Email Contacts for Paper Authors:

Participation:

heidi.guenin@gmail.com (Heidi Guenin)
kathryn_mcgovern@hotmail.com (Kathryn McGovern)
lindsay_walker707@yahoo.com (Lindsay Walker)

Metrics and Monitoring:

mbudds7@hotmail.com (Michael Budds)
ln7856@gmail.com (Ellen Dorsey)
schauer.dan@gmail.com (Dan Schauer)

Territory and Boundary:

kellett@pdx.edu (Bob Kellett)
nilender@pdx.edu (Eve Nilenders)
amwilson79@gmail.com (Aaron Wilson)

Carrying Capacity and Sustainability:

kate.carone@gmail.com (Kate Carone)
chainstays@gmail.com (Mark Person)
glenews@pdx.edu (Stacey Glenewinkel)

Climate Change:

[lorraineferon@gmail.com](mailto:lorraineferron@gmail.com) (Lorraine Ferron)
nathan.mcneil@gmail.com (Nathan McNeil)
emilypicha@gmail.com (Emily Picha)

Urban Form:

asaeborgman@gmail.com (Asa Bergman)
marenmurphy@gmail.com (Maren Murphy)
kelmasm@gmail.com (Kellen Smith)

Future Vision Process:

gregorybarlow@gmail.com (Greg Barlow)
fosmark@pdx.edu (Brian Fosmark)
vsiu@pdx.edu (Vivian Siu)

II. Territory and Boundary

Authors: Bob Kellett, Eve Nilenders, Aaron Wilson

Introduction

How Metro chooses to define the region is a critical first step in approaching the Future Vision. The Future Vision can serve as a place where a healthy debate over regional form and definition can and should occur. Metro will be one of the driving forces in shaping this debate.

A strong identity can have a positive impact on the region. As we develop common ways of thinking, we are better equipped to build consensus. Many issues that Metro will encounter in the future will not be confined to the region but will extend beyond its borders. The strength we have in finding common solutions locally will enable us to cooperate with and influence other areas locally, nationally and globally.

In the 1995 Future Vision, Metro chose to adopt a view of the region that stretched beyond its service area to the surrounding nine counties while recognizing that the nine-county area has an influence far beyond its borders and likewise is influenced by events and decisions from outside. How will the conception of the region evolve over time, and what is Metro's role in this evolution?

The purpose of this section is to help Metro delineate its region of interest. After considering several alternative conceptions of the region described below, we conclude that the most useful territorial definition is that of the Willamette Valley. Such a definition not only reflects historical and current settlement, economic patterns, and ecological boundaries, but is both broad and flexible enough for the time-frame of the Future Vision.

Core Area

Within the 1995 Future Vision definition of area of interest, there is a core area upon which any definition of region will be built. Metro's current service area – Multnomah, Clackamas, and Washington counties - is a product of political boundaries. These political boundaries form a core area in which the Council has the political and legal authority to directly influence activities. While the jurisdictional boundaries that make up this core might change over the next fifty years – counties and cities may be added or removed, and the urban growth boundary may change - it is likely that there will remain a politically delineated construct under which Metro will operate.

A narrowly defined core area offers one potential regional definition for Metro's Future Vision. It acknowledges that Metro's regional policies are constrained through political and legal limitations. Even if Metro wants to influence land use decisions in Clark County, for example, there is a limit to what the organization can do. By concentrating efforts on a clearly defined, bounded area, Metro can better evaluate the direct impacts of its policies than if it defines its area of influence in fuzziier, less boundary-driven terms.

There are limitations to this approach. The core area is a political boundary and it does not necessarily take into account economic, environmental, and social impacts. It does not adequately address how decisions that are made within the core area impact areas outside the political boundaries and vice versa. In the coming decades it is increasingly likely that places beyond the core area will become more connected with it, not less. Just as cities are ill-equipped to confront regional challenges on their own, a core area-based approach is ill-equipped to confront challenges that involve peoples and places outside the boundaries.

The core area should be acknowledged as a reality, but it is not an encompassing enough definition of the region for the purpose of the Future Vision.

Spheres of Influence

The policies and actions that Metro takes within its jurisdictional border have an influence elsewhere. In a world that is becoming increasingly connected, defining the extent of this influence is a difficult task. Does air pollution in Portland impact residents in China? Do transportation decisions made in Washington County influence economic conditions along the Oregon coast? How much does a downturn in Seattle's economy affect land use decisions in Portland? These interrelated relationships are often difficult to quantify. They further blur regional boundaries. They also necessitate thinking and planning that extends beyond the core area.

One approach is to develop metrics to define its sphere of influence in a number of broad categories. This would enable the organization to match the regional definition to the scope of a problem or issue. This can be referred to as the *problem-shed*. By developing a way to measure and visually represent how transportation decisions affect the broader region, for example, the organization may view its policies in a different light. It could also facilitate cooperation and joint action with municipalities and regional bodies that are outside Metro's political jurisdictions.

What could this look like? There are a number of avenues Metro could take to define its spheres of influence. This includes developing issue-specific measurements and maps. These could include:

- **Transportation:** Using commute and freight information to see to what extent transportation issues within the core area extend to other areas.
- **Land Use:** Using land use modeling to determine how policies within the Urban Growth Boundary impact development in outside areas.
- **Economic:** Using trade, jobs, and other economic data to determine how various parts of the region influence one another.
- **Ecology:** Using impact analysis to determine the extents of watershed influence, air pollution sheds, greenhouse gas emissions, and other environmental concerns.
- **Social:** Using regional identity analysis and social networking tools to measure strengths of connection to the region.

The strengths of these individual components are revealing, but even more might be gained from developing a map that combines these issues into a single spheres-of-influence map. This can currently be done by layering the individual components into a single map using raster techniques in

GIS. As mapping systems continue to improve it is likely that future technologies will improve the ease and accuracy of this type of analysis.

The spheres of influence approach is not without flaws. Metrics to measure the various issues are incomplete and subject to human interpretation. Determining precise boundaries using this methodology may be difficult. A final spheres of influence map could be dramatically different depending on how certain influences are weighted. Lastly, the term 'spheres of influence' could be interpreted negatively by those who are defined as being influenced.

Network Analysis

An alternative or complementary approach to mapping the region draws on network analysis. The idea behind this concept is that physical, political, and environmental boundaries are not the only way to delineate a region. Of equal importance in determining Metro's influence are the social and economic connections with the surrounding communities. Through network analysis, more ethereal relationships can be mapped, illustrating where Metro's influence might be greatest and where it is eclipsed by other jurisdictions.

Social networks are also increasingly important in our age of mobility. People are no longer as physically rooted to a place as they once were, but they carry with them a certain "identity" to place. In this regard, social networking may increase the physical boundary of the region, as more and more people identify with Portland but reside in different locations. The CommonCensus Map Project - <http://www.commoncensus.org/> - is one example of an attempt to map these social networks, and create delineated areas of regional influence. While their current map is far from complete, it has begun to show how identities and social networks play out geographically.

Other networks that could be effectively measured and utilized in mapping the scope of Metro's regional influence are:

- commuting patterns
- food production and purchase
- trade activity
- family relations

The drawback to this approach is the difficulty and labor intensity of data collection. The relationships can be difficult to determine, even once the data has been compiled. However, the types of interactions that emerge will offer a wealth of information for Metro. The extent of networks and boundaries does not have to be static; as network analysis and spheres of influence can show, different criteria lead to different maps.

Region-building or Regionalization as a Directed Process

While regions are often defined using existing jurisdictional boundaries (or other fixed boundaries), one drawback inherent in using such an approach in the Future Vision document is its inability to address a region's potential for change. Not only do regions change over time, but they are also the product of conscious creation through the use of symbols, maps and discourse. A critical question

for Metro, therefore, as it approaches the 2010 Future Vision is not as much what is Metro's region or area of interest, but rather what would Metro like its region to be in 2060?

Directed region-building is not so much an alternative approach to the ones presented above but rather a concomitant tool to be used as a way of thinking. As the Future Vision's task is to look at least 50 years into the future, we recommend that Metro consider both the shape that it envisions the region taking (or would like the region to take) and the steps which it intends to carry out to further a particular vision of the region.

Regional Identity

The discussion thus far has focused primarily on the actual boundaries and measurements of Metro's influence: Metro has direct control over its core area, and influence of differing scale outside that boundary. Questions of regional identity focus more on the mental, or cognitive, factors that influence the shape of the region. For example, how are differences and similarities defined in the region? Where do those people living outside the UGB identify with the most? How can that be used to shape the future, and how much of the vision can we expect to remain intact into the future?

Metro should consider what experiences might shape the lives and identities of individuals in the surrounding areas, and how those might translate into a common vision. Some examples might include Mt. Hood, the Willamette Valley, the Columbia and Willamette rivers, the natural resources we share, and many other common experiential factors. Equally important to our regional identity is how "we" differ from "others." Clearly articulating this concept would allow Metro to bypass some of the differences inherent in the region, particularly by rural voices who might otherwise resent what could be perceived as the city of Portland unduly attempting to control the collective vision of the future.

These inherent differences illustrate some potential concerns that Metro may want to address: "Who makes regional distinctions and classifications?" "How do they express relations of power?" And as the scholar Anssi Paasi asks, "Whose identity is a specific identity discourse describing?" Metro is arguably the political power in the Portland area and should exercise care in how it frames the debate over regional identity. While it may be acceptable to attempt to provide "guidelines" in delineating the region, forcing an actual definition of that identity can cause increased conflict.

Mobility offers a unique challenge for Metro in this regard. The implication is that identity does not follow physical boundaries and will be a continuously changing, shifting creature. However, it also gives Metro the opportunity to influence how the future looks in ways that lie outside its actual jurisdictional realm. A strong regional identity, fostered and encouraged by Metro, will be a strong foundation for the long-term success of any future vision process. It also indicates that Metro could benefit by focusing less on the actual boundaries of the region, and more on the strength of the regional identity, taking particular care to involve other communities and jurisdictions through focus on commonality in history and experience.

Recommended Territorial Definition

After exploring and mapping the approaches discussed above, we have concluded that the process of defining regional boundaries is both challenging and time consuming. It is highly dependent upon who is doing the defining and what they see as the purpose for the definition. Our different methodologies produced different borders, all of which likely represented a portion of what the region will be in fifty years. Each had potential shortcomings that could lead to border definitions that do not adequately represent the problems and opportunities that Metro will face in the years to come.

We recognize the value of including a defined area of interest in the Future Vision. It provides a framework from which policies can emerge. It offers opportunities to build consensus and forge partnerships to address many of the challenges that the region will face in the coming years. It offers a delineated territory where policies can be measured and evaluated. It provides a shape and structure to a Future Vision document that is deliberately broad and nebulous.

It is our recommendation that for a document such as the Future Vision, Metro take a broad, loosely defined approach. While delineating the region on the basis of jurisdictional boundaries such as county lines can be useful in terms of ease of data collection, we argue that the Future Vision should not be constrained by arbitrary administrative lines, as they fail to capture the more complex reality described below. We also feel that the nine counties identified in 1995 do not adequately take into account historic and future population movements.

As we envisioned what the area would look like in 50 years in terms of issues such as transportation, natural resources, environmental concerns, economic development, and social identity, all of the maps included the Willamette Valley as central to our vision. This swath of land -- roughly from Eugene to a little north of Vancouver, Washington, and from the Coast Range to the Cascades -- has historically been where people have settled. It has been a place that over the past 150 years has developed its own cultural identity and its own way of life. It is a territory that is economically integrated and environmentally interconnected.

Fifty years from now we expect the Willamette Valley's role to be even more central to the residents under Metro's jurisdiction. As we shift away from a carbon-based transportation network, the proximity of the region's dense population centers to fertile lands will become even more critical. As the world becomes increasingly interconnected and competitive, the success of the Valley will depend on its economies of scale. As water resources diminish elsewhere, the Valley's proximity to the extensive water network in the Cascades will continue to sustain life. As we move increasingly towards a service-based economy, the Willamette Valley will supply the job centers that will attract employees and employers from all over the world.

It is for these reasons and for reasons of expediency that we recommend that Metro define its area of interest as the Willamette Valley.

Executive Summary/Annotated Recommendations:

- Decide on the amount of time and resources to devote to this project for determining the territory or region of interest.

- Recognize that boundaries can be limiting for a Future Vision and that administrative lines are not always adequate in addressing regional challenges. Many issues extend beyond territorial boundaries and often require larger scale thinking and solutions. We suggest Metro consider an approach that does not follow administrative boundaries.
- We recommend defining the Future Vision territory as the Willamette Valley, as this area represents the convergence of historical, economic, and environmental patterns. Such a territorial definition is broad enough to encompass future trends but specific enough still to be a manageable concept. It also is a pragmatic definition that would take into account time and funding constraints in delineating the Future Vision region.
- If Metro decides that it would like to devote more time and energy to the issue of determining the Future Vision territory, tools do exist and alternate conceptions of the region could be developed by turning to spheres of influence, regional identity, and network analysis. Such approaches could yield a view of the region that would either lack a traditional boundary or may use multiple delineations of the region.
- Regional identity develops organically and is difficult to manufacture, but targeted efforts and collaborations can draw people together.

References

Allen, John and Cochrane, Allan. "Beyond the Territorial Fix: Regional Assemblages, Politics and Power." *Regional Studies*. 41:9 (2007) 1161 – 1175.

"City of Portland Watersheds." 2005 Portland Watershed Management Plan.
<http://www.portlandonline.com/bes/index.cfm?c=38965&a=107810>

"The CommonCensus Map Project." <http://www.commoncensus.org/>

"Defining a Region: An exploratory look at how to do it and what it means." Know Your Region Project. U.S. Economic Development Administration and the Institute for the Economy and the Future, Western Carolina University. 15 April 2009.
<http://knowyourregion.wcu.edu/pdf/defareg.pdf>

Huff, David L. "The Delineation of a National System of Planning Regions on the Basis of Urban Spheres of Influence." *Regional Studies* 7:3 (1973) 323-329.

Hulse, David W., Allan Branscomb, Susan G. Payne. "Envisioning Alternatives: Using Citizen Guidance to Map Future Land and Water Use." *Ecological Applications*, Vol. 14, No. 2 (Apr., 2004) 325-341.

"Megaregions: Literature Review of the Implications for U.S. Infrastructure Investment and Transportation Planning. Section II. Foundations and Methods of Delineation: C. Defining a Region." U.S. Department of Transportation Federal Highway Administration. 2 May 2009.
<http://www.fhwa.dot.gov/planning/megaregions4.htm>

Morrisey, Katherine. *Mental Territories: Mapping the Inland Empire*. Ithaca, NY: Cornell University, 1997.

Newman, David and Anssi Paasi. "Fences and neighbours in the postmodern world: boundary narratives in political geography." *Progress in Human Geography*. 22.2 (1998) 186-207.

Paasi, Anssi. "Europe as a Social Process and Discourse: Considerations of Place, Boundaries and Identity." *European Urban and Regional Studies* 8:1 (2001): 7-28.

Paasi, Anssi. "Place and Region: Looking through the Prism of Scale." *Progress in Human Geography*. 28.4 (2004) 536-546.

Paasi, Anssi. "Place and Region: Regional Worlds and Words." *Progress in Human Geography*. 26.6 (2002) 802-811.

Paasi, Anssi. "Region and Place: Regional Identity in Question." *Progress in Human Geography*. 27.4 (2003) 475-485.

"Planning Provinces within the Northwest Forest Plan." Northwest Forest Plan Regional Ecosystem Office. 20 May 2009. <http://www.reo.gov/gis/images/prov.jpg>

"Policy and Procedures for Sphere of Influence." Local Agency Formation Commission. 29 April 2009.

<http://www.co.san-joaquin.ca.us/lafrco/Policies/New%20Policy%20&%20Procedures/SOI.pdf>

"Population & Service Area." Portland Water Bureau. 20 May 2009.
<http://www.portlandonline.com/water/index.cfm?c=29460>

"Regional Collaboration." Lincoln Institute of Land Policy. Public Policy Research Institute.

15 April 2009. <http://www.lincolnst.edu/subcenters/regional-collaboration/tools/defining-the-region.asp>

"Trimet System Map." 20 May 2009. <http://www.trimet.org/pdfs/trimetsystemmap.pdf>

"Urban Growth Boundary." Metro. 20 May 2009.
<http://www.oregonmetro.gov/files/planning/ugbmap0506.pdf>

"Willamette Valley Livability Forum." <http://docs.lcog.org/wvlf/vision.html>

Visual Map Representations - Four approaches to Region mapping



Metro's current service area forms a core area in which the Council has the political and legal authority to directly influence activities. This is the smallest-scale region that could be considered for the Future Vision.



In the 1995 Future Vision, Metro chose to adopt a view of the region that stretched beyond its service area to the surrounding nine counties. They recognized that they could no longer view themselves as a separate entity.



Metro's influence on the region depends largely on the issue(s) being considered. A third approach would be to map these "spheres of influence," with the larger spheres representing diminishing impact.



Our recommended Territorial region is the Willamette Valley, a place that over the past 150 years has developed its own cultural identity and its own way of life. It is economically integrated and environmentally interconnected.

III. Carrying Capacity and Sustainability

Introduction

Metro's 1995 Future Vision employed the carrying capacity concept as a lens and evaluative tool for developing recommendations for a nine-county region centering on Portland. A multi-layered 1994 report, "Carrying Capacity and Its Application to the Portland Metropolitan Area," extensively explored the carrying capacity concept and offered guidance on how it could be incorporated into the Future Vision. To some extent, the report equated the integration of carrying capacity into urban development with the pursuit of sustainability (Aspeslagh 17). The Future Vision Commission recognized that effective planning promotes perpetually sustainable communities, and integrated carrying capacity into the Vision's guiding values (Future Vision Report 1).

The 1994 report determined "sustainable carrying capacity" to be socially constructed and urged the Commission to view sustainable carrying capacity as a discourse on the kinds of development limits we are willing to accept (Aspeslagh 11). The report generated an evaluation model to ascertain potential constraints on the region's growth and development. The model considered air, water, land, energy and transportation. It determined air quality as the limiting factor; transportation as the limiting system; and projected that energy access would be a major constraint in the next 50-100 years (Aspeslagh 42-50). These constraints helped guide sections of the Vision, but did not serve as central to the discourse.

CARRYING CAPACITY
a discourse on how to approach the various types of socially constructed carrying capacity constraints within the context of sustainability

CAPACITY LEVEL	LAND	WATER	TRANSPORT	ENERGY	AIR
Infrastructural capacity level: constraints of infrastructures, which determine the flow of resources through the metropolitan region		1077 mgd	9, 279 miles of freeways and arterials		
Institutional capacity level: constraints of politically or legally enforced threshold standards with are enforced within the metropolitan region	EPA air quality standard		EPA air quality standard	180.5 BTUs	EPA air quality standard
Perceptual capacity level: constraints of socially determined unacceptable changes in the metropolitan region	greenspaces	water purity	congested roadways		view of Mt. Hood
Environmental capacity level: constraints of environmental sources and sinks which, when exceeded will lead to undesirable changes in the natural environment of the metropolitan region				energy investment ratio	
Sustainable capacity level: constraints of natural and social systems, which when exceeded, will threaten the ecological and social sustainability of the metropolitan region	rural resource land	watershed preservation	depletion of oil reserves	depletion of oil reserves horizontal/v ertical ratio	8.1 MMT of CO2 emission
Biocentric capacity level: constraints of the bioregion, which when exceeded, threaten the integrity, stability and beauty of the biotic community of the metropolitan region.	ecological footprint	preservation of ecosystems habitat		salmon habitat destruction due to hydropower	

Figure 1: 1994 Carrying Capacity Constraints for the Portland Metropolitan Region (Aspeslagh ES 10)

This preliminary re-visioning paper takes the definition of sustainable development from the Brundtland Commission's 1983 report *Our Common Future*. In that report sustainability is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland). The Brundtland Commission recognized that environmental problems were global and that everyone would benefit from policies that supported sustainable development. This definition is broad enough that it supports economic growth and prosperity when the impacts on future generations and their ability to grow and prosper are considered.

Sustainability is more of an approach to doing business than a final goal to be achieved. It is comprised of three dimensions: social, environmental and economic. These three dimensions need to be integrated in order to move toward sustainability. For example, when considering the profitability of a business, one would look at the economic benefits it generates. When evaluating the sustainability of a business one would look at how that business benefits all three of these dimensions.

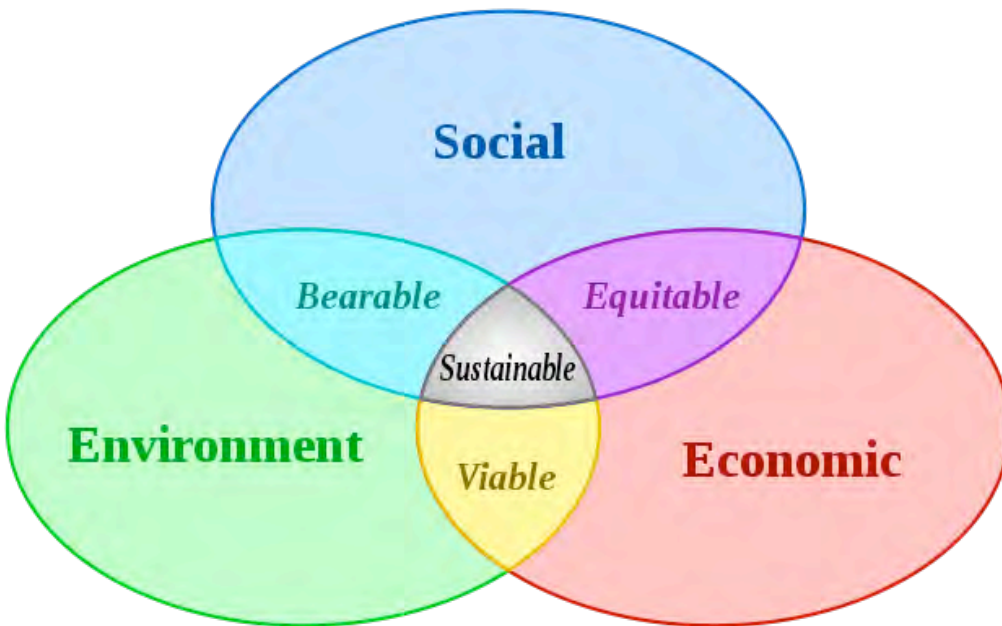


Figure 2: Facets of Sustainability (Accessed on-line at www1.indstate.edu/facilities/sustainability)

The updated Future Vision Plan should apply a more thorough approach to concepts of carrying capacity and consider these three dimensions of sustainability. Economic growth is important because it increases quality of life. Sustainable economic growth will spread these benefits to people and the environment more equitably than before. The 1994 carrying capacity report's predicted regional constraints should also be re-examined, as systems such as air quality and transportation may have fared better than expected due to investments made in public transportation and biking.

The following section lists salient regional sustainability issues that should be considered in reformulation of the Future Vision Plan. These issues are organized into silos of current sustainability discourse, all of which overlap and are intertwined.

The second section focuses on green opportunities for regional growth. Recognized as a national leader in green building, renewable energy development, alternative transportation, and land use management, Portland is emerging as a living laboratory for urban sustainability. The revised Future Vision should emphasize these opportunities and support the momentum of this innovative leadership.

Salient Current Sustainability Issues

As growth from immigration is expected to continue into the foreseeable future, there are a number of challenges facing the region. Moving forward, the inputs and outputs of the region should be considered. What does the area consume on a daily basis in order to operate and what waste products are generated? Listed below are some of the key sustainability elements that should be addressed in the revised Future Vision Plan.

Environment

The Metro Charter divides the environment into land, air and water categories, and this paper follows that pre-established format. However, due to the interconnectivity of the elements listed below, it may be more beneficial to group the elements together in the revised Future Vision Plan.

Land

Parks/Open Space

The region is fortunate to have many parks and open space areas. Parks and open spaces serve multiple functions, including: recharging groundwater supplies, providing habitat and improving air quality. The area's parks and open spaces also have positive social and economic functions.

Solid Waste Management

Most of the garbage from the metro area is transported to the Columbia Ridge Landfill, which is located about 150 miles east of Portland near Arlington, Oregon. Landfills are not a sustainable approach to waste management. They are limited in size and when they fill up they are simply covered over and left to sit indefinitely. They can leach toxic chemicals and bacteria into soils and groundwater supplies and they off-gas hazardous fumes which have to be mitigated. Landfills are often located in poor communities where land is less expensive. This forces the negative externalities of landfills onto people who have less control over their own lives. Reducing the amount of solid waste transported out of the region by diverting more to recycling and composting would reduce waste management costs, extend the life of existing landfills, preserve the environment and reduce the social impacts on low income communities.

Forestry

The metro region relies on wood products from the region and beyond. It is important to recognize that the choices we make within the metro area have ramifications on local and global forestry. Increased regulation of logging in Oregon has real economic impacts on rural logging communities. Often the unintended consequence of environmental regulation is the outsourcing of our environmental impact to developing countries with less strict regulations and enforcement.

The next Future Vision Plan should outline goals to increase the use of wood harvested locally from Forest Stewardship Council (FSC) certified sources. Increasing FSC wood products will help restore local economies and reduce the environmental impact of logging in developing countries.

Wildlife and Habitat

The metro region serves as habitat for countless species of flora and fauna. These areas and native species should be valued for their intrinsic value and tangible benefits they have for the region.

Air

Air Quality

Air quality is something that is easily taken for granted in Oregon. This region in general enjoys high air quality. It is everyone's responsibility to make sure that the quality air we enjoy today is preserved for future generations.

Climate Change

Climate change is a key issue that should have its own section within the revised Future Vision Plan. Many of the factors that contribute to climate change are addressed in an attached report.

Water

Urban Combined Sewer Overflows

Combined Sewer Overflow (CSO) events occur nearly every time it rains in Portland. During a CSO event, stormwater fills the combined sewers, exceeding the capacity of the sewage pipes, causing combined stormwater and sewage to overflow into the Willamette River and Columbia Slough. The City of Portland is projected to complete the Big Pipe Project in 2011, reducing CSOs by 94% (Portland Bureau of Environmental Services).

Water Quality

Areas within the region receive their drinking water from a variety of sources. Clean water is a valuable resource that should be protected. It may be beneficial to make explicit the relationship between consumer choices, habits and effects on water quality.

Besides drinking water, the water quality of streams, lakes, wetlands, rivers and groundwater within the metro region is of the utmost importance.

Stormwater Management

The Metro area has been a leader in stormwater management, from green streets to porous pavement and permeable pavers. The area should continue to be at the leading edge in reducing

pervious areas and in treating stormwater. The treatment of urban runoff is imperative to the quality of our ground and surface water.

Equity

Environmental/Social Justice

“All people and communities are entitled to equal protection of environmental and public health laws and regulations” (Bullard). Studies have shown that there are higher concentrations of hazardous facilities near poor and minority neighborhoods (Brulle and Pellow 105). Studies have shown that a significant portion of greenhouse gases generated outside of urban centers are linked to urban-based demands (McGranahan and Satterthwaite 244). The Future Vision Plan should encourage engagement and include input from a wide spectrum of stakeholders. When developing plans and policy, the needs of all residents in the area should be considered.

Affordable Housing

Sustainability for the region means reasonable access to housing for a variety of income levels. Critics of sustainability have argued that the issue is only relevant to the affluent. Sustainability should be a concern across the socioeconomic spectrum.

Homelessness

As a socially sustainable region, the metro area should work towards reducing homelessness through education, outreach and community support programs. As of January 2009, 2,438 people were counted as homeless in the Portland area (Larabee and Lednicer).

Access to Resources

As areas within the Metro region have redeveloped and changed the cost of housing has historically increased. This has forced people with fixed incomes and limited resources to find cheaper housing. More affordable housing in this region has historically been located at the outer edges of the urban areas. These areas are typically underserved by grocery stores, public transportation and community services.

Public Involvement

Public Involvement and community participation plays a vital role in the health of a region. Involvement in government planning should be emphasized to include a wide variety of stakeholders and a cross section of residents with diverse social, cultural and economic backgrounds.

Economy

Balancing Act

Neoclassical economic analyses omit most environmental and social costs and benefits (Pearce & Barbier 5-7). Sustainability calls for a more inclusionary tactic, one that conscientiously balances economic interests with environmental and social investments and impacts (18-19). Future regional economic growth should be predicated on this revisionist approach to benefit-cost analysis.

Shift to a Service Economy

Over the last 30 years, the metro area’s economic dependence upon raw resource extraction and

manufacturing has greatly decreased (Power 83). A service-based economy has developed around urban cores, and it is anticipated that this trend will continue (85). This shift has implications for rural and urban community growth and robustness, and also provides an opportunity for reducing overall environmental impacts. Richard Florida's argument for attracting the "creative class" to this region may also have implications for the types of economic development that are encouraged (Florida).

Green Collar Jobs

The Metro area is fortunate to have a growing number of sustainable industries creating "green collar" jobs. Thought leaders such as Van Jones in Oakland, California, are working to simultaneously develop these higher quality jobs and reduce urban poverty. Nurturing these green industries and developing new ones will provide opportunities for more sustainable regional growth.

Buy Local

Regions have long been seduced by the promise of jobs and tax revenue from large national and international chain stores. However, evidence is emerging that these non-local business are actually hurting local economies (Mitchell 1-4). Conversely, money spent at independent locally-owned businesses creates a multiplier effect that typically amounts to three times that of money spent at chains (Milchen). Furthermore, localized production and consumption reduces transportation impacts, and may better incentivize "cradle to cradle" product design.

Cleaning Up Existing Business

While the regional economy may be service-oriented, resource extraction and manufacturing in suburban and rural communities will remain economically important moving forward. There is much room for improvement of resource management, and many possibilities for increased energy efficiency, material sourcing, and waste reduction in manufacturing processes. The improvement of existing business processes should be ongoing.

Opportunities for Increasing Sustainability

Energy Efficiency

As economic growth continues over the next 50 years the demand for energy will increase substantially. Since buildings presently consume about 30% of our energy, they should be built to use that energy efficiently (USGBC). Presently, there are several different standards used to measure the efficiency of buildings. The U.S. Green Building Council's LEED rating system is currently the industry standard but the Environmental Protection Agency's Energy Star rating system is also widely used.

Improving the efficiency of buildings and energy systems can slow the growing demand for energy while technology and markets for alternative sources develop. Compared to renewable energy, energy efficiency measures typically have smaller startup costs. Some recommended approaches to energy efficiency include:

- Encourage new buildings and districts to share HVAC systems – combined systems can take advantage of economies of scale.
- Encourage passive solar for winter months and awnings for summer shading and cooling.
- Encourage use of smart meters for utilities that give customers real time feedback on their usage. Additionally, off peak price breaks or peak-hour surcharges could be established.
- Offer incentives for developers/contractors who exceed energy efficiency standards in new buildings or who retrofit existing buildings.
- Harvesting rainwater for landscape watering and also for non-potable residential and commercial uses reduces demand for potable water.
- Green roofs can increase the energy efficiency of the heating and cooling system of buildings while also reducing the amount of stormwater runoff.

The next Future Vision Plan should recommend policies to incentivize local governments in the urban areas as well as suburban and rural communities to promote energy efficiency as the best hedge against rising energy costs. This is particularly important to municipalities that have lower revenues. Developers should be encouraged to renovate existing buildings and construct new buildings to meet stricter energy targets. LEED Silver is currently the level required by Oregon Department of Energy to receive energy tax credits (ODOE). The bar should be raised to make LEED Gold the minimum rating for tax credits and energy loans.

Renewable Energy

Oregon currently consumes electricity generated from a combination of sources including hydro and natural gas and some wind and solar sources. Natural gas is a fossil fuel that will become more available over time as oil reserves continue to decline. However, it is a non-renewable resource that contributes to global warming and presents challenges with transportation and distribution. These prevent it from being the answer to energy demand in the future. The Future Vision team should consider the impacts on climate change that natural gas creates and set goals to shift away from this source of energy as much as possible.

Although hydro is a renewable energy resource, the next Future Vision Plan should consider the environmental and social impacts of dammed rivers and hydro power and outline goals to shift to better methods such as wind and solar. As a leader in sustainability, Oregon needs to place more emphasis on ensuring the energy we use to power things like the light rail system is coming from environmentally and socially responsible, renewable sources.

- Wind - The next Future Vision Plan should outline priorities for expanding wind production both off-shore and in eastern Oregon. The Plan should consider the social justice-related negative externalities associated with large wind turbine farms. Research should be done to determine what the socially responsible distance from homes to towers should be to shield people from the effects of shadow flicker and noise. The economic benefits of wind power could bring vitality to rural communities and create green jobs in communities that are struggling economically.
- Solar – The arid sunny parts of eastern Oregon provide an expanse of land that could be used to generate solar energy. Constructing hybrid systems of wind turbine towers

above fields of solar panels could capture energy on both sunny summer days and windy winter days.

- Bio-fuels – The federal government has widely supported the development of crops used for bio-fuels. The next Future Vision Plan should consider the ethical, environmental and social justice implications of investing in this type of renewable energy. Fuel crops are genetically engineered to produce oils that are beneficial for vehicles but are not approved by the Food and Drug Administration for human consumption. Despite a lack of safety testing, these fuel crops are planted in fields next to food crops, where pollen is transmitted across crops types, contaminating the food supply. Shifting farm use from food production to bio-fuels also reduces Oregon’s contribution to the local food movement.

Transportation

In Oregon, transportation accounts for 34% of greenhouse gas emissions (ODOT Tolling White Paper). With anticipated population increases within the metro area, moving more people, more efficiently should be a priority.

A sustainable transportation system should:

Allow for the basic access and development needs of individuals, companies and societies safely and with respect to human and ecosystem health while promoting equity within and between generations. Be affordable, operate fairly and efficiently, offer mode choices and support a competitive economy as well as balanced regional development. Limit emissions and waste, use renewable resources at or below their rates of generation and use non-renewable resources at or below the rates of development of renewable substitutes while minimizing the impact on the use of land (Cormier and Gilbert 5-6).

- Automobiles account for a large portion of green house gas emissions. A reduction in trips and miles traveled should be targeted.
- Reduce automobile emissions and increase efficiency
- Work with local jurisdictions to continue promoting mixed-use developments in urban and suburban areas. Mixed-use developments have the potential to reduce the frequency and length of vehicle trips.
- Increase public transit opportunities and continue to enhance and improve bicycle and pedestrian facilities in the region.

Waste Reduction, Recycling & Composting

As the population of the nine county region of the Future Vision Plan grows, so does the volume of solid waste generated by that growth. Finding sustainable methods for managing that waste should be a priority. The next Future Vision Plan should outline goals for investing in innovative and sustainable waste management practices. Some examples of areas to investigate include:

- Advanced recycling programs for plastics, metals, wood and paper
- Incentivizing markets for recycled products to spur further innovation in recycling practices
- Large scale composting facilities capable of taking all types of organic matter should also be developed. Collecting food and yard waste from both commercial and residential customers will reduce the volume of material sent to the landfill. Case studies such as Green Earth Technologies in Washington State exist and can provide a model for the type of facility our region needs. There are several benefits to investing in a large scale composting facility in Oregon. In addition to the environmental benefit of diverting waste from landfills in a sustainable way, the facility would provide economic benefits for the developer and owner whether it was a public-private partnership or the state constructed the facility or if a private investor built the facility. It would create green jobs and keep those tax dollars in the state.



Figure 3: Green Earth Technologies, Lynden WA

Education

Primary school education plays a major role in shaping the truths, attitudes, ethics, concepts and behaviors of society. Secondary education with specializations in energy efficiency, renewable energy, economic sustainable development and transportation could add to the region’s skilled work force, filling vacant jobs or attracting “green collar” industries.

Elements of a sustainable education curriculum in K-12 could include:

Ecological Literacy – detailing carrying capacity, how environmental systems work, interconnectedness, and connections between human and natural systems. Multiple Perspectives – emphasis on the value that learning about and from other cultures, beliefs and points of view can provide. Sense of Place – valuing the local knowledge of a place and understanding how the residents of a place interact with it (Byrne, Cloud, Federico and Wheeler 5-6).

- Enhance the region’s public and private educational capacity in sustainability-related studies and include renewable energy and energy efficiency in the curriculum. As a leader in sustainable practices, the region should also be a leader in training future leaders in the emerging green economy.
- Encourage municipalities to partner with institutions when possible to combine resources and exchange information.
- Encourage public schools to incorporate sustainability into the classroom. Promote demonstrations of resource origins and where waste goes – connect the circle.

Specific Recommendations for Non-Portland Communities

Suburban and rural communities have a lot to gain from becoming more sustainable. The next Future Vision Plan should outline specific goals for these areas because of the benefits that come with sustainability.

- Green collar jobs for communities that are currently based around dwindling industries
- Cost savings from improving energy and water efficiency and better waste management
- Conserving energy and water use so communities can grow
- Increasing density to make infrastructure more cost efficient and alternative forms of transportation possible

Broad Recommendations

While the guiding 1994 carrying capacity report was forward thinking and impressive in its sophisticated treatment of sustainability issues, the 1995 Future Vision's focal "Vision Statements" did not fully embrace the earlier report's nuanced findings. This may have been because environmentalism was not as politically salient in the mid-1990s, or because sustainability values were not prominently reflected in the public visioning process. Since then, environmental sustainability has emerged as a primary national concern with far-reaching implications for how and where we live our lives (Saad).

Although useful as a philosophical step towards understanding what we currently call "sustainability," carrying capacity is no longer a dominant concept in policy making. As the 1995 Future Vision itself concluded, biological carrying capacity is too narrow a concept and there are too many future uncertainties for it to adequately guide a vision for regional sustainability (Future Vision 3).

We recommend that the reconstructed Future Vision Plan is framed by the three dimensions of sustainability; social, environmental and economic. In addition, the salient issues listed earlier should be substantively addressed in the vision statements and implementation plans. Environmental, economic and social sustainability ideals should help guide the process and be woven throughout the Vision.

Bibliography

Adams, W.M. "The Future of Sustainability; Re-thinking Environment and Development in the Twenty-first Century." Department of Geography, University of Cambridge, UK. May 22 2006 http://cmsdata.iucn.org/downloads/iucn_future_of_sustainability.pdf

Aspeshlagh, Wim. (Apr. 2 1994). "Carrying Capacity and Its Application to the Portland Metropolitan Region: A Discussion Paper." Prepared for Future Vision Commission. Portland, OR.

- Brulle, Robert J and David N. Pellow. (Aug. 9 2005) "Environmental Justice: Human Health and Environmental Inequalities." *Annual Review of Public Health*.
- Brundtland Commission Report. (1987). "Our Common Future." Oxford University Press.
- Bullard RD. (1996). "Symposium: The Legacy of American Apartheid and Environmental Racism." *St. John's J. Leg. Comment*.
- Byrne, Jack, Jaimie P. Cloud, Carmela M. Federico and Keith Wheeler. "Kindergarten through Twelfth-Grade Education for Sustainability." Accessed online at www.sustainabilityed.org/what/education_for_sustainability/documents/K12Chapter.PDF.
- Cormier, Al and Richard Gilbert. (Mar. 31 2005). "Defining Sustainable Transportation." Prepared for Transport Canada.
- Florida, Richard. (2002). "The Rise of the Creative Class." New York: Basic Books.
- "Future Vision Report." (Mar. 4 1995). Prepared by the Future Vision Commission. Portland, OR.
- Green Earth Technology. <http://www.greenearthtechnology.com/>. Last accessed May 25 2009.
- Larabee, Mark and Lisa Grace Lednicer. (Mar. 15 2009). "Relentless Recession Sends Homeless Numbers Soaring." *The Oregonian*.
- McGranahan, Gordon and David Satterthwaite. (July 15 2009). "Urban Centers: An Assessment of Sustainability." *Annual Review of Environmental Resources*.
- Milchen, Jeff. (2005). "The Benefits of Doing Business Locally." For American Independent Business Alliance, Bozeman, MT. Accessed online at: http://amiba.net/pdf/benefits_doing_biz_locally.pdf.
- Mitchell, Stacy. (2000). "The Home Town Advantage." Washington, DC: Institute for Self-Reliance.
- Oregon Department of Energy, Energy Tax Credits. Accessed online at: <http://www.oregon.gov/ENERGY>. Last accessed May 23 2009.
- Oregon Department of Transportation. (Mar. 2009) "Greenhouse Gas Emission Impacts of Tolling and Pricing Strategies." Accessed online at: http://www.oregon.gov/ODOT/TD/TP/docs/LRPU/Highlight1.pdf#Tolling_White_Paper_1.
- Pearce, David & Edward Barbier. (2000). "Blueprint for a Sustainable Economy." London: Earthscan Publications.
- Portland Bureau of Environmental Services. Combined Sewer Overflow Information Page. Accessed online at <http://www.portlandonline.com/bes/index.cfm?c=31030&a=47260>.

Power, Thomas Michael (2001). "Stories about Livelihoods: Cultural Inertia and Conceptual Confusion in a Transitional Economy." In W. Robbins (Ed.), *The Great Northwest: The Search for Regional Identity*. Corvallis, OR: Oregon State University Press.

Saad, Lydia. (Mar. 25 2009). "Gallup Poll: Water Pollution American's Top Green Concern." From Gallup: <http://www.gallup.com/poll/117079/Water-Pollution-Americans-Top-Green-Concern.aspx#1>. Last accessed May 21 2009.

Smock, Kristina. "Report on the 2009 Portland/Multnomah Country Street Count of Unsheltered Persons." City of Portland Bureau of Housing and Community Development.

U.S. Green Building Council. Accessed online at: www.usgbc.org. Last accessed May 25 2009.

IV. Climate Change

Summary

Since Metro first developed a Future Vision, the scientific community has come to a general consensus on both the reality of climate change and the potential severity of its impacts (IPCC p. 2). Integrating climate change considerations into Metro's Future Vision is crucial to providing a current regional vision for 2060. Existing and new sections of the Future Vision should be addressed through the lens of climate change, with the understanding that current assumptions about trends and natural resources might be dramatically different by 2060. Even with significant reductions in greenhouse gas emissions, greenhouse gas levels are likely to cause some degree of warming and related climate impacts, thus two sides to climate change planning emerge: mitigation to lessen the effect of climate impacts, and adaptation to help communities deal with climate impacts.

In this section, we recommend that the Future Vision address several climate change related topic areas: 1) how to stay knowledgeable and up to date given our evolving understanding of climate science; 2) how to coordinate mitigation strategies among jurisdictions; 3) how to develop and implement climate change adaptation approaches; and 4) the urgency of acting on these issues in a bold and timely manner. Below is a summary of our recommendations to Metro:

Become a climate change leader.

- As an organization, maintain relationships with climate science experts and conduct regular assessments of climate change and potential impacts.
- Include climate change considerations, including both mitigation and adaptation strategies, in every plan. Encourage accelerating timelines to achieve mitigation and adaptation goals as soon as possible.

Support and enhance mitigation strategies from throughout the region.

- Envision a role for Metro that fills gaps in coordination of mitigation efforts in the region.
- Serve as a communication portal between the Northwest and the rest of the world regarding mitigation strategies and efforts.
- Take a lead on mitigation challenges made both internally and externally to the region.

Lead adaptation efforts in the region.

- Take the lead in developing, coordinating and promoting regional climate adaptation strategies for a carbon-constrained and climate-changed future.
- Regularly assess potential climate-related impacts and coordinate with every level and scope of government in the region.
- Learn from organizations working on resiliency planning such as ICLEI and the Resilience Alliance.

Background

By adopting a resolution to develop a regional climate action plan in 2008, Metro acknowledged that climate change is an issue that needs to be addressed. Integrating climate change considerations into Metro's Future Vision is crucial to providing a regional vision for 2060. The Future Vision should consider each regional issue through the lens of climate change and how any current assumptions about abundant natural resources or other conditions might be dramatically altered by 2060.

Evidence of the reality of climate change is overwhelming, according to the foremost authority on climate change, the Intergovernmental Panel on Climate Change (IPCC). Further, the IPCC stated with confidence that warming was due to anthropogenic greenhouse gas emissions. Even with significant greenhouse gas emission mitigation strategies, climate change will occur. Successful mitigation strategies yield better expected outcomes; nonetheless, because some impacts are now unavoidable, adaptation will be an equally important challenge (IPCC p. 2-8).

In considering climate change, we recommend that the Future Vision work to examine best practices in both mitigation strategies and resiliency planning. Metro's Future Vision should address the spectrum of climate change impacts on the Pacific Northwest and also look at how the lifestyles of the region's residents will be impacted in 2060. Metro should articulate the ways that it can add value to how localities interact with state, national and international communities on the challenges presented by climate change.

I. Climate Change and the Pacific Northwest

The probable and possible impacts of climate change on the Pacific Northwest will dramatically alter the ecological landscape around us.

Records indicate that temperatures in the Pacific Northwest have risen by 1.5 degrees Fahrenheit on average since the 1920s. Climate models indicate that the pace of that increase will hasten over the next century. Models project temperatures to increase by 3.5 to 5.9 degrees Fahrenheit in the next fifty years. Changes to the Northwest are likely to include a decrease in annual snowpack by as much as 50 percent, decreased reservoir holdings, rising stream temperatures and impaired salmon habitat, increases in annual average fire burn area by 200 to 300 percent, and increased heat and air pollution related deaths (Littell et al, 2009). Some of these changes are likely to occur regardless of efforts to minimize future greenhouse gas emissions; however, models indicate that the impacts will be more severe under higher emissions scenarios (IPCC p. 44).

The Pacific Northwest may be particularly vulnerable to the effects of climate change. Some effects already occurring, such as higher temperatures and decreased snowpack, have likely contributed to other problems including increased forest fire severity. Those effects are likely to increase in the future and new effects will be felt as well. Some of those effects are predictable, such as the variable water flow in Northwest rivers impacting irrigation and hydropower capacity. Other effects will be unpredictable as previously unrecognized relationships change due to climate-related impacts.

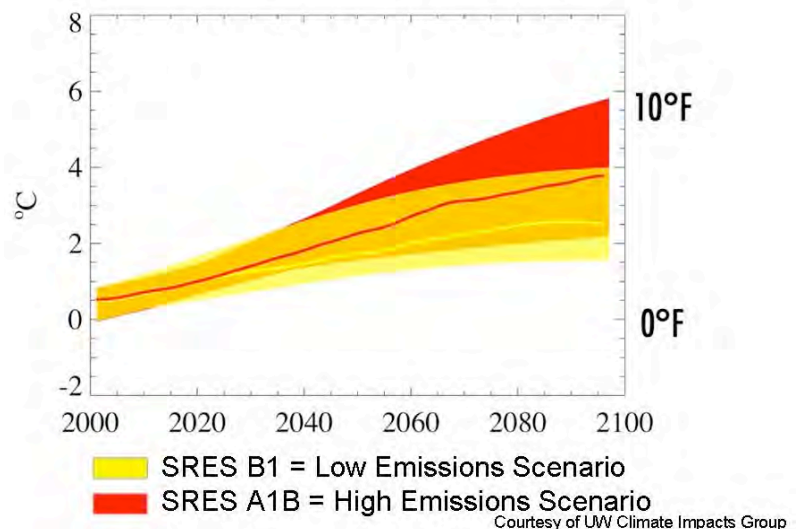
Seasonal variations and cycles provide a window into what an altered climate might mean.

The Pacific Northwest has seen variable seasonal weather in the past. The region is subject to two important seasonal oscillations: The El Niño/Southern Oscillation and the Pacific Decadal Oscillation. Each can cause winters to be either warmer and drier or alternatively cooler and wetter. When these weather patterns overlap, temperature and precipitation extremes can occur (CIG 2009). These extremes usually do not last more than one or two consecutive years, but they do provide important information about potential impacts of sustained climate change. Changes associated with these warmer cycles include lower average mountain snowpack, lower stream flow, lower salmon returns, increased forest fires, and drought (CIG 2009).

Historical trends and climate model predictions indicate that significant seasonal changes will occur more frequently and with greater consequences.

Of the twenty-one global climate models used for the 2007 IPCC Summary Report, most project decreases in Pacific Northwest summer precipitation by as much as 20 to 40 percent. Most also project increases in winter precipitation, with some models predicting increases by as much as 40 percent (Mote and Salathe, p. 13-14). Climate researchers have found that temperatures in the Pacific Northwest have already warmed by 1 degree Celsius on average since 1900 (U.S. Fish and Wildlife Service 2009). During that time precipitation has increased by as much as 38 percent overall, but is tending to fall more in the winter and less in the summer. Northwest glaciers have receded noticeably in the past one hundred years (Stiffler and McClure, 2003).

Projected PNW Temperature Change



In addition to decreased snowpack, snowmelt will increasingly occur earlier. Streams that depend on snowmelt, which are most streams in the Pacific Northwest, will be substantially affected, with higher winter flow and lower summer flow. There will be less summertime water for irrigation, fish and hydropower production, combined with increasing urban demands for water as populations increase. Increased rainfall in the summer also increases the potential for landslide occurrences (CIG 2009).

Sea level rise is a concern for much for the Pacific Northwest. The IPCC projects global sea level rise to be between the “low” range of 7 to 15 inches and the “high” range of 10 to 23 inches. The sea level rise in the Pacific Northwest is thought to be consistent with these global projections (Mote and Salathe, p. 16). Sea level rise increases coastal erosion, beach loss and coastal flooding incidences.

Forests will be increasingly vulnerable to fire.

Overall, increased levels of carbon dioxide will likely spur forest growth region-wide over the next few decades, followed by decreased forest growth as temperature increases overwhelm the ability of trees to make use of higher winter precipitation and higher carbon dioxide (CIG 2009). However, due to the decreased summer precipitation and increased heat, areas in the Columbia Basin affected by forest fires are expected to increase from an average of 425,000 acres annually to over two million acres annually by 2080. The probability that, in any given year, two million acres will burn will increase from five percent (based on 1916-2006 historical data) to 33 percent (Littell et al, p. 14).

Climate change will threaten survival for many species.

For most species, the most severe impacts happen at the margins of acceptable climates. For species living in ranges of tighter climatic acceptability, or living nearer the edge of their range, even small climate changes can have significant impacts. A famous, non-Northwest example, involves frogs living in mist enshrouded mountain elevations to escape lower, drier heats. As temperatures increase, the frogs naturally seek refuge at higher elevations but as they reach the highest habitable points, there is nowhere further to move up. Species on islands or peninsulas are similarly vulnerable to such changes (Gitay et al, 2002). An example of such a situation in the PNW involves Pacific Cod, which were at the southern fringe of their habitable territory in Puget Sound, and are being pushed out of the region. Such changes in species territory can upset longstanding biological balances. In the Northwest, predatory warmer water fish such as marlin, mahi mahi and ocean sunfish have been moving ever northward, and are increasingly a threat to local salmon populations that would not have had that predatory in the past (Stiffler and McClure, 2003).

Salmon are also threatened by increased winter floods, decreased summer stream flow, and increased water temperature. While impacts of warming will vary across salmon species, salmon in freshwater habitats in summer and fall for migrations, spawning and rearing will experience significant thermal stresses, especially in the Columbia Basin (Littell et al, p. 13). Combined with their current habitat problems and devastated populations, increased human population and development, water and energy needs, the outlook for salmon is grim.

Changes in the ecological landscape will fundamentally alter the relationship that humans have with the Pacific Northwest and with each other.

When considering how climate change will affect the lives of residents in the future there are two driving factors to keep in mind, the effects of climate change and necessary changes in energy use patterns. Changes in energy use, in turn, will be driven by climate change mitigation efforts as well as by quickly approaching limits on fossil fuel sources. With an increased population in the Northwest and a decreased ability to import goods and food, our current energy-intensive lifestyles and systems

will no longer be feasible. Most notably, water and energy constraints and are likely to have the greatest impacts on cities and communities in the region.¹

Water will become an increasingly scarce and valuable resource.

With decreased summertime rainfall and snowmelt, water access will become a significant challenge for residents especially during summer months. Water will need to be used conservatively, especially for food production, manufacturing, and household use. Well-adapted communities will employ diversified and site-level water conservation and storage strategies such as graywater recycling, on-site water storage and filtration and water-free sewage treatment. Conversely, given increased rainfall in the winter months and increased intensity of severe weather events, effective stormwater mitigation will be necessary to avoid flooding and public health threats during the winters.

Agriculture and food production impacts will vary, but Food Insecurity will increase.

Crops are likely to react in different ways to climate change—some will be more productive with warmer temperatures and higher carbon dioxide concentrations, while other crops will lose productivity as they are pushed beyond their equilibrium (Resource Innovations 2005). Regardless, increased uncertainty will put food security at risk. It is unknown how Oregon's crops will fare under the full spectrum of changing conditions. Further, any gains that might have been realized through warmer growing seasons and increased carbon dioxide could quickly be wiped out if severe drought becomes more common—a predicted consequence of climate change. Struggles over control of irrigation resources may put agriculture in direct conflict with salmon interests.

Given the energy intensity of our current global food system, food will need to be produced much closer to the point of consumption, giving rise to a grander and more diversified local food economy, resulting in more food production-related jobs. Land with viable soil close to metropolitan markets will increasingly be valued for their food production ability. City residents who live on soil with sun access will be more likely to use their space for gardening. Demand for community gardens is likely to rise, particularly in areas close to high density housing. The resource- and land-intensive nature of meat, dairy, and processed food production will make these products more expensive, driving down demand for such foods. As a result of local food production, food quality and freshness is likely to increase, resulting in a healthier population. A well-adapted community will incorporate local food production into land use plans.

Energy instability will increase as hydropower becomes less consistent and oil availability wanes.

Energy needs are likely to be a problem. Seventy percent of energy in the PNW comes from hydropower, and changes in precipitation patterns will mean that there will more water flowing in the winter and spring, and less in the summer and fall. Increases in population and temperatures will mean that greater electricity for cooling will be needed during the hot summer months, precisely when water flow is likely to be the most severely diminished (Resource Innovations, p. 11).

¹ Please also note that the Climate Change Action Plan has a goal of a comprehensive assessment of the impacts of climate change on local systems by 2012.

Further, the inevitable end of the age of plentiful and cheap oil will magnify energy problems. In transitioning from a globalized economy to one constrained by high energy prices and carbon emission limits, the Northwest will find it increasingly difficult to competitively access global markets. In particular, the trucking industry in Oregon and Washington, as well as Portland's shipping industry will face significant challenges in a low-carbon future (City of Portland Peak Oil Task Force, p. 15). Business models that currently rely on shipping raw materials or consumer goods are likely to become infeasible in a low-carbon future. Products shipped from afar will be expensive or rare, encouraging consumption of locally produced goods. High energy prices will encourage green innovation. For example, sail-powered cargo may be an exciting innovation for the shipping industry, though intensified weather events will pose challenges.

Decreased shipping availability will encourage more local manufacturing, creating local jobs and driving innovation at the local level. Decreased oil availability will result in a declining use of plastics in consumer goods, providing potential for more durable and well-crafted products, but also potentially creating more demand for materials such as timber, metal, clay and fibers.

Climate refugees will come to the Pacific Northwest.

Climate impacts may be significant for the Pacific Northwest; however, other regions of the United States stand to be harder hit. Arid and hot regions of the country, including much of the Southwest, do not have much of a cushion to absorb increased temperatures or decreased precipitation, both of which are likely to occur. There may be mass migrations to areas better suited to absorb such impacts, including the Pacific Northwest (CCIG p. 67). Such a migration is likely to stress the infrastructure, housing markets, public health systems, energy production and other vital aspects of the region.

Diminishing fossil fuels and increased occurrences of natural disasters will alter our land use, transportation, and infrastructure patterns.

Without the luxury of low-cost fossil fuels, communities will need to be reorganized around compact centers that can provide for all or most of their own basic needs, such as water security, food production, jobs, housing, education, and entertainment. Biking and walking will need to be the most prominent modes of transportation, with mass transit systems in place to connect neighboring communities.

Given the increasing intensity of weather events, natural disasters are likely to be more common and more destructive than our background of weather-related natural disasters in the Northwest. This will pose challenges to existing and planned infrastructure. Attention will need to be given to the wind stress, stormwater, ice- and snow-weight, and cooling capacities of the building stock and transportation infrastructure in the region.

Recreation and lifestyle patterns valued by residents of the Pacific Northwest will be threatened.

With an influx of populations from other regions, the Northwest is likely to see a decrease in its residents' sometimes iconic tendency to value outdoor activities. Due to climate change impacts, forests are likely to experience forest fire more often, and changing ecologies may result in plagues or scarcity of particular flora or fauna, disrupting longstanding natural balances, perhaps even

destroying entire ecosystems. This changing landscape will create vastly different outdoor experiences for campers and hikers of the future. Also, given increased intensity of weather events, outdoor activities may become more dangerous.

Because climate change impacts on salmon will result in decreased habitat and an increased number of predators, wild salmon may be rare or extinct in the future, effectively ending salmon fishing as a pastime, not to mention any other impacts the loss of this important icon may have. Energy intensive pastimes such as those that require regional or international travel will become costly. As a population, we will become less mobile and less likely to visit family across the country, or less likely to move to distant cities in the first place. Shopping will decline as a pastime, due to increased shipping costs, materials costs, and labor costs—a low-carbon economy will not be able to take advantage of less expensive labor and materials overseas.

Instability and conflict are likely to become more common.

The increased potential for natural disasters is also likely to drive insurance costs up, which may result in exacerbated inequality over time, as those without insurance will have difficulty re-establishing financial stability after a destructive weather event. Add to this that landowners who have water, harvesting and food production opportunities will be better able to support themselves during instability, while those who do not control land will be forced to rely on public systems or pay exorbitantly for water and food. The potential of conflict emerging from competition for scarce resources, particularly in times of crisis, will create a threat to the whole community. Careful consideration of ways to reduce access inequality will greatly benefit future communities.

II. Mitigation Approaches

Climate change harms projections are substantially improved, although not eliminated, when dramatic greenhouse gas mitigation actions are taken.

Much debate has occurred around the best ways to tackle climate change as a global problem. The most immediate strategies include creating effective markets for carbon trading and taxing carbon in an equitable way. In the medium and long term, inter-jurisdictional coordination efforts challenge regions to reduce carbon emissions through land use policies, transportation initiatives, and other approaches. While several jurisdictions in the Portland metropolitan area have undertaken strategic planning efforts and have spearheaded a variety of innovative approaches, there is no underlying coordinating body or forum for dialogue. The potential impacts of coordinated planning could be profound. The following section outlines several existing mitigation approaches and the potential role that Metro could play in fostering dialogue within the region and with other regions in the world.

Cap and trade and carbon tax systems offer insight into how jurisdictions can use markets to manage the transition to lower carbon economies.

While most people agree something should be done, they are wary when it costs them money. When it comes to carbon emissions reductions, there are many questions around the ethical implications

about who must pay and what kinds of direct and indirect impacts new pricing schemes will have on the livelihoods of each segment of the population.

Cap and Trade

Supporters of cap-and-trade argue that it has two main strengths. It sets a steadily declining ceiling on carbon emissions, and, by creating a market that rewards companies for slashing CO² (corporations that reduce emissions below their allotment can sell them on the open market), it uses the free enterprise system to wean the country off fossil fuels and onto renewable energy. Carbon cap and trade markets are already being used in the European Union and in 10 Northeastern states. They are underway in California. Both President Obama and Congressional leaders are focused on cap-and-trade. Despite the bubble of pundit interest, there is very little support for a carbon tax among our nation's legislators (Yale Environment 360).

Carbon Tax

Proponents of a carbon tax say that it has one overriding benefit: simplicity. They contend that by imposing a predictable and steadily increasing levy on fossil fuels, the carbon tax will also drive development of alternative sources of energy. First, environmental effectiveness: A tax does not guarantee achievement of an emissions target, but it provides greater certainty regarding costs (Yale Environment 360).

In 2008, British Columbia introduced the first ever carbon tax in North America. The tax is meant to tax all fossil fuels and will be phased in to allow residents to adapt to shifting cost structures. The tax is revenue neutral since it returns money to tax payers by increasing tax on fossil fuels but reducing income taxes. It also offers a "Climate Action Credit" to low income British Columbians. This tax incentivizes non-fossil fuel technologies and has the potential to spur clean innovation (BC Backgrounder). British Columbians who drive a lot are most affected by this tax. A telephone survey in spring 2009 requesting input on a Canada wide carbon tax showed that 52 percent of BC residents supported it. Environmental psychologist Robert Gifford, said "tough economic times are registering harsh environmental truths . . . eighty to eighty-five per cent of North Americans think something should be done, and it's an important issue, but what you have is concern that's a mile wide and an inch deep" (Meissner).

Strategic planning in Portland and other cities offer opportunities for Metro to model the Future Vision and to identify partnership roles

The city of Portland and Multnomah County were among the first jurisdictions to address climate change in the mid 1990s. In 2009, these jurisdictions created one of the first climate change action plans. Metro had several staff members on the plan's steering committee. The Plan proposes an interim goal of a 40 percent reduction in emissions by 2030 with an ultimate goal of an 80 percent reduction in carbon emissions by 2050. The plan builds on itself by providing shorter term goals and benchmarks in 2012 and continual renewal as the latest research emerges and best practices evolve (Climate Change Action Plan).

Metro's Future Vision should seek to add to this rich plan by getting buy-in from jurisdictions and organizations outside of Portland and Multnomah County, and even those jurisdictions outside of the tri-county region that have strong connections to the region. Metro should continue to

coordinate with the Portland Bureau of Sustainability and Planning to reduce overlap in resources and find the best ways possible to coordinate.

Other cities are working to address climate change in thoughtful ways that the Portland region can learn from. Mayor Daley of Chicago convened a Task Force in 2007 to craft strategies to reduce greenhouse gas emissions in the Chicago region to 25 percent below 1990 levels. The Chicago Climate Action Plan “outlines a roadmap of 29 actions that might be taken for mitigating greenhouse gas in four areas: buildings; transportation; energy; and waste pollution.” (City of Chicago) Other cities have set similar goals, but Chicago’s plan is one of the first to both identify emission sources and anticipated impacts, and propose ideas that specifically respond to that research.

Metro has an opportunity to connect the Portland region to outside jurisdictions and organizations around climate change mitigation.

Portland’s Climate Change Action Plan calls for “broad-scale coordination and planning” in order to achieve the 80-percent carbon reduction by 2050 (Portland Climate Change Action Plan). Local jurisdictions, private firms, and coordinating bodies will all be in charge of their own activities working under these overarching climate change mitigation goals. Metro has the opportunity as a regional body to oversee coordination efforts and act as a convener.

Since the Pacific Northwest as a region defined in some lenses by the Columbia River watershed, one potential strategy could include regional partnerships with Seattle, WA and Vancouver, BC for expertise, disaster resources, research coordination, etc. Similar in size and climate, these regions face some of the same challenges that Portland. If Portland is able to mitigate some harms from climate change, the region should leverage its good position to help regions more affected by climate change.

In addition, the Portland region could increase its involvement in the Cities for Climate Protection (CCP) campaign sponsored by ICLEI-Local Governments for Sustainability. This program take initiatives to mitigate the adverse impacts of climate change and in 2008 had a membership of 675 local governments internationally and represent 20 percent of carbon emissions in the United States. The Portland metropolitan region could shape the kinds of incentives available for cities that participate in the campaign, since “voluntary endeavors such as the CCP campaign are more likely to succeed if metropolitan areas accrue selective benefits from participation” (Zahran, Brody 2008).

Cooperation and collaboration with other metropolitan areas on the CCP effort hinges on several factors. Zahran and Brody found “a possible disconnection between those metros most vulnerable to the adverse impacts associated with climate change and those metros contributing most to the problem. In general, MSAs most at risk from the adverse impacts of climate change, such as sea level rise, appear to be uninspired to adopt policy reforms when controlling for other factors. Finally, MSAs with high levels of civic and environmental capacity are the most likely to engage in the CCP” (Zahran, Brody 2008).

Peak oil and climate challenges offer economic opportunities if addressed proactively.

A number of metropolitan areas around the USA and the world have begun planning for peak oil. Their actions range from internal vulnerability studies and policy assessments to community vulnerability task forces, and peak oil resolutions and ordinances.

While the effects of climate change are not likely to be rosy, early adoption of forward-thinking mitigation strategies and community development measures can serve multiple purposes and create great opportunities for the region. For example, big behavioral shifts in the near term can create huge dents in our atmospheric carbon contributions and longer term changes in urban form can create viable communities for the future. For example, if the Portland metropolitan area phased out the use of cars for most purposes in the next 10 years, the area would see vast decreases in carbon emissions and would simultaneously see development in public transportation, alternative transportation and land use innovation that will be necessary in an energy-constrained future anyway.

Another example of the benefits of adapting early can be found in influencing local businesses. Supporting businesses that provide for local markets with local renewable resources will mitigate climate change, provide jobs, keep money circulating locally, train workers and business owners for a low-carbon economy and protect our local natural environment. Working toward developing a population that is knowledgeable about water harvesting and food production also provides a great opportunity for communities within the region for similar reasons. Locally produced food is less carbon-intensive, is healthier and is less expensive; water harvesting now will result in less strain on stormwater systems and will create a population that will be more resilient in times of drought. The earlier the region adapts, the better prepared it will be for stresses wrought by climate change, but also those stresses will be mitigated by early adaptation efforts.

Finally the opportunity to be recognized as a national leader in climate response, both on the mitigation and adaptation side, should not be overlooked as a competitive edge for Portland.

III. Adaptation and Resiliency

Even if significant decreases in emissions are achieved, significant climate change will still occur: the region needs to adapt to those changes and be resilient to shocks.

If the Pacific Northwest and the Portland region fail to act adequately in terms of greenhouse gas mitigation and climate change adaptation, numerous detrimental impacts are likely. Current trends of energy use and population growth mean that even maintaining current levels of emissions will be very challenging, and reductions will require significant changes in technology and lifestyle. If the region does not prepare to accommodate new realities, which could include massive forest fires, failing ecosystems, and mass in-migration of climate refugees, the consequences will likely be magnified.

Under a best-case scenario, significant action is taken to both decrease greenhouse gas emissions and adapt to inevitable climate changes. If emissions are to be first leveled off and then decreased to levels that are considered needed for significantly improved outcomes—estimated to be an 80

percent reduction from current levels by 2050—each person in the region will need to make substantial changes in everyday activities. However, even if significant decreases in emissions are achieved, significant climate change will still occur. Thus, the region will also need to adapt to those changes and be resilient to shocks.

Resilience is a feature of dynamic systems that are able to absorb shock and retain the same basic function and form.

Given the unpredictability of the affect that climate change will have on our region, how do we go about preparing for the unknown? What if we set up our city, its outlying areas, and all of the people and organizations within its scope, to be able to adjust to changes arising from sea level change, and increased population as well as problem X and problem Y that no one can yet predict? One way to do so is to develop our region's resilience—its ability to undergo change and retain its previous function—before the unpredictable problems arise. The promise of approaching planning for climate change from a resilience perspective warrants a brief dissection of resilience itself.

According to Brian Walker, Program Director and Chair of the Board of the Resilience Alliance (Commonwealth Sciences and Industrial Research Organization), and his co-author, David Salt, resilience thinking recognizes that we exist within complex social-ecological systems. What humans do affects the ecology of our place, and what happens within the ecology of a place affects human activity. Resilience thinking also recognizes that systems, human and non-human, operate dynamically, undergoing periods of 1) rapid growth, acquiring and collecting resources, 2) conservation, a state in which natural and human capital are locked up and stored, 3) release, whereby a disturbance event releases stored resources, and 4) reorganization, a creative, often unpredictable reshuffling of resources and energy flows (Salt, p. 75-78). With a background of these cycles, systems with high resilience stay essentially the same; for example, a healthy forest that experiences a fire will eventually re-grow into a forest again (Salt, p. 37). When a system exhibits low resilience it takes only minute shocks to fundamentally change the system (Salt, p. 94). Walker and Salt define resilience as “the ability of a system to absorb disturbance and still retain its basic function and structure” (Salt, p. 1).

To ground these concepts in simplified but relevant terms, we can say that the system of the Willamette Valley is a human-dominated regime that, through an economy centered in Portland, provides food and shelter for about two million people. As those who benefit from this regime, we'd like this regime to remain the dominant one; we would like this system to be resilient in the face of unpredictable disturbance events.

There are two ways of thinking about resilience: specified resilience, to events that we know are likely threats to our system, such as the ones discussed above; and general resilience, the ability of our system to recover from a range of unpredictable threats (Salt, p. 120-121). Given the wide range of possible shocks presented by climate change, it is especially important to attend to both the region's specified resilience and its general resilience. We have to do everything we can to predict specific challenges the region will face and prepare ourselves accordingly, but we must also prepare for unforeseen challenges by enhancing the resilience of our region.

ICLEI helps local governments adapt to climate change-related threats.

ICLEI - Local Governments for Sustainability is a membership-based organization that supports local governments with sustainability and climate protection measures, and has established dual programs to help local governments address climate change. One program address mitigation and one addresses adaptation (ICLEI). Specifically, the Climate Resilient Communities Program “helps local governments develop tools to protect their communities from the impacts and costs associated with climate change” (p. vi, Preparing for Climate Change). In 2006, having already developed a climate mitigation plan with the aid of ICLEI, the city of Keene, New Hampshire, embarked on an ICLEI pilot project to address climate adaptation and became the first city to participate in the program (p. 9, Planning a Climate Resilient Future). Their work to develop a climate change adaptation strategy involved a committee of stakeholders and government officials, training on the most current climate science predictions, and a brainstorming session to identify all possible climate change related threats (Climate Adaptation Action Plan Summary Report). The process resulted in a comprehensive climate adaptation action plan released in the fall of 2007 that addresses the built, social and natural environments.² Metro should embark on similar planning efforts, drawing upon the previous experience of other jurisdictions around the country.

Studying complex systems can illustrate the key characteristics of resilient systems.

Those who study resilience have identified a number of characteristics that contribute to the resilience of a system. To paraphrase Walker and Salt, resilient systems tend to exhibit a set of characteristics, including: diversity, ecological variability, modularity, acknowledgement of slow variables, tight feedbacks, social capital, innovation, overlap in governance and valuation of ecosystem services (Salt, p. 145-148).

For example, one of the characteristics, “diversity,” suggests that a system employs several components that are capable of providing the same function (Salt, p. 145): the role of algae-eaters in a lake system is played not only by frogs but also by a handful of other organisms; or, within a local food system not all Community Supported Agriculture (CSA) members live in southeast Portland, rather CSA members live within a wide range of locations. Therefore, if some unpredictable event were to wipe out the frogs or the capabilities of southeast Portland households to support CSAs, there would be other components of each of these systems available to eat the algae and to support CSAs.

To illustrate another characteristic of resilient systems, “acknowledgement of slow variables” is a characteristic that takes advantage of the human capability to learn from the past in order to predict the future. Systems that exhibit this characteristic recognize that there are a few key factors that can have a huge influence on the system (Salt, p. 146). For example, if a food system can recognize that water access is a variable that has the potential to effectively end the system's capacity to function, those managing the system may be able to foresee water trends and adapt to changes proactively in order to protect water access and maintain functionality of the system. Metro should study systems that experience intense disturbance and demonstrate resilience through these characteristics we can learn how systems can be managed to increase their resilience, particularly to unpredictable shocks.

² ICLEI provides a comprehensive guidebook for local governments that details the Climate Resilience Communities Program process (ICLEI). is available from the ICLEI website: http://www.icleiusa.org/programs/climate/Climate_Adaptation/adaptation

Effective resilience planning requires a nuanced understanding of traditional environmental virtues such as efficiency and optimization.

Optimizing a system may actually decrease its resilience because optimization assumes that “changes will be incremental and linear” and fails to take into account that our social-ecological systems are “configured and reconfigured by extreme events, not average conditions” (Salt, p. 6). Further, a handful of the characteristics of resilient systems noted above seem very inefficient if viewed through a traditional optimization lens: redundancy may be seen as a waste, innovations are rare and only happen after a string of failures, and diversity is difficult to work with. The value of resilience must therefore be assessed by measuring the “short term profit losses associated with maintaining or enhancing resilience, against the long-term benefits of not undergoing a regime shift” (Salt, p. 120).³ Added to that assessment should be an inventory of the associated benefits of resilience characteristics that enhance the livability and interestingness of the region. While it may be difficult to develop the political backing for a methodology grounded so much in theory, it may be useful for identifying actions that provide additional benefits besides solely enhancing the region's resilience.

IV. Recommendations for Future Vision

Become a climate change leader.

- Recognize the two prongs to climate change planning: mitigation and adaptation. Include climate change considerations—both mitigation and adaptation—in every plan, initiative and project designed and/or implemented by Metro.
- As an organization, become continuously and technically knowledgeable about climate change and potential impacts. This may include maintaining a staff position dedicated to keeping all of Metro up-to-date on scientific knowledge relating to changing climate impacts and on climate change strategies from other regions.
- In every plan and project undertaken or influenced by Metro, encourage accelerating timelines to achieve mitigation and adaptation goals as soon as possible. Early adaptation begets mitigation; early mitigation reduces the need for adaptation.

Support and enhance mitigation strategies from throughout the region.

- Envision a role for Metro that suits its placement in the governmental hierarchy. This could include bridging the gap between state, federal, and international agencies, serving as a communication portal to share local innovative strategies, as well as coordinating efforts of municipalities in the metro region.
- Participate actively in national and international effort including ICLEI's Cities for Climate Protection program. Take a lead on challenges made by coordinating organizations.

Lead adaptation efforts in the region.

- Because many planning entities in the region already have climate mitigation plans, Metro can take a lead in the other prong of climate change planning: adaptation strategies. In coordination with the Portland Climate Change Action Plan efforts, regularly update

³ The Resilience Alliance also offers the beginnings of a structured method for enhancing general resilience of a system: <http://www.resalliance.org/3871.php>.

Metro's understanding of the likely or possible shocks, including potential sea level changes, river flow patterns, etc.

- Assess regional and inter-regional cooperation potential for dealing with shocks. Envision a carbon-constrained and climate-changed future. Develop educational programs that show people what life will be like and ways to make the transition easier. Participate actively in ICLEI's Climate Resilient Communities program to enhance the region's resilience to specific and predictable challenges.
- Learn from the Resilience Alliance to further understand the dynamics of the region and how it might enhance its general resilience to unpredictable shocks.

Works Cited

- “2009 Climate Change Action Plan.” City of Portland and Multnomah County. May 10 2009 <<http://www.portlandonline.com/osd/index.cfm?c=49989&a=240683>>.
- “Assessing and Managing Resilience in Social-Ecological Systems: Volume 2, Supplementary Notes to the Practitioners Workbook.” Resilience Alliance. June 2007. May 10 2009 <<http://www.resalliance.org/3871.php>>.
- “Backgrounder: B.C.’s Revenue-neutral Carbon Tax.” Province of British Columbia. 10 May 2009 <http://www.bcbudget.gov.bc.ca/2008/backgrounders/backgrounder_carbon_tax.htm>.
- “Climate”. ICLEI USA: Local Governments for Sustainability. 11 May 2009 <<http://www.icleiusa.org/programs/climate>>.
- “Climate Change in the Pacific Northwest.” U.S Fish and Wildlife Service website. 8 May 2009. <<http://www.fws.gov/Pacific/Climatechange/changepnw.html>>.
- “Climate Impacts in Brief,” Climate Impacts Group (CIG), University of Washington website. 8 May 2009. <<http://cses.washington.edu/cig/pnwc/ci.shtml>>.
- “Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas.” City of Portland Peak Oil Task Force website. March 2007. May 10 2009 <<http://www.portlandonline.com/OSD/index.cfm?a=145732&c=42894>>.
- “The Economic Impacts of Climate Change in Oregon: A Preliminary Assessment.” Resource Innovations. Institute for a Sustainable Environment, University of Oregon, Eugene, Oregon. 2005. 8 May 2009. <http://www.uoregon.edu/%7Eclimlead/publicationspress/Consensus_report.pdf>.
- “Five Milestones for Climate Adaptation.” ICLEI USA: Local Governments for Sustainability. 11 May 2009 <http://www.icleiusa.org/programs/climate/Climate_Adaptation/five-milestones-for-climate-adaptation>.
- “A Framework for Addressing Rapid Climate Change.” State of Oregon, Governor's Climate Change Integration Group (CCIG). 2008. June 6 2009 <<http://oregon.gov/ENERGY/GBLWRM/docs/CCIGReport08Web.pdf>>.

- Gitay, Habiba, Avelino Suarez, Robert T. Watson and David Jon Dokken (eds). 2002. Climate Change and Biodiversity. Intergovernmental Panel on Climate Change, Working Group II Technical Support Unit. Geneva, Switzerland.
- Intergovernmental Panel on Climate Change. Climate Change 2007: Synthesis Report. Summary for Policymakers. Technical report, 2007.
- “Keene, New Hampshire Climate Adaptation Action Plan Summary Report.” The City of Keene in conjunction with ICLEI - Local Governments for Sustainability. Nov. 2007.
- “Keene, New Hampshire Adapting to Climate Change: Planning a Climate Resilient Future.” The City of Keene in association with ICLEI - Local Governments for Sustainability. Nov. 2007.
- Littell, J.S., M. McGuire Elsner, L.C. Whitely Binder, and A.K. Snover (eds). “The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate - Executive Summary.” In *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington, Seattle, Washington. 2009.
- Meissner, Dirk. “Canadians barely support carbon tax; don't like B.C. carbon tax, poll finds.” The Canadian Press. 10 May 2009. 10 May 2009.
<<http://cnews.canoe.ca/CNEWS/Environment/2009/05/10/9413791-cp.html>>.
- Merritt, Larry. “Press Release: Mayor Daley, Business, Foundation, Government Leaders Announce Comprehensive Climate Action Plan.” 19 Sept. 2008. Chicago Climate Action Plan website. May 10 2009
<<http://www.chicagoclimateaction.org/filebin/pdf/0918climatechangefinalrelease.pdf>>.
- Mote, P.W., and E.P. Salathé. (In press). Future climate in the Pacific Northwest. Chapter 1 in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate*, Climate Impacts Group, University of Washington, Seattle, Washington.
- “Opinion: Putting a Price on Carbon: An Emissions Cap or A Tax?” Yale Environment 360. 7 May 2009. <<http://e360.yale.edu/content/feature.msp?id=214>>.
- “Portland Climate Change Action Plan, Public Comment Draft” (2009). Portland Bureau of Sustainability and Planning and Multnomah County. May 10 2009
<<http://www.portlandonline.com/osd/index.cfm?c=49989&a=240683>>.
- “Preparing for Climate Change: A Guidebook for Local, Regional and State Governments.” Center for Science in the Earth System (The Climate Impacts Group). September 2007. 9 May 2009
<http://www.icleiusa.org/programs/climate/Climate_Adaptation/adaptation>.
- Salt, David and Brian Walker. Resilience Thinking: Sustaining Ecosystems and People in a Changing World. Island Press: Washington, 2006.
- Stiffler, Lisa and Robert McClure. “A warmer, wetter Northwest.” Seattle Times November 13, 2003. <<http://www.seattlepi.com/dayart/20031113/globalwarming.pdf>>.

Walker, Brian. "Resilience Thinking." Weblog entry. People and Place: Ideas that Connect Us. 4 Nov. 2008.
<http://www.peopleandplace.net/featured_voices/2008/11/24/resilience_thinking>.

Walker, Brian. "Resilience and Sustainability in Social-Ecological Systems." Commonwealth Sciences and Industrial Research Organization. 30 October 2007. 3 May 2009
<<http://www.csiro.au/people/brian.walker.html>>.

Zahran, S., Brody, S. "Risk, Stress, and Capacity: Explaining Metropolitan Commitment to Climate." Urban Affairs Review. 43.4 (200); 447-474.

V Urban Form

Åsa Bergman, Maren Murphy and Kellen Smith, June 8, 2009.

“...we have to separate what we wish for from what we’re actually doing and what can be done... there is a course of action that is appropriate to what we face, and is actually inevitable, whether we go there voluntarily or have to be dragged kicking and screaming into the future: the comprehensive downscaling, rescaling, downsizing, and relocation of all our activities, a radical reorganization of the way we live in the most fundamental particulars.”

–James Howard Kunstler, *The Long Emergency*

INTRODUCTION

In the last several years, the Portland metropolitan region has received much national and international attention for its work toward urban sustainability; the city appears near the top of almost every “green” list. Indeed, this region is a national leader in progressive policy and action toward creating dense, livable places that are less auto-dependent and more environmentally conscious than most urban areas in the United States.

However, if our region is looking to stay ahead of the curve and maintain its leadership role, we cannot get lazy with our planning. We need to look into the future, attempt to anticipate the unknown, and chart a course in the direction we need to take in order to continue living a high quality of life with a pleasant urban form. We need to think beyond downtown and inner neighborhoods—Portland proper ranks tenth, just after Los Angeles in terms of walkable U.S. cities—and work in an even more holistic manner to make the metro area as livable as possible (Walk Score).

In this white paper, we are asking a set of questions and providing some recommendations for Metro to consider in the revised Future Vision regarding the region’s urban form. We will discuss how the urban form will be impacted by peak oil and the end of cheap energy, by existing and changing values and image/reputation around transportation, and by the region’s ever-growing strong relationship with nature. Our conclusion will provide recommendations for how we feel Metro should analyze and prioritize their next Future Vision for 2060.

THE END OF CHEAP ENERGY

Fossil fuels are a finite resource. The colossal industrial boom and subsequent accumulation of wealth during the 20th century were direct results of the consumption of cheap energy sources. Oil and other fossil fuels have had a profound effect on almost every aspect of modern American life. Therefore, the inevitable depletion of fossil fuels will have prolific consequences for almost everything we take for granted.

Trying to navigate the uncharted waters of the descent from peak oil production will compound the challenges of planning for the future; the degree to which we are able to accurately plan for this will determine the severity of these consequences. Planning for the future is an issue of legacy, and the question we must ask is: Do we want to give future generations a place that is livable and efficient, or uninhabitable and wasteful?

Rather than predicting the effects of the descent from peak oil, this section is intended to engage leaders concerned with the urban form and quality of life in the Portland metropolitan area by acting as a starting block for the discussion of the issues facing us in the near future. Among the many possible consequences of a shift from oil dependence, some questions to be considered are:

How will food and products be produced and transported?

The globalized supply chain is highly dependent on cheap fuel. It is likely that the majority of what we consume (products and food) will need to be supplied from a relatively local source. Modern agribusiness is made possible by massive fossil fuel based inputs (i.e. pesticides, fertilizers, farm equipment). After peak oil, a much larger percent of the population will once again be concerned with food production.

The climate of the Pacific Northwest and the soil of the Willamette Valley are extremely conducive to food production—year-round with green houses. Because of this, we need to stop building low-quality, dispersed housing (less dispersed than most of the country, but still sprawling and auto-dependent) in some of the best farmland on the continent and start developing a system to transport products to population centers in a way that is not as dependent on imported cheap oil.

How will public services be provided?

The most complex systems are the most likely to fail if stressed, this includes government. Services that people depend on may no longer be provided by federal or state governments as they look to shifting the burden to more local sources. Portland and Oregon are renowned for their care of those less fortunate, how will an area function when the services devised to help people are shifted or collapse?

How will people be move around?

The Portland metro area is still largely suburban and car dependent; non-farm areas without a critical density may prove to be a totally uninhabitable in the future. The concept of an urban growth boundary may even become irrelevant as human movement is no longer subsidized by cheap oil and settlement is constrained by natural limits. In Portland, the core inner-east side neighborhoods, and much of the west side, provide examples of dense places to live where one can have most of the daily needs fulfilled in a non-auto dependent way. However, these areas are both disparate and incomplete.

If the Portland metropolitan area is serious about eliminating its dependence on fossil fuels, we need to promote a dense and connected urban fabric throughout the region which allows for all needs to be fulfilled by walking, biking, or using public transit. Walkability is the image we like to promote of Portland, but it is not the reality for the vast majority of its citizens. In the future, we need to plan for a metropolitan area that has reduced its suburban fringe and has a population concentrated in dense, urban cores.

How will buildings and urban areas look and function?

Except for the very few structures that are totally energy independent (zero net energy use), none of which are in Portland, most buildings require extensive energy inputs to function. Any building much over six stories cannot be effectively used without an elevator—this can be seen by looking at tradition pre-industrial urban form. We need to stop building structures and infrastructure based on the bottom-line and start building them in the most ecologically and humanistic way possible. We need to design buildings and city in a way that maximizes the synergies with how humans functions as oppose to design them based on how cheap energy and cars functions.

For example, do we really need a twelve-lane bridge to Washington? Infill development in Portland's core that is designed to be used by people--and not for energy waste on extraneous heating, cooling, electrical needs—appears to be a better use of resources. Sustainable development can take different forms; not everyone will be able nor willing to live in the core of the city (see discussion on values). Sustainable settlements can exist outside of the central city if settlements are small and dense clusters located near public transit with easy access to employment, sustenance and entertainment.

VALUES SHAPING URBAN FORM AND TRANSPORTATION

As discussed, the end of cheap energy will have substantial impacts on urban form and the way we transport ourselves, many of which are in line with the direction Metro is aiming, such as compact centers and increased reliance on other modes than the automobile. However, we do not know with certainty when we will be at that point. Another angle from which many of the same questions can be addressed is that of values, reputation and image, both existing and changing, among our metro population. For example, how do we deal with conflicting values on urban form and transportation? How will values have changed by 2060 given the expected addition of one million people? What about residential segregation? How will job location affect urban form? Does our image/reputation in the rest of the world have an impact? This section aims to provoke discussion and reflection on the relation between values, reputation and urban form.

How do we deal with conflicting values on urban form and transportation?

In the existing Future Vision a sense of community is a commonly held value among Metro residents. Other values appear to be more conflicting. For instance, the public on the one hand values quiet neighborhoods, and does not wish for major density increases near homes due to a fear that it may have a negative impact on quality of life. On the other hand, people want “easy access to shopping, schools, jobs and recreational opportunities”, through a “balanced transportation system providing a range of choices, including transit, walking, biking and cars” (Metro, 1995).

These values do not necessarily co-exist in harmony. In the work with the new Future Vision, it will be important for Metro to keep providing a variety of neighborhood types within the Urban Growth Boundary, but also to try and overcome some of the misconceptions regarding density that exist among metro residents. For example, high-density development does not necessarily entail high-rise living; a form of housing with many negative connotations in our region today. Row houses are regaining popularity throughout the country and abroad, providing high density living that is closer to the ground and closer to the values regarding urban form that are held among large segments of the region's population.

How will population migrations affect values on urban form and transportation?

Current values can be expected to change significantly with the expected addition of one million new residents from other parts of the country and from abroad. In drafting the new Future Vision, it will be useful to survey new residents to fine-tune our understanding of what attracts people to the region. Many move here for the region's acclaimed "livability", and this motivation may grow stronger if other areas become increasingly "unlivable" due to adverse effects of climate change or peak oil. What other emerging factors can we expect? A constant challenge is how and where to accommodate future population growth while maintaining a desired quality of life for residents, and bearing in mind that travel is a derived demand shaped by land use and urban form.

How will existing trends of residential segregation have changed by 2060?

Carl Abbott addressed the effect of value differences on urban form in "Settlement Patterns in the Portland Region" from the 1995 Future Vision Appendix (Abbott, 1995). Will these value differences have lessened or increased by 2060? Abbott observed that Americans "use residential location to establish and substitute for social distance" (Abbott, p.6), and that there is a "desire for social segregation" (Abbott, p.70). Abbott stresses the influence of transportation technologies on the expression of values and cultural choices, such as subdivisions divided by ethnical or social groupings. The walking city of the 1800's was associated with narrow streets, overcrowded buildings, poor environmental sanitation and social classes in close quarters. In the early 1990s, the concept of "walkable cities" still brought about these negative associations in some people's minds. Will these negative connotations thing of the past in 2060?

How will people's perception of the possibilities of public transit, walking and biking have changed by 2060?

While inner Portland has a great reputation for being walkable and bikeable and accessible by transit, Metro needs to look critically at the suburb cities of the region, where use of transit, walking and biking decrease to almost negligible percentages compared to the automobile. The forecasts of the 2040 Growth Concept show that the automobile will dominate with some 90 percent of the total mode share in the region. Looking to Los Angeles, it appears that increased density does not necessarily lead to less use of automobiles.

In 2006 Metro surveyed opinions on population growth in the regions three counties. When asked whether public transit, biking and walking would more and more replace the automobiles over the next ten years, 40 percent rated this as "very desirable". Despite this, only 16 percent believed this to be "very likely", whereas a slight majority, 29 percent, rated this development as "somewhat unlikely" (followed by 27 percent "somewhat likely" (Davis, Hibbitts & Midghall, 2006). Clearly, there is discrepancy here. An increase of transportation options relative to the automobile is desired, but there is far less conviction as to the likeliness of this actually happening. This could be due to a combination of differences in values and differences in travel choice accessibility.

Other cities share this problem. Vancouver, B.C. recently launched a report named *Greenest City Quick Start Recommendations* acknowledging that despite that the inner city is praised for its transit system, when looking at the region as a whole (Metro Vancouver) only 12 percent of the bus routes have 10-minute service or better (City of Vancouver, 2009).

Will job location patterns create edge cities by 2060?

In 1995, Abbott did not see edge cities as becoming a phenomenon in the Portland region, to a large extent because of the compact growth management. What about in 2060? A trend in other

metropolitan areas is the allocation of jobs to these edge cities, rather than in downtowns. Where are jobs actually locating in Portland? In order for the Portland region to attract employers who share sustainability values and who are willing to locate near the region's different centers, near transit, the reputation we build over the next decades is going to be crucial. In Metro's current work with the region's business community, Mike Wells, a member of the Commercial Real Estate Economic Coalition (CREEC) commented that:

"The competition is not the suburbs versus the central city but whether the jobs will go to other metropolitan areas", and further:

"Metro seems to understand that employers have to be accommodated and not taken for granted" (Metro, 2009)

If this statement reflects the broader business community in the region and that of businesses looking to move here, then clearly, we cannot afford conflicts over jobs between the central city and the suburbs, but should rather work together to attract jobs to the region as a whole. Urban form matters because compactness of the region provides employers with access to larger parts of the workforce, in addition to all the other advantages of sustainability, transit possibilities, energy savings and more. For 2060 we should try and envision not only an acceptance of a multi-center city region, but a genuine embrace of this type of urban form, where the values of inner city and surrounding centers have started to come together.

In choosing what urban forms to reinforce in order to counteract a possible edge city phenomenon, it would seem wise for Metro to keep building on the strength of the regional and town centers as outlined in the 2040 Growth Concept, since much employment seems to center around these, and to investigate in how can the existing "station communities" can become town centers. By continuing to focus efforts on emerging centers like Orenco Station, downtown Gresham, Milwaukie and the Gateway Regional Center, Metro should be able to give clear signals to new residents and investors looking to relocate to the region.

How will our image have changed by 2060? What image do we want to have?

Given the projected population influx, it seems likely that Portland in 2060 will be more known to the rest of the world than it is now. A city's/region's image is often reflected in its urban form, and so to attract the projected new residents and to keep attracting investment and employment, a useful exercise would be to mirror the region in the eyes and minds of the rest of the world. What reputation does Portland have now, why, and is it well deserved? What reputation do we want the region have in 2060? As an example, Vancouver, B.C. is imaging itself as the "Greenest City" partly because it has decided that it is "the right thing to do", and in order to position itself as a world leader that will attract "green" jobs (City of Vancouver, 2009).

MOVING TOWARDS AN ECOREGION

As our Portland metropolitan region has developed, we have maintained a close relationship to nature, which is demonstrated in the high quality of life and high value of nature that is representative of our regional identity. We value our dense, livable neighborhoods, easy access to the outdoors, and our splendid landscape ranging from the Willamette Valley to Mount Hood. In looking towards the future, we should continue to focus on our region's close relationship to nature

and enhance this interaction to foster and promote a sustainable and healthy *working relationship* with nature. Metro's focus for our region in 2060 should be centered on a life with nature that further reflects our dedication to the protection of nature in our built environment. Our working relationship with nature is essential to preserving our high quality of life and should be manifested in how we live, work, and play in the Metro region.

In 2060, the region should be a vibrant and healthy ecosystem that promotes community and nature as an ecoregion. Currently, we prize the natural resources that define our region, like the Columbia River Gorge, the coast, the mountains, and the Willamette Valley. While these are extremely important resources that provide economic, cultural, and recreational vitality, they are also located outside of our urban growth boundary. To become a more holistic region that truly lives with nature, we should take the same pride we have in our wilderness and natural areas and apply it towards our cities and urban centers within the urban growth boundary. We should focus on our backyards, our parks, and our streams and recognize that they all provide an important ecological function for the Metro region. Nature is more than just forests, it is the environment around us and within our cities, and in 2060 we should establish a balance to promote this perspective.

To achieve this in 2060, Metro should focus on five goals that promote a life with nature, modeled off of San Francisco's goals to create a city in nature (Nature in the City):

Restoration

In order to have a sustainable and healthy working relationship with nature, we need to incorporate restoration efforts into our planning efforts. We should promote the restoration of our urban and rural landscapes, natural areas, biodiversity, fish and wildlife habitats, streams, watersheds, and local ecological processes of our bioregion to a healthy ecosystem. Restoration will ensure that our region's rich heritage of natural resources is both managed and protected in a sustainable manner that does not deplete or destroy what is important to our region and our quality of life. An essential focus is the Willamette River that acts as the heart of our urban core and an indicator of the health of our ecosystem.

Culture

Our region supports diverse cultures around urban life and rural life. Although conflicting at times, both urban and rural areas are needed to sustain the vitality and prosperity of our region and are inherently linked with our natural resources. By promoting both cultures, we can preserve our legacy of fair and responsible growth in urban centers, a strong network of farmlands in rural areas, and conservation of natural areas. In addition to urban and rural culture, there is also a growing culture around natural areas in the Metro region. Natural areas are prized as an escape from the urban grind and a way to reconnect with nature. We should promote and cultivate this culture to include small-scale natural area patches in neighborhoods that provide daily interaction with nature and that support our larger ecosystem.

Community

Fostering community around nature can raise awareness, knowledge, celebration and respect for our local landscapes and our neighbors. Community around nature reinforces our strong sense of place

in nature and creates community stewardship that promotes collective interdependence both with nature and each other. A community ecological relationship with nature will ensure our high quality of life is maintained in 2060.

Livability

Our region is considered by both residents and admirers to be the most livable place in the country. Our livability is a result of our innovative history with land use planning that has promoted smart growth, a vibrant cultural economy, and protection of natural areas. In the future, our livability should also incorporate a community ecological stewardship that promotes nature in all aspects of our communities and region: urban nature, greenways, farmlands, wildlife habitats and corridors, water quality, and a healthy ecosystem. Underlying this is equal access to nature and its resources for all to experience, appreciate, and enjoy. We should continue to keep nature close to home and country close to city for everyone.

Policy

As the governing body of our region, Metro should continue to explore and integrate conservation and restoration into regional policies. A life with nature cannot be realized without government leadership and commitment to sustainability and to nature. Metro should use the principles of restoration and natural resources management, urban and rural culture, community ecological stewardship, and livability to redefine our region to work closely with and nurture nature in policies and decision-making. This can include policy around ecological restoration and adaptive management, as well as technical tools like green infrastructure, naturescaping, green streets, and salmon-safe initiatives.

From these five goals, Metro should focus on nature connectivity both within cities and between cities. A few recommendations to achieve this include:

- Incorporate restoration principles into all Metro planning projects to maximize health and integrity in the ecosystem, not just in already degraded ecosystems
- Continue to support Nature in Neighborhoods program and community grants for education and stewardship awareness.
- Institute green infrastructure into all Metro projects to create living buildings, transportation, and housing that actually work to enhance our ecosystem.
- Establish Willamette River and Valley ecosystem and enhancement strategies to restore the river and bring ecological health and integrity to our urban core.
- Consider creating an urban farming designation to allow agriculture into the existing urban growth boundary to provide for greater food access and security for cities.
- Promote natural areas, parks, and greenspaces in Metro as a regional ecosystem that is wholly connected and interdependent with one another.
- Enhance ecological scale in the region to incorporate both habitat patches and larger intact natural areas.
- Focus on enhancing places that already exist within urban growth boundary instead of expanding to acquire more resources and land.

Some cities and regions are already advancing on this path of working with nature. A few additional resources to consider for our metro region in 2060:

- Copenhagen, Denmark - vision for becoming an eco-metropole
- New York City - PlaNYC 2030
- Curitiba, Brazil - urban solutions towards sustaining an ecocity
- Boulder, Colorado - Social Sustainability Strategic Plan
- Sonoran Desert Conservation Plan, Arizona – ecological restoration planning
- Chicago, Illinois - Growing Water concept for eco-boulevards

As discussed throughout the paper, resources are becoming more and more scarce and our economy will have to shift to be more inward looking and self-sustaining. To accommodate this change and prepare ourselves for life after peak oil, we need to promote a harmony with nature that recognizes nature as a partner in our regional quality of life. Using this perspective and recommendations can help frame Metro's Future Vision and policies to achieve a restorative and healthy relationship with the nature that is so deeply rooted in our region.

CONCLUSION & FINAL RECOMMENDATIONS

In 2060, we can expect that changes our world faces globally will manifest themselves locally, and it is up to us to either embrace these changes through planning, or to ignore them and suffer consequences. To summarize, we feel the 2060 Vision should echo the existing 2040 Growth Concept:

“Maintain a compact urban form, with easy access to nature”. (Metro 2040).

Peak oil, even though we cannot know with certainty when it will happen, will mandate compact urban form and small centers, and we believe that easy access to nature will be not only highly valued by new and existing residents, but also necessitated by the increasing need to grow food locally. Because of our legacy with good planning, high density development, and a strong connection to nature, our region is in a good place to embrace the changes of peak oil more so than any other region in the United States. When planning for the urban form in 2060, our final recommendations include:

- Actively pursuing alternatives for life in our region after peak oil, including but not limited to food production and transport, demands of population growth, the built environment, and access to services, jobs, and infrastructure. Keeping up with changes in local food production and both urban and rural farming.
- Study values, reputation and image, both existing and changing, among our metro population. This is especially important given the expected substantial increase in population from other parts of the country and abroad. Examples of areas for which to study the impact on urban form are: conflicting values on urban form and transportation, residential segregation and the effect of job location. As the region becomes more known to the rest of the world, it will also be important to study our image/reputation, both what we think it will be and what we want it to be

- Continue to develop and expand travel options to include greater connections between the suburbs and the Portland urban core. We recommend strengthening the existing regional and town centers, directing development to the highest and best uses of urban form by reaching out to areas currently within our UGB that may be independent of Portland but interact with Portland in a positive and transparent exchange where each urban center brings its own culture and economy to the regional identity.
- Draw on our legacy with nature and rich natural resources and transition to a strong working relationship with nature that highlights restoration, adaptive management, and a strong ecological community stewardship throughout the region for all to experience and enjoy.
- Maintain a high quality of life through an inclusive and community-engaged urban form that highlights equity, sustainability, and options.

We believe it is within the capacity of our region and of Metro as our regional government to embrace the changes and adequately prepare a Future Vision worthy of carrying us in to the next 50 years.

BIBLIOGRAPHY

- Carl Abbott. (1995). "Settlement Patterns in the Portland Region". In Metro Future Vision, 1995. Accessed on May 16, 2009 from http://www.portlanddocs.com/metrodocs/Future_Vision_Commission-Settlement_Patterns_in_the_Portland_Region-txt.pdf
- City of Vancouver. (2009). Greenest City Quick Start Recommendations. Accessed on May 15, 2009 from <http://vancouver.ca/greenestcity/PDF/greenestcity-quickstart.pdf>
- Davis, Hibbitts and Midghall Inc. (2006). Regional Attitudes Toward Population Growth and Land Use Issues. Prepared for Metro. Accessed on June 2, 2009 from <http://www.oregonmetro.gov/files/about/dhm-publicopinionsurvey-report.pdf>
- Kunstler, James Howard. (2005). *The Long Emergency: Surviving the Converging Catastrophes of the Twenty-First Century*. New York: Atlantic Monthly Press, 2005.
- McHarg, Ian. (1969). *Design with Nature*. New York: Natural History Press, 1969.
- Metro. (2009). Metro report says more investment is needed to support jobs for a growing population. Accessed on May 20, 2009 from <http://www.metro-region.org/index.cfm/go/by.web/id=30327>
- Metro. (1995). Future Vision
- Nature in the City. (2009). Goals. Accessed on May 10, 2009 from <http://natureinthecity.org/>.
- Urban Greenspaces Institute. (2009). Accessed on May 10, 2009 from <http://www.urbangreenspaces.org/>.
- Walk Score. (2008). Walk Score, America's Most Walkable Neighborhoods. Accessed on June 4, 2009 from www.walkscore.com/rankings/.

VI. Future Vision Process

Greg Barlow, Brian Fosmark, Vivian Siu

Introduction

The creation of a new Future Vision document provides an opportunity to revise the elements considered in the previous future vision, and to rethink the process by which the future vision is developed. In the following pages, a few key unifying features of any visioning process will be enumerated, followed by a concise evaluation and comparison of several visioning processes. After weighing the benefits and drawbacks of each process, including a comparative analysis of the requisite inputs and anticipated outputs, a recommendation will be made for a preferred future vision output and process.

Purpose and Role of Future Vision and its Process

The new iteration of the Future Vision will extend at least fifty years beyond its 2010 publication, eclipsing the sights of the 2040 Regional Plan by twenty years. While it would be prudent for the new Future Vision to incorporate the ideas of the 2040 Plan, it must also look beyond it, anticipating and facilitating future regional plans. The Future Vision also may encompass more aspects of the region's development than the 2040 Plan or the previous Future Vision, including new topics, such as climate change.

Any process selected for the Future Vision should allow for this breadth and depth of perception, in part by aligning with visions and circumstances (both existing and anticipated) on different scales: from microcosmic scales such as neighborhoods, towns and cities, to macrocosmic scales such as the state, the nation and the world. Ultimately, the vision process should yield a structured combination of qualitative and quantitative outputs, while involving the engagement and input of the community at every step along the way. The balance of qualitative and quantitative data, the degree of potential community involvement, and the relative scope of a vision process's output will all be considered in the following evaluation of several possible visioning paradigms.

Future Vision Output and Processes

Vision

Visioning entails an imaginative process of how people perceive the future of a place. The products of visioning describe the look and feel of a place in utopian form. While visioning and projection planning share certain similarities, the two approaches also have significant differences.

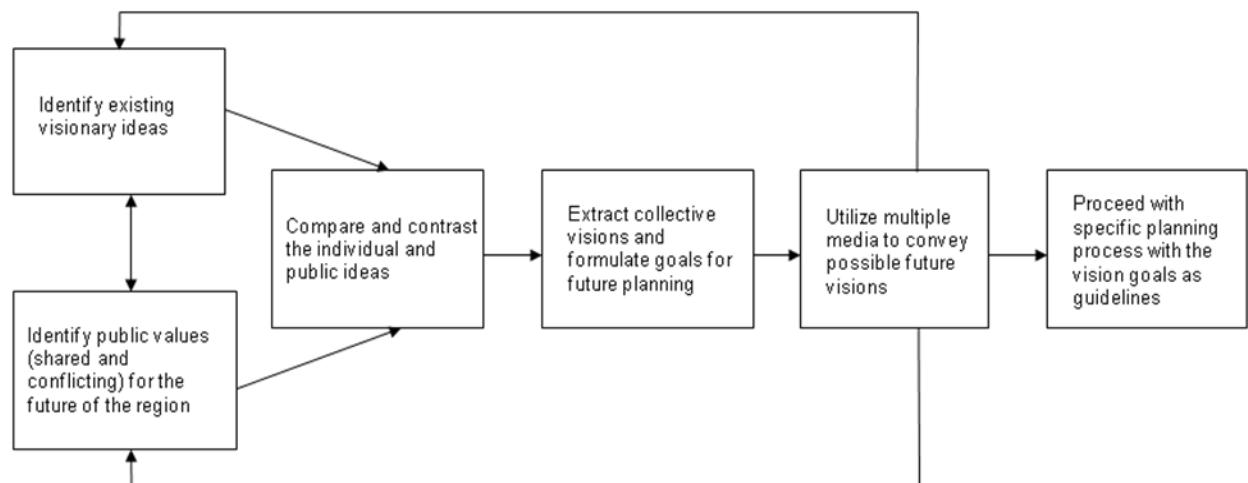
Both approaches aim to deal with uncertainty in order to shape a better future; however, the issues that need to be considered are often complex and contentious. The main distinction between future visioning and projection-based planning is that visioning emphasizes creativity, imagination, opinions, and other qualitative approaches to “see” the future, while projection-based planning extrapolates the possible outcome based on existing conditions and past data. Although the latter approach produces estimates of the future to inform rational decision making, visioning can help actualize desired goals and enrich the contextual details.

The ability to integrate visioning into long-range planning can yield different strategic planning outcomes and forecasting models. The visioning process can also allow for the generation of innovative ideas that can push the growth of a city towards a desirable direction, or it can simply create alternatives that supplement quantitative planning methods.

Although there is no limit to the breadth and depth of visioning, many people construct their view based on the context and history of a region. The difficulty of incorporating visioning in the planning process is to arrive at a collectively agreeable vision for all residents of the region, since visioning often involves the subjective ideas of a few individuals. Moreover, visions may be radically different from the current state of the place and many uncertainties may hinder the translation of the visioning process into a feasible plan in the near future.

The process for creating a future vision is illustrated in the following flow diagram:

Vision Process



A visionary document will present the ideal state of a place, incorporating imaginative ideas from various sources such as public opinions and values, news, editorials, fiction, and art (movies, songs, poems, paintings, sculptures). These pieces will effectively tell stories about the region's past and fantasized future and inform on civic aspirations. Some of these examples are described below:

Vision Statements: A vision statement is commonly used as official output among cities to lay out general goals for the city's desired future look and feel. The City of Portland, OR, the City of Pullman, WA and the City of Brentwood, CA for example, have Visionary Statements describing what they'd like the city to be like in 20-30 years. For example, the City of Pullman's 2020 vision states that:

“Pullman is a proud, active, caring community; our residents routinely celebrate the city's many unique assets and amenities. We value our small, college town atmosphere. There is a strong sense of community, reinforced by continuous positive interaction among all residents, numerous festivals and gatherings, a good understanding of our common vision, and coordination between all governmental entities.” City of Pullman, WA. 2020 Future Visionⁱ.

In Central Japan, a 10-20 year policy vision and process framework was developed to create a “Picture of the Futureⁱⁱⁱ” for the Chubu Region. The document laid out the objective, features, and process of developing a vision, and developed future policy visions and goals. Extensive collaboration between different experts and the community was involved to create mutually agreeable regional values and future directions for different regional growth aspects.

Architectural designs and Model Building:

Allow the flexibility to construct a mini-version of a place in a low cost, quick, and adjustable manner that others can visualize and provide feedback on. The pictures below, for example, portray the framework for the Nagoya City Plan in Japan. Many architecture firms also draft out designs with certain functions and elements that correspond to what a place, city, or region owns and values.



Architectural Design and Modeling for the City Plan in Nagoya, Japan

Movies, Music, Paintings, Writings, other Art work and Media:

Countless artists create pieces that reflect their perceptions and idealized living environment, and some might be ideas shared among a majority of the residents and are noteworthy to consider. For

example, there are video clips simulating the future of a region, poems about the Urban Growth Boundary in the Portland Metro Area, and music describing Portland's cityscape. School projects or design competitions tapping into how the young generation sees the region and what they want for their future are also useful tools for city visioning.

Web Blog: Another emerging vision source of the past two decades is the web blog. The online blog provides an arena for individuals or even groups to express their ideas, comments, and daily experiences related to the future vision, design, and planning of their community.

Scenario Building

Scenario building can be an effective way of understanding the breadth of possibilities for a region's future in an unpredictable and ever-changing world. Unlike a pure "visioning" process, which sets goals for a region uninformed by data gathering, scenario building combines the values and goals of a community with external forces to create a range of future narratives. The process developed through the defense sector of the U.S. government in the mid-twentieth century and was later adopted by the business world, though scenario building and analysis have found favor in recent years with regional and urban planners due to their particular and unique strengths. They allow planners to contemplate several aspects of a problem simultaneously, in the process dramatizing and illustrating possibilities that may otherwise be overlooked. Through scenario building, a planner can discover how the future may be different from the past, and bridge the gap between anticipating the future, as in a forecast or projection, and creating it, as in a plan.

Though not necessarily a substitute for a comprehensive plan, scenario building offers certain key advantages over its more traditional counterpart. The integration of uncertain events and multiple perspectives into scenarios can provide planners with a broad toolkit of actions, and help generate plans that are ultimately more robust, flexible, and durable. The scenario building process can also be an effective way of bringing disparate elements of a region to the table, enabling safe and productive conversation and generating cooperation and a shared sense of hope. Scenario building, for some, can be as much about "changing minds" as it is about "making plans."ⁱⁱⁱ

Scenario building can be accomplished in myriad ways, yielding a range of products. There are, however, certain essential characteristics to the process and result. The result could be described as a collection of plausible, relevant, and divergent stories about the future. Erik Smith lists four principles to the process leading to those considered futures: "taking the long view"—in the case of regional planners considering twenty years or more into the future; "thinking from the outside in," or accounting for external factors outside of an organization's control; "including multiple perspectives," often resulting in creative new solutions; and "telling stories," which can make the lessons of scenario building more evocative and communicative.^{iv} The process is not highly structured by nature and requires a gestation period in order for constructed narratives to evolve organically. The most useful set of scenarios will not include any "straw men"—instead of "good" or "bad" scenarios, planners should intend to craft a set of plausible futures, possibly new or even uncomfortable, specific to the area and each with its own trade-offs.^{iv}

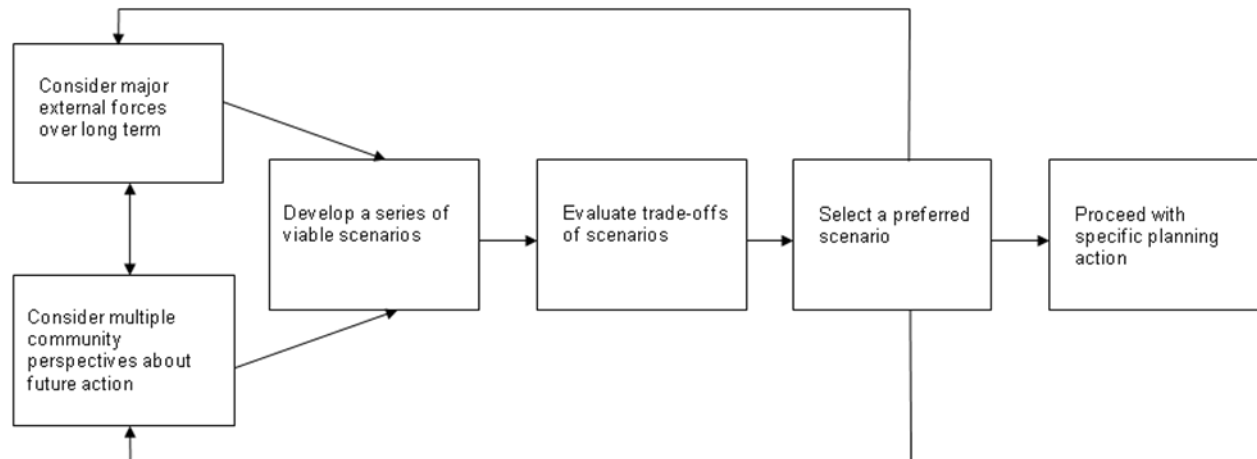
Considering too many scenarios may result in an inability to grapple with the concerns at hand, while considering too few scenarios can be equally detrimental to the process. Building and evaluating just two scenarios can lead to the impression of a “baseline” and “future of interest,” and three scenarios can slip into a “high/medium/low” mindset, wherein the “high” and “low” scenarios get quickly discounted. Because of this, four may be the optimal count.ⁱⁱⁱ

Scenarios combine an analysis of issues and trends with an analysis of regional values and goals. Where the values of stakeholders are clear, a scenario can include planning interventions, such as land use, zoning, infrastructure, financial incentives, and public/private partnerships. Where the values of stakeholders are not clear, such interventions do not need to be included. Constructed scenarios can be tested qualitatively against criteria established at the planning process’s onset, and quantitatively, by generating data to support a given scenario and then applying various analytical models (such as a transportation demand model or a fiscal impact model.)^{iv}

Ultimately, planners may elect a preferred scenario, and use this as the framework for a plan, in which a set of actions are recommended as the course towards actualizing the preferred scenario.

The diagram below outlines the scenario building process:

Scenario Building Process



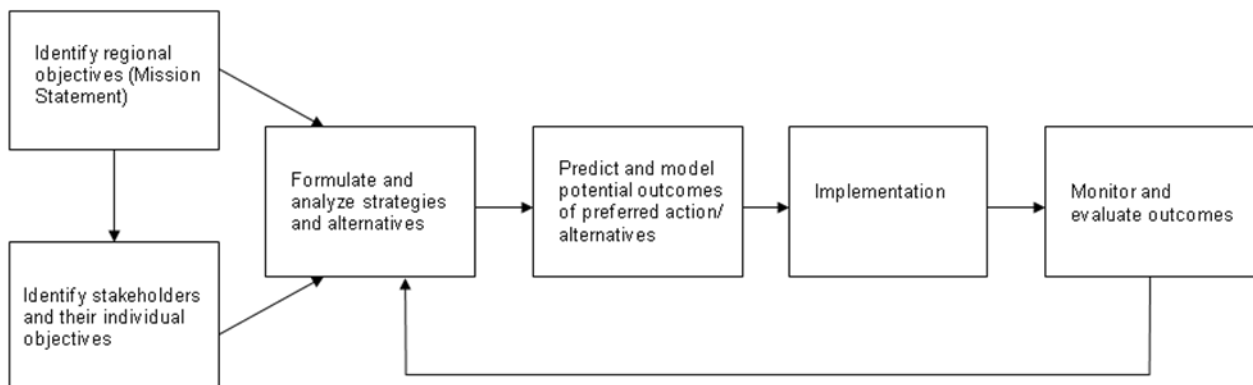
An example of scenario building in regional planning would be the Valley Futures Project, facilitated by Carol Whiteside and the Great Valley Center (GVC), which aimed to increase regional consciousness throughout California’s Central Valley. The process involved convening a group of key stakeholders, consisting of representatives of many different elements within the greater community, and devising a series of scenarios about the region’s future, based on key forces and contextual factors. The scenarios were devised over a series of workshops, and then later publicized throughout the region.

Strategic Action

The concept of strategic planning is deeply intertwined in the business world's feasibility forecasting and future modeling strategies. When utilizing the strategic action approach on a regional level, it is essential to ensure that all potentially involved parties of the action are identified and that any mitigation is included in the plan if needed. Unlike a single business strategy, strategic regional planning must acknowledge multiple sectors and entities which might be affected either positively or negatively by the action such as the natural environment, neighborhoods, employment, local economies, education and schools, and public safety. Hypothetically, by including citizens, neighborhoods, and the private sector at all stages of the strategic planning process, better problem identification and mitigation should be achieved, leading to more successful strategy outcomes.

The strategic action planning approach is broken down as follows:

Strategic Action Process



Considerations for equity throughout the strategic action approach are needed to ensure the process is including and engaging stakeholders adequately and appropriately.

- Will the strategy provide adaptability to future issues and needs?
- Will the strategy address regional employment growth?
- Will the strategy encourage economic growth or business creation at various levels?
- Does the strategy call for citizen involvement and community/business inclusion with the planning process?
- Does the strategy increase public and neighborhood safety?
- How will the strategy address the need for flexibility relevant to future issues and concerns?
- Will strategy implementation affect the natural environment positively or negatively?
- Will the public experience increased social benefit from the proposed strategy?
- How will schools and educational providers be affected by the strategy?

Several examples of regional strategic planning include:

Madrid, Spain: The Madrid Strategic Regional Plan^v, a regional territorial planning effort to organize land territory and manage city services was underway in 2004. This document discusses the concept, progress, successes and limitations to this plan.

Curitiba, Brazil: This regional transportation strategic plan^{vi} shapes the regional growth with planned construction of infrastructure. A transportation system at the regional scale also increases cost effectiveness for public service provision.

Greater Vancouver, Canada: The Livable Region Strategic Plan^{vii} provides strategies for growth management. These include focuses on land use related to green zone protection, urban center density, maintaining compactness, and transportation options.

Future Vision Processes Analysis

The visioning, scenario building, and strategic action approaches to the planning process all have their own strengths and weaknesses. Table 1 summarizes the specific advantages and disadvantages for each of these methods.

Visioning has the greatest potential for exploring the values of a region's residents. It also has the greatest flexibility to changes and updates. However, this approach can be subjective and lack specificity in actions.

Scenario building, on the other hand, maintains a certain level of flexibility while it also considers current situation when generating different possibilities. Yet, a great deal of uncertainty still remains and all the scenarios may be overwhelming to compare and contrast.

Even though strategic action is most specific in addressing the future, it can be biased, inflexible, tend to be short term, and require continuous assessment.

Table 1. Characteristics of Different Future Planning Processes

Output Type	Advantages	Disadvantages
Visioning	Identifies the desired long term goal	No specific action is laid out
	Provides general guidelines to achieve the goal	Ideas might be unrealistic and difficult to achieve
	Creative thinking that is not bounded by traditional practice	Current situation and desired goals might be radically different
	Allows for innovation	Visions are often subjective and individualistic
	Flexible	
Scenario Building	Accounts for future uncertainty	Cannot account for all future conditions
	Includes external forces in future vision	May create false sense of preparedness
	Takes a long term perspective	Can become a tool for constructing "straw men"
	Creates flexible plans	Numerous scenarios and factors can be overwhelming
	Engaging tool for participatory planning	
Strategic Planning	Identifies regional goals that include the local constituency's voice	Might overlook potentially unknown parties interests or involvement
	Considers impact on many interconnected sectors	Issues potentially foreign to planners or decision makers
	Detailed analysis on alignment of resources and targeted goals	Might bias towards environmental, social, or economic needs
	Yields specific action items	Political term limits influences degree of action
		Requires continuous assessment to mitigate future effects

The three future planning processes discussed in this document—visioning, scenario building, and strategic planning—share some similarities, but are also each distinctly different. The following table summarizes some of the aspects involved in each approach, including goals, inputs, process, and outputs.

Table 2. Comparison of Visioning, Scenario Building, and Strategic Action Process

	Visioning	Scenario Building	Strategic Planning
<u>Goal</u>			
Perspective	future looking	future looking	future planning
<u>Input</u>			
Information	qualitative	quantitative	quantitative
Human	individual	expert/ few stakeholders	expert/ few stakeholders
<u>Process</u>			
Time	maybe time consuming to have collective agreement	moderately time consuming with public engagement and building various situations	time consuming for both agreement and devising specific action items
Involvement	depends	depends	depends
Cost	relatively low	high	high
Agreement during process	difficult	moderate	easier
<u>Output</u>			
Product	Vision Document- Look and Feel (general)	Multiple Models (specific)	Action Plans and Items (very specific)
Achievability	maybe	likely	very likely
Flexibility	high	moderate	low
Agreement at regional scale	easier	moderate	difficult

In terms of the goal, all three processes aim to deal with future uncertainty; however, scenario building and strategic planning also involve a backward-looking element on which to base their product, while visioning can exist with or without such basis.

For the input, visioning requires more qualitative information, such as storytelling or gathering opinions from individuals, while strategic planning requires quantitative data and experts to perform specific analysis and recommendation. Scenario building lies in between, with the need for quantitative data and experts' consultation, though citizens might be more involved in picking out the preferred scenario.

The process for these approaches all have varying time spans depending on the scale of public involvement. However, they all encompass the collection of information and identification of commonalities. Generally, the cost should be lowest for visioning because it only requires gathering opinions and working out shared values, while scenario building and strategic action planning require more detailed and extensive research on the current situation and the possible course of future events.

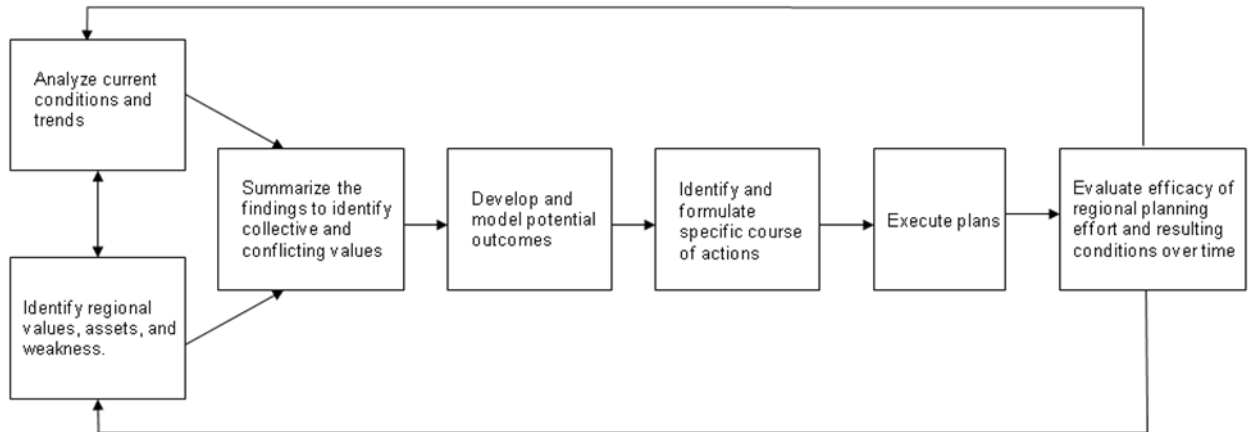
The greatest differences between processes can be observed in their product. Visioning will provide the most general guidelines and recommendations, have the highest flexibility for future changes and updates, and it may have the greatest potential for general regional agreement. However, the ability to achieve the plan accordingly is low. Scenario building yields a more specific product, yet maintains some degree of flexibility for changes in actions. The availability of a number of options based on real world situations provides grounds for discussions and arrival at actionable agreement. At the other extreme, strategic planning can provide highly specific and achievable actions for future regional management. However, to change the plan or come to mutual agreement between various jurisdictions can be challenging.

Recommendation

Our recommendation is for a hybrid process, incorporating elements from visioning, scenario building and strategic planning. This hybrid process for developing the Metro Future Vision aims to capture the benefits of each approach in order to arrive at a flexible, realistic, achievable, and accountable long-range comprehensive plan with a high level of public involvement. The process should be iterative by nature; continuously engaging the public, while allowing for modifications and even changes to existing policies.

Specifically, our recommendation is outlined as follows:

Recommended Process



As noted earlier, one of the purposes of updating the Metro Future Vision is to align visions at a regional scale. This raises the challenge to coordinate and devise a vision that resonates throughout the greater community and across jurisdictions. Inclusion of all stakeholders is vital in order to explore the full range of regional values and concerns, though contentious disagreement and conflict hindering progress will need to be resolved. The visualization of desired and imagined outcomes is a fundamental and crucial process for enabling people to discuss their values and ultimately create a shared future vision. Maps, pictures, and modeling would be excellent tools to use during these dialoguing processes for participants to discuss and consider the impacts of proposed changes.

Also key in the visioning process is the compatibility of any generated vision with an achievable course of action. The Future Vision should be realistic enough to guide specific planning actions, while also functioning as a broader framework, steering general development of the region toward the desirable state.

References

American Society of Civil Engineers & Polytechnic University. *Future City Competition*. Brooklyn, NY. Retrieved on May 6, 2009. <http://www.youtube.com/watch?v=L9UzyLfx2g&feature=related>

Community Development Department, City of Brentwood. *Consideration of Approval of Shaping Our Future Principles of Agreement*. City Council Agenda Item No. 21. City of Brentwood, CA. December, 2003. Retrieved on May 6, 2009. http://www.ci.brentwood.ca.us/citycouncil/pastagenda/packet_2003/ccap20031209/ccap20031209_21.cfm

Finley, K. *Renegade Futurist*. Personal Blog. Retrieved on May 31, 2009. <http://renegadefuturist.com/archives/2009/03/11/optimistic-portland-future/>

- McNamara, Carter, MBA, PHD. Basic Overview of Various Strategic Planning Models. Authenticity Consulting, LLC. Copyright 1997-2006. Retrieved on May 9, 2009.
<http://www.quickmba.com/strategy/strategic-planning/>
- Mirk, S. *Hot Houses: Density is Portland's Future. Some Smart, Young Architects Get it Right*. Portland Mercury. Portland, OR. October 2, 2008. Retrieved on May 6, 2009.
<http://www.portlandmercury.com/news/hot-houses/Content?oid=910298>
- Myers, D., Wachs, M., Cole, S., & Dalton, L. Symposium: Putting the Future in Planning. *Journal of the American Planning Association*. 67(4), 2001. Pp 365-401.
- Petty, M. *An Integrated Approach to Urban Lighting Mends Eindhoven's Past, Present, and Future*. *Architectural Lighting Magazine*. January 29, 2008. Retrieved on May 6, 2009.
<http://www.archlighting.com/industry-news.asp?articleID=647824§ionID=1338>
- The Strategic Planning Process. Copyright 1999-2007, QuickMBA.com
Retrieved on May 8, 2009. http://managementhelp.org/plan_dec/str_plan/models.htm
- The Strategic Planning Process. Copyright 2002-2007 NetMBA.com
Retrieved on May 9, 2009. <http://www.netmba.com/strategy/process/>
- Treehugger Design & Architecture. *Nagoya: City Planning For the Car-Free Future*. Greenz.jp. Tokyo, Japan. September 12, 2008. Retrieved on May 6, 2009.
<http://www.treehugger.com/files/2008/12/nagoya-city-plan-design.php>
- Vision to Action. *Portland 2030: A Vision for the Future*. Portland, OR. September, 2007. Retrieved on May 6, 2009. http://www.visionpdx.com/reading/visiondocument/social_portland.html

VII. Metrics and Monitoring

By Michael Budds, Ellen Dorsey, and Dan Schauer

Great plans begin with a clear vision. Metro has ambitious, long-range planning under way in its designation of 50-year urban and rural reserves and in the 2035 Regional Transportation Plan (RTP). Metro establishes reserves to accommodate growth, protect farm and forest lands, and conserve natural areas, and the RTP will connect and complete a multi-modal transportation system. As implementation of Functional Plans at the ground level occurs, monitoring allows a feedback loop to return to the high-altitude, founding vision. There is an important relationship between these plans' cycles and the 1995 Future Vision, which was the first guiding document to describe what the metro Portland region should be like by the mid-21st century.

Newer generations of indicators have appeared since the Future Vision was created, making a fresh look at metrics necessary. Typically, planning organizations do not have the time, money and expertise to carry out resource-intensive monitoring and evaluation. Planners usually do the best they can with truncated processes.ⁱⁱⁱ Metro has been committed to measurement and analysis, and this year marks the 20th anniversary of its Regional Land Inventory System.

By ordinance provision and the Metro Charter, the Future Vision must be completely reviewed and revised by July 1, 2010, anticipating goals and guiding directions for framework plans to follow. According to the Charter, the carrying capacity of the metro Portland region's land, water and air resources as well as economic and educational resources must be addressed in planning for anticipated population levels and settlement patterns. This conceptual organization should be kept in the Future Vision with two modifications: **reflect the current philosophy of sustainability**, and **place a crisis-level priority on climate change**.

Targeted Metrics and the Next Future Vision

Monitoring in the vision context should aim for flexibility to meet unseen challenges while allowing regional framework planning to describe a connection to the Future Vision. This is the problem of how to choose metrics that relate to the values expressed within the Future Vision itself, but not drive the vision with today's standards. Looking back, the first Future Vision called for a Vision Index using 17 indicator categories for individuals, society and places. Examples include measuring rural lands for farm and forest uses, natural conservation, or future urban use through acreage and zoning attributes outside the UGB. Growth management metrics representing how development is accommodated inside the boundary evaluate progress toward long-range goals on urban form. A range of indicators on water and air quality are contained within the category of "A Life in Nature."

Reset the clock to today, where Metro's progress in establishing performance indicators described by the Future Vision is evident. Metro has committed resources to monitoring, and information and communication technologies have had a profound impact since 1995. For inspiration on state-of-the-art, **targeted vision indices on a regional scale**, Metro should look to **Cascadia, Silicon Valley**, and the **San Francisco Bay Area**.

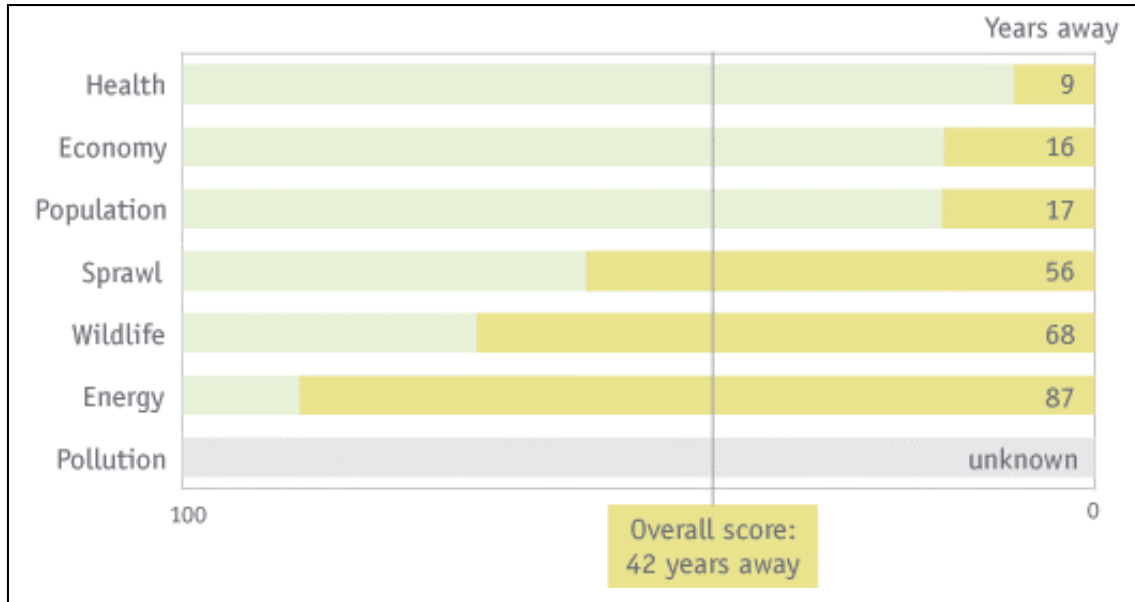


Fig. 1. Sightline Institute's Cascadia Scorecard. (<http://scorecard.sightline.org/>)

The Sightline Institute's scorecard (figure 1) tracks seven trends that are crucial to Cascadia's future: health, economy, population, energy, sprawl, wildlife and pollution. Timelines are set for how long it will take to "match the performance of real-world exemplars" that have achieved Cascadia's goals. A bold, ambitious model, this unifies sustainability themes and communicates a sense of urgency about change. However, it is difficult for the general public to grasp conceptually.^{iv}

The San Francisco Bay Index scorecard (figure 2) hones in on the environment and presents a user-friendly format that the public can recognize and comprehend quickly. Letter grades and directions of short- and long-term achievement show the Bay Area has a lot of work to do in the years ahead.^v

The Silicon Valley Index has the fewest and broadest groupings: people, economy, society, place and governance, and offers Metro an example of how a region with a diverse array of about 40 municipalities does targeted monitoring.^{vi}

Future Vision needs to collapse its original list of key, quantifiable indicators of the region's places, individuals and society into **a highly aggregated approach** similar to one of these three models. Indicators that communicate to the general public whether the region is

AREA	GRADE	SUMMARY	LONG-TERM	SHORT-TERM
	D+ Score = 31	Habitat Bay habitat loss is slowly being reversed, but pace of restoration unchanged since 2003 – at current rate, more than 150 years to reach tidal marsh restoration goal.	▼	▲
	C+ Score = 58	Freshwater Inflow Reduced inflows still degrade the Bay ecosystem – inflow improved in 2004, but overall conditions since 2000 are worse than two previous decades.	▼	◄
	B- Score = 65	Water Quality Open waters are cleaner than in 2003, but not all standards are met in parts of the Bay. Toxic sediments, stormwater runoff are major problems. South and San Pablo Bays are most polluted.	▲	▲
	F Score = 10	Food Web Plankton levels in Suisun Bay are still critically low, reducing food resources for fish and birds. Phytoplankton levels in all other parts of the Bay are improving.	▼	◄
	B Score = 73	Shellfish Crab and shrimp numbers rise in Central and South Bays, but not in the upper Bay. Estuarine species lose ground to marine shellfish.	▼	▲
	C- Score = 45	Fish Recent upward trend reverses, fish populations return to critically low levels. Estuarine species of the upper Bay are hardest hit.	▼	◄
	C- Score = 38	Fishable-Swimmable-Drinkable More fish were caught but most are still unsafe to eat. Beach closures continue to rise, drinking water violations hold steady.	▼	◄
	C- Score = 46	Stewardship Little progress towards conserving more water, reducing pesticide use, and restoring freshwater inflows, but some efforts to issue pollution limits move forward.	▼	◄

Grades are for the 2002-2005 period

A = Excellent D = Poor ▲ = improving
 B = Good F = Critical ▼ = declining
 C = Fair ◄ = stable

Fig. 2. San Francisco Bay Index scorecard. (http://www.bml.ucdavis.edu/peeir/brochures/SFBay_Scorecard.pdf)

going in Metro’s intended direction should be at the top of its metrics hierarchy.

It is anticipated that carefully selecting trend or target-level metrics and employing them strategically and consistently across the organization will have a positive impact on managing the costs of data resources. To assist in choosing target metrics, facilitate the description of the Future Vision to regional framework plans, and provide a greater understanding of trends towards a more sustainable region, the following criteria are suggested.

Target metrics criteria

1. **Systems Focus** – Select fewer indicators that are representative of larger interrelated systems.
2. **Feasible** – Choose indicators that are relatively easy to obtain, interpret, and are cost-effective.
3. **Relevant** – Focus on the most relevant metrics that reflect Metro and community goals and priorities.
4. **Transparency** – Are data assumptions and limitations fully understood and articulated?
5. **Resiliency** – Is data useful over the long term? Can it be tracked over time?

Carrying Capacity and Sustainability

“...how we (Portland Region) will collectively restore, maintain and/or enhance the qualities of the region central to sustaining our health, the quality of the natural environment and the ability of future generations to take action to meet the needs of their time.”

— Metro Future Vision 1995

Realizing that all metropolitan areas of the nation surpassed the ecological definition of carrying capacity long ago, the authors of the Metro Future Vision set out to shape a more sustainable region that maintained the quality of life valued by the community. While the Metro Charter requires addressing the "carrying capacity" of the region in the Future Vision, this concept fails to acknowledge the inherent complexity associated with interactions between humans and the environment. More recent iterations of a similar theme are expressed in the current focus on sustainability as meeting ecological, economic and equity needs. However, the notion of sustainability as an endpoint or steady state has come under scrutiny since the first Future Vision was developed.

Recent interpretations have viewed sustainability as a process that is constantly evolving, where both human and natural systems display resilience by absorbing smaller disturbances to avoid major changes in larger system structure. The **adaptive cycle** (see Figure 3)^{vii} that each system follows is characterized by the potential for change, connectedness, and resilience or vulnerability. If a system is overwhelmed by a disturbance of enormous magnitude it can irreversibly change into a completely different adaptive cycle, a potentially disastrous transformation. One of the most common examples of this is the near century long suppression of fire in the United States. Preventing smaller fires allowed fuels to build up to a point at which the larger forest was no longer resilient. The result

was many catastrophic fires, like Yellowstone, that burned much larger areas with greater intensity. This systems theory concept, termed Panarchy, suggests that nested adaptive cycles in human and natural systems experience patterns of creative destruction where they are constantly in flux. These cycles are multifaceted and operate on multiple scales in space and time.^{viii}

Given the difficulty in trying to address such a complex and far reaching topic like sustainability, it is critical to establish metrics that are representative of larger systems. The reality that Metro faces both fiscal and temporal constraints in collecting and interpreting data further supports developing metrics that are indicative of progress toward multiple agency goals. Without quality metrics that provide information on multiple themes, accurately gauging a region's sustainability is problematic.

The Benthic Index of Biological Integrity (B-IBI), developed by Dr. James Karr of the University of Washington, provides a good example of a metric that is indicative of the air, land and water resources of the region. While Metro typically relies on secondary data for analysis, this is an example where collecting primary data would be useful. Under the Clean Water Act, agencies often test streams for attributes like dissolved oxygen, turbidity and temperature. While informative, these indicators often neglect the biological condition of a stream.

As a result, a stream may be biologically impaired while meeting reasonable chemical thresholds. Furthermore, metrics like dissolved oxygen and presence of fecal coliform provide brief snapshots in time, where biological organisms like benthic macroinvertebrates represent conditions over longer time periods. The presence or absence of these bottom dwelling insects provides a detailed account of important watershed characteristics, like the ability to sustain salmon populations. Benthic macroinvertebrates are "long-term inhabitants of streams, relatively immobile, easy to collect, and represent an assemblage that responds predictably to human induced stress." This ability to easily glean valuable information in a relatively cost effective manner makes a B-IBI a logical choice for stream monitoring. Moreover, streams and riparian areas represent a significant portion of the region's biodiversity since the vast majority of species rely on these areas for survival. Therefore, the B-IBI is helpful in determining the status of the larger catchment or watershed.^{ix}

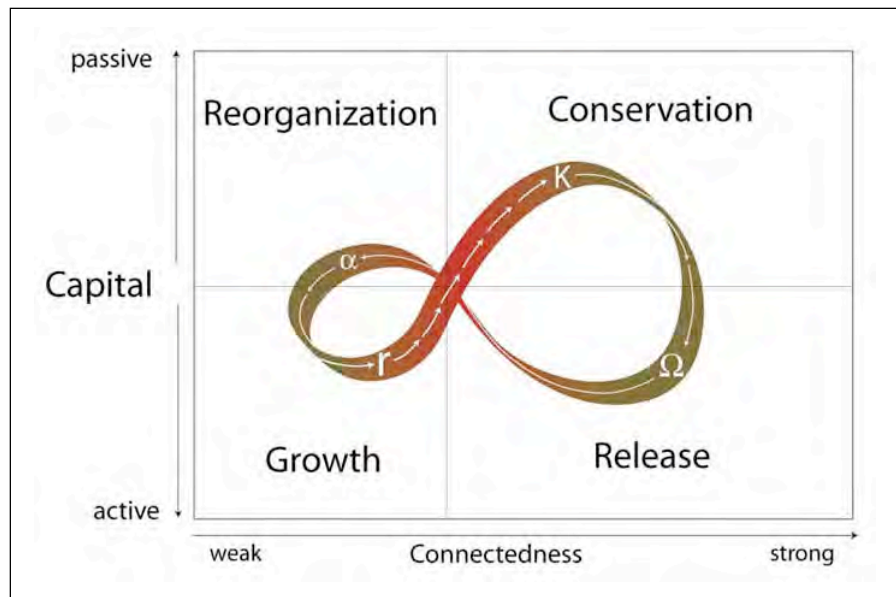


Fig. 3. C.S. Holling's adaptive cycle; temporal changes in a system proceed through phases of growth (τ), conservation (κ), release (Ω), and reorganization (α). The adaptive cycle is an effective model for systems, the levels in a panarchy, and the dynamics of individual systems.

As Metro moves forward toward a more sustainable future, it is incumbent upon the agency to establish metrics and monitoring protocols that not only meet these criteria but also are flexible enough to account for the unknown. It is apparent that the greatest driving force in the 21st century will be adapting to the impacts of climate change. As Metro considers updating the Future Vision, climate change warrants serious consideration.

Climate Change

"(Climate change) has been described as a 'threat multiplier' and in large part the threats that it multiplies are those which arise from our willful destruction of the ecosystems that provide the essential ecological services on which we all ultimately depend."

— Prince Charles, Conference of the Parties of the United Nations Framework Convention on Climate Change

Since the last Future Vision statement, climate change has emerged as an important global, national, and local concern. The complexities and scientific uncertainties associated with climate change have made developing management strategies difficult. Due to this challenge, efforts to avert climate change are beginning to assess **adaptive capacity** to determine a region's vulnerability, in addition to curbing emissions trends. The Future Vision should aim to develop *adaptation metrics* and reduce vulnerability to the impacts of climate change as well as offset GHG emissions.^x Strategies should include establishing urban forestry management practices to provide valuable ecosystem services as well as incentives for a more market-based conservation in the form of ecosystem credits. This approach will essentially use trees as an indicator of ecological health.

Using urban forests to quantify ecosystem services will address the main functions and mechanisms of complex natural systems and account for the feedbacks, diversity and variability of components necessary for resilience. This practice should be applied toward developing a model approach that simplifies complex natural processes into "mainstream" values.^{xi} This will allow investors and decision makers to use monetary values in order to make cost-effective decisions when trying to protect ecosystem services. Models are a useful tool in filling the knowledge gap of quantitative measures, and should be used to assess vulnerabilities including natural services and capital. Using ecosystem services as a mainstream indicator will help stimulate more public involvement, allow flexibility to adapt to future climate change impacts and policy adjustments, and serve scenario planning and implementation.^{xii}

Urban Form and Quality of Life

"Sprawl is no more than a large number of individuals using what financial resources they can muster to seek what is for them an optimum balance between space and location."

— Robert Bruegmann, *Sprawl: A Compact History*

Measuring urban form and quality of life presents a quantitative challenge that requires imagination and innovation. The Smart Growth movement has produced an audit of topics planners can check

for in comprehensive plans, zoning, and building codes and statutes. As the first Future Vision was written, Portland and a few other municipalities were well on the way to pioneering many Smart Growth tenets. Traditional neighborhood development is another concept Metro has pursued. There is much that can be measured, and having criteria standards across the organization will help planners and project managers make choices that save time. Useful metrics that function as measurements of the urban form “system” are:

- Vehicle miles traveled, both per capita and absolute means (Figure 4)
- Use spatial analysis to compare transit service and bike routes across the region
- Walkability scores for neighborhoods

To reach a high-level indicator for livability, consider health. Stakeholders ranging from architects to policy advocates have said health is one of the best metrics for quality of life. Livability has been articulated in the Future Vision through guiding statements that fit under a diverse range of headings, and health is a cross-cutting indicator.

Density is also a key metric category. It gives Metro a rough picture of whether land consumption is

efficient and the region is prepared to meet population growth forecasts. The limitations of density metrics are that they do not show details about urban forms on a human scale. Density data also have high variability across the region. A promising metric is residential infill development potential, created by measuring the number of buildable acres and buildout potential in number of units.

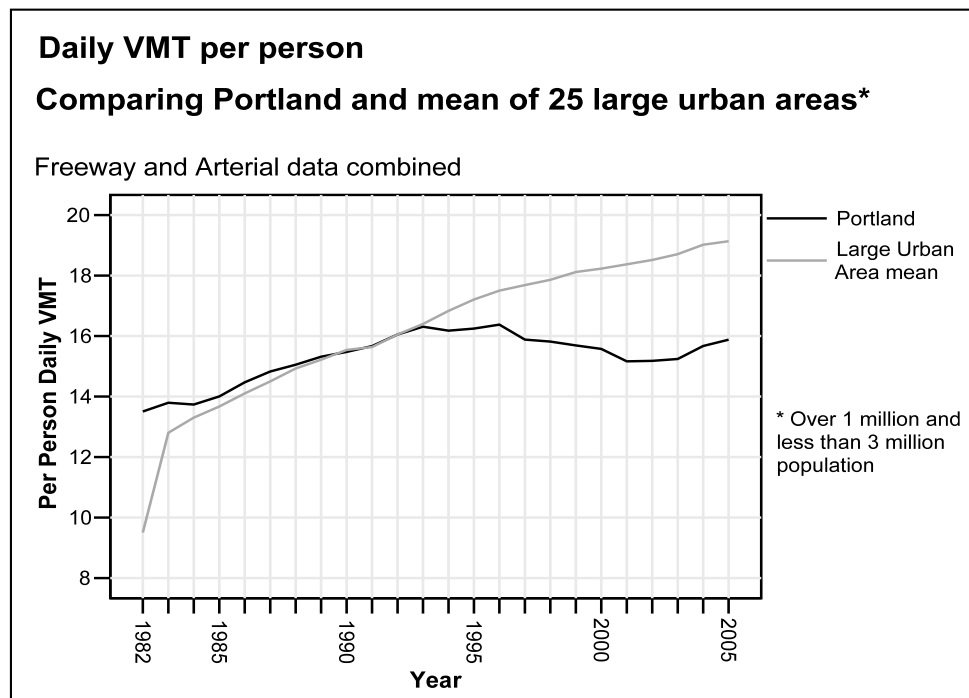


Fig. 4. Source: 2007 Annual Mobility Report, Texas Transportation Institute (<http://mobility.tamu.edu/ums/>).

Metrics and Monitoring Recommendations

As Metro continues to make progress using indicators, it will be able to evaluate its long-term sustainability, climate change and urban form/quality of life goals.^{xiii}

- Choose metrics according to the following criteria:

1. **Systems Focus** – Select fewer indicators that are representative of larger interrelated systems.
2. **Feasible** – Choose indicators that are relatively easy to obtain, interpret, and are cost-effective.
3. **Relevant** – Focus on the most relevant metrics that reflect Metro and community goals and priorities.
4. **Transparency** – Are data assumptions and limitations fully understood and articulated?
5. **Resiliency** – Is data useful over the long term? Can it be tracked over time?
 - Create a hierarchy of indicators that can be collapsed into highly aggregated indices to gauge the region’s progress in matters addressed by the Metro Charter.
 - Set targets for key indices to show trends and progress toward Future Vision goals.
 - Report results of top-level indices regularly to the public.
 - Develop a clearinghouse for data so project managers and planners will not put wasted effort into generating their own criteria and metrics that do not match up with organization-wide initiatives.

Works cited

1 Seasons, M. “Monitoring and Evaluation in Municipal Planning.” *Journal of the American Planning Association* 69.4 (Autumn 2003): 430-441

2 Sightline Institute. Retrieved online at: (<http://scorecard.sightline.org/>)

3 Pacific Estuarine Ecosystem Indicator Research Consortium. San Francisco Bay Index. Retrieved online at: (http://www.bml.ucdavis.edu/peir/brochures/SFBay_Scorecard.pdf)

4 Joint Venture: Silicon Valley Network. The Index of Silicon Valley. Retrieved online at: (<http://www.jointventure.org/aboutus/overview.html>)

5 Holling, C. S. “The resilience of terrestrial ecosystems: local surprise and global change.” *Sustainable development of the biosphere*. Eds. W. C. Clark and R. E. Munn. Cambridge University Press: Cambridge, UK, 1986. 292-317. Retrieved online at: (<http://www.ecologyandsociety.org/vol14/iss1/art15/figure1.html>)

6 Gunderson, Lance H. and C.S. Holling. “Resilience and Adaptive Cycles,” *Panarchy: Understanding Transformations in Human and Natural Systems*. Eds. Lance H. Gunderson and C.S. Holling. Island Press: Washington D.C., USA. 2002. 25-62.

7 “Biological Integrity and Benthic Index of Biological Integrity.” University of Washington School of Aquatic and Fisheries Science: Columbia Basin Research. 2002. 8 May 2009

<<http://www.cbr.washington.edu/salmonweb/bibi/biomonitor.html>>.

8 Rosenweig, Cynthia and F.N. Tubiello. 2006. "Developing Climate Change Impacts and Adaptation Metrics for Agriculture," Produced for the Global Forum on Sustainable Development on the Economic Benefits of Climate Change Policies.

9 ICLEI USA: Local Governments for Sustainability. "Five Milestones for Climate Adaptation." May 11, 2009. <http://www.icleiusa.org/programs/climate/Climate_Adaptation/five-milestonesfor-climate-adaptation>.

10 Peterson, Garry, et al. "Uncertainty, Climate Change and Adaptive Management." *Ecology and Society* 4(2).□

11 Hoglund, Mike. Personal interview. 28 May 2009.

Metrics and Monitoring Appendix

Selected Indicators

Benthic Index of Biological Integrity: Dr. James Karr of the University Of Washington has developed a Benthic Index of Biological Integrity which uses the presence and absence of different benthic macroinvertebrate taxa as well as other biological attributes to ascertain the biological integrity of water bodies. Dr. Karr contends that a biological measure of waterways provides a more comprehensive assessment of human influence on aquatic systems than the chemical tests commonly used for monitoring under the Clean Water Act. Given the significant proportion of biodiversity in riparian and wetland areas, utilizing this metric provides greater understanding of overall watershed health.

Percentage of canopy cover: Urban canopy cover plays a critical role in promoting improved urban environmental conditions. Urban forests improve water quality, air quality and in some cases contribute to civic engagement through planting events. Furthermore, the loss of trees in urban areas has a deleterious effect on climate, biodiversity, and hydrology. Examples of this include increases in surface temperature, loss of species, and increased flooding.

Waste generation per capita: Monitoring the per capita waste generation of the region provides a wealth of information including consumption and recycling trends. Landfills are also a significant source of methane, a greenhouse gas that is twenty times stronger than carbon dioxide in terms of its heat trapping properties.

Energy use per capita: This indicator illustrates the success of energy efficiency measures as well as determining the type of energy used. Given the different GHG contributions associated with different energy sources, this indicator is critical in determining trends towards addressing climate change.

GHG emissions: These measures provide a specific focus on five prolific GHG's: CO₂, N₂O, CH₄, HFC, PFC, SF₆. It is important to establish emissions measures of gases with different climate effects into a common scale with appropriate weights for the climate change potential of each gas. Since the metro region is home to a number of semiconductor and chip manufacturers there is a relatively large amount of less common GHG's like SF₆ emitted in the area.

Ecosystem services models: CITYgreen and UFORE are models that use scientific-based analysis of the impacts of climate change on urban forests. They both incorporate the GIS application software that aggregates data to create an inventory and benefit analysis of urban forests. It computes economic benefits of tree cover resulting from stormwater runoff reduction, air pollution mitigation, and energy savings as well as models depicting alternative future scenarios. Data used in these models are easily obtained by land cover data, satellite imagery and vegetation sampling.

Rate and direction of growth: Is urban growth moving toward or away from Regional and Town Centers? A threshold rate for growth can be established in and around the centers. Use measurement of changes in employment, residential, commercial, and mixed-use forms of development to evaluate Functional Plans and public engagement on necessary adjustments to plans.

Housing affordability metrics: Use the ratios of median housing price to median income, median rent to median income, the fair housing wage (monthly wage needed to afford a 2-BR apartment at fair market rent), and percentage of households at or below 80% median family income.

Cost-burdened population: Continue to measure housing and transportation cost-burdened households.

Pedestrian and bike quality index: Measure changes in sidewalk and intersection improvements. Track Metro's plan for a 950-mile regional trail network, covering 30 cities and four counties. Today, the network is 30% complete.

Transportation: A per capita daily vehicle miles traveled figure will show if Portland drivers continue to drive less than drivers in other U.S. cities, and if its local street networks are growing stronger. Daily VMT per person for the Portland metro statistical area in 2003 was at roughly the same level as 1988, and it experienced a decrease in six out of 10 years from 1993-2003, using data from the Texas Transportation Institute. Total vehicle miles traveled should also be tracked to factor into a sustainability index. To address assumptions of the VMT model, fuel usage should be tracked.

Industrial and manufacturing land: Portland has no suitable land parcels that do not require massive spending on environmental cleanup. Attractive firms in emerging green and sustainable industries that require sites for 200,000 sq. ft. or larger facilities are locating elsewhere, and the Portland region aspires to be a global leader. Tracking Portland's performance against other competitive regions, as Greenlight Greater Portland does, is recommended to ensure our region is attracting investment.

Social Caring Capacity: As Timothy Beatley wrote in the 1995 Future Vision, "Social sustainability generally encompasses efforts at promoting diversity in a community, facilitating engagement by all groups and sectors, assessing the social impacts of projects and initiatives, overcoming economic and other inequities, and addressing the special needs of certain groups in the community, notably

the young and old.” Beatley cited the city of Richmond, B.C.’s Social Caring Capacity criteria and indicators. There is a wealth of key measurements here for Metro to consider in its core role of promoting livability and quality of life, including how healthy citizens are. Health is one of the best top-level indicators of quality of life.

Looking in the Crystal Ball

Technology advances in the future will allow more data to become available. Here are a few metrics that could be feasible.

Zoned capacity density metric: Continue improving data and research related to zoned capacity to allow for greater analysis of underbuilding, how it relates to planned or zoned densities, progress made toward meeting capacity calculations and evaluation of the best policies for achieving desired densities.

Equity of transportation metrics: With more digital data becoming available in the future with congestion pricing and other advances, a wealth of data will become easier to gather and analyze. Average distances, times, and mode splits for trips, for example. This data will reveal how people travel to work, school, daycare, recreational facilities, shopping and services and it can be put in the context of major system indicators. An equity indicator could then be created, perhaps showing average commute metrics by income and other socioeconomic demographics. This would show if the congestion pricing or other taxes are regressive, or if the benefits of the region’s development patterns are equally distributed.

Percent of dollars spent locally: Point-of-purchase marketing data holds truly amazing data, although it also comes with a huge price tag.

Ecosystem services: Incorporating these concepts into measurements of well-being, such as use of urban agriculture to supplement food budget

Works Cited:

American Forests: City Green. Accessed on: June, 6 2009
<<http://www.americanforests.org/productsandpubs/citygreen>>

Aronson and Charles (1993). The Social Caring Capacity of a Community: A Literature Review. UBC Task Force on Healthy Planning and Sustainable Communities, the University of British Columbia.

City of Portland Bureau of Planning and Sustainability. 2006. Signs of Sustainability Project. Accessed online May 8, 2009 at: <http://www.portlandonline.com/osd/index.cfm?c=42708&>

Nowak, David and D.E. Crane. David J. Nowak and Daniel E. Crane. The Urban Forest Effects (UFORE) Model: Quantifying Urban Forest Structure and Functions
http://www.ufore.org/about/files/NowakCrane_UFORE.pdf

Olson, Danna H. et al. 2007. Biodiversity management approaches for stream–riparian areas: Perspectives for Pacific Northwest headwater forests, microclimates, and amphibians. *Forest Ecology and Management*, Vol. 246, 81-107.

Pauleit, S., Ennos, R. and Golding, Y. (2005). Modeling the environmental impacts of urban land use and land cover change - a study in Merseyside, UK. *Landscape and Urban Planning*, 71(2-4), 295-310.

Seattle's 1994 Comprehensive Plan, Towards a Sustainable Seattle. Retrieved URL on 5/3/09.

United States Environmental Protection Agency – Methane. Accessed online May 27, 2009 at: <http://www.epa.gov/methane/>.

VIII. Public Participation

Executive Summary of Recommendations

This report provides a detailed Future Vision public participation methodology based on the utilization of previous visioning efforts, but flexible enough to respond to changing data needs. Without knowing the breadth and depth of information revealed through previous processes, we believe that our methodology flowchart provides the most efficient and precise course of action. Still, there are many best practices that we recommend Metro employ regardless of what information proves valuable from previous efforts:

- Articulate a clear function for the feedback that you will receive for the Future Vision. Participant expectations and level of engagement will be directly affected by this clear articulation.
- While the Internet provides an inexpensive, powerful, and often simple-to-use tool for public engagement, it may fail to engage a large portion of the population and should not be relied upon as the sole method of outreach.
- Televisions and newspaper announcements will better engage rural and minority communities than the internet-based surveys. Telephone banks have proven effective in soliciting participation from these communities as well.
- When possible, select canvassers, telephone bank workers, survey administrators, and meeting facilitators from the very communities being targeted.

Introduction

In *Reframing Public Participation: Strategies for the 21st Century*, Innes and Booher^{xiv} identify five purposes for public participation, each relating to the Future Vision:

- To identify public preferences so that they may shape decisions
- To improve decisions by including local knowledge
- To advance fairness and justice
- To gain legitimacy for public decisions
- To satisfy legal requirements for public participation.

In the development of the Future Vision, Metro faces the challenge of accurately reflecting the values and goals of a large and diverse population, while collecting this information in a way that respects the extremely limited budget available for this task and the investment of participants' time and energy.

We recommend a strategic approach that utilizes recent and ongoing broad planning efforts as data resources to directly inform Future Vision and as tools to identify gaps in existing data. Once planners identify additional data needs, targeted research, with special attention toward groups often

marginalized in planning processes, can address gaps in existing data. Throughout this process, new input will be solicited for targeted data needs and for the Future Vision topics more generally through a web-based survey.

Review of Earlier Planning Processes

Recent long-term visioning efforts such as the Big Look, Vision PDX, the Damascus-Boring Concept Plan, and the Pleasant Valley Concept Plan provide valuable lessons for planners developing a public participation process for Future Vision. The data collected in each of these initiatives may be relevant for the current undertaking. This examination will also ensure that the Future Vision public participation process benefits from lessons learned in these earlier initiatives. After a brief review of previous efforts, a recommended plan of action for Future Vision will follow.

The Big Look

The Big Look Task Force was created in 2005 to evaluate Oregon's land use planning program and make recommendations for future improvements; the Task's Force recommendations and final report were submitted to the State Legislature in 2009. The Task Force took a multi-pronged public input approach:

Town Hall Meetings

1,440 Oregonians attended one of ten town hall meetings, at which they were presented with the major topic areas, issues for discussion, and potential policy changes. Participants were given the opportunity to complete a public opinion survey and provided with time to offer general comments and testimony.

Statewide Public Opinion Survey

The survey available at town hall meetings was also posted online in order to reach a larger number of Oregonians. In total, approximately 1,800 surveys were collected, either from participants at town hall meetings or from online respondents; these surveys represent individuals who self-selected to participate. For sake of comparison, as well as to ensure a more representative sample, the Big Look Task Force conducted a targeted survey of 842 Oregonians identified via the Internet because of their "collective representation of Oregon's citizenry."^{xv}

Marketing Efforts

To support its public engagement efforts, the Big Look Task Force utilized a number of marketing and education efforts including (i) The Big Look Video; (ii) Meetings in a Box; (iii) the Big Look Newspaper Insert; and (iv) numerous press releases and a press packet.

While the Task Force committed a great deal of time and money for public engagement, the effort to measure and meaningfully use public opinion relied almost entirely on the results of the public opinion survey. This strategy was problematic because the survey instrument itself was flawed: questions were not exhaustive or mutually exclusive, and moreover, several were double-barreled.^{xvi} Respondents expressed frustration at being forced into artificial dichotomies – some expressed concern that the Task Force was not interested in the public's opinion but was using the survey as a means to "rubber stamp" its own positions.

Vision PDX

Vision PDX was launched in 2005 and invited Portland residents to “develop a shared vision for our community for the next 20 years and beyond.” Through this planning effort, the largest public engagement process for the City, input from over 17,000 city residents was received over the course of two years. A major goal of this process was inclusion of all residents and a concerted effort was made to ensure that all Portlanders had an opportunity to have their voice heard. In 2008, the final report for VisionPDX was released—*Portland 2030: A vision for the future*.

Engagement activities for Vision PDX are outlined in the *Engagement Report*^{xvii}. This report includes both engagement strategies and lessons learned, including barriers to public participation and approaches to overcome barriers. Engagement activities included:

Stakeholder Interviews

Interviews with non-profit groups identified best forms of engagement for their constituents as well as outreach opportunities with their organizations.

Survey

Available in several languages and online, this survey included four open-ended questions to provide flexibility in responses:

- What do you value most about Portland and why?
- What changes would you most like to see in Portland right now?
- Imagine Portland 20 years in the future and all your hopes for the city have been realized. What is different? How is our city a better place?
- As you imagine the Portland you’ve just described, what are the most important?

Grants

\$250,000 was awarded to 29 non-profit and neighborhood community outreach programs. Goals of the grant included reaching people throughout the city, reaching out to diverse populations, and the use of creative engagement strategies. Grant activities included: focus group/small group discussions, one-on-one interviews, performance, interactive kiosks, instant communi-tea, and multimedia projects.

Damascus-Boring Concept Plan^{xviii}

The Public Participation component of the Damascus-Boring Concept Plan was developed with the help of a Public Involvement Workgroup of citizens. The project utilized a website with descriptions of the projects and meeting minutes, newsletters, and community forums. Public participation was broken into five major steps:

- Identify the core values of the community,
- Review background information,
- Develop land use alternatives,
- Select the best distinguishing features, and

- Finalize the concept plan.

Core value identification was done by a 45-member Steering Committee with input from citizens; two community forums were held to facilitate this input. The information review included one community forum; the alternative development stage included over a dozen focus group meetings, three community open houses, two community forums, and a seven-day workshop. To select the best features, planners held six focus group meetings with “developers, agricultural interests, and citizen and community organizations.” The final step in the process culminated in a community forum and two open Advisory Committee meetings.

Forums were advertised in local papers and through postcards and newsletters mailed to property owners in the affected area. Although hundreds participated in the community forums, with over 700 at the final forum, the public participation process was flawed. Comments from the public forums indicate much frustration around the Concept Plan process, and public forums were not well timed to allow decision makers to take public feedback into account.^{xix}

Pleasant Valley Concept Plan^{xx}

During the Pleasant Valley Concept Plan process, planners held seven community forums, one of which was a weeklong design charrette. The forums were one piece of a public participation strategy that included: stakeholder interviews, a steering committee, an advisory group, a mailing list, newsletters, early notice flyers, a frequently asked questions (FAQ) document, press releases, a Power Point presentation, speaking engagements, and a website.

The forums were held in school cafeterias, and each forum began with an open house period for participants to review provided materials and maps. The second part of the forums often consisted of presentations by planning staff or elected officials. Each forum ended with small group work that gave participants the opportunity to comment on topic areas, evaluate proposals, and fill out survey or questionnaires. Participants also had access to staff to ask questions throughout the forums.

The planning process for Pleasant Valley was evaluated by Portland State University Professors Sy Adler and Connie Ozawa. They noted that the process was “impressive,” “highly interactive,” and was designed to “take full advantage of local knowledge.”^{xxi} They also commented on the timing of the forums and events, which occurred before major decisions by the Steering Committee. This timing allowed the Steering Committee to take public input into consideration and showed participants that their investment in the process was integral. Adler and Ozawa posit that the consistent attendance during the process indicates participant satisfaction and that planners’ strategies for outreach were successful.

In 2002, the planning agencies involved won the American Planning Association Oregon Chapter’s Professional Achievement in Planning Award, which is awarded for outstanding planning efforts.

Lessons Learned from Previous Efforts

Several lessons for Future Visioning efforts emerged from previous processes. One important general lesson from all of the previous efforts is to know precisely what information is needed from participants prior to engaging in any public participation process. Focus efforts on soliciting that

specific information and engaging the public in a way that truly informs the project. In addition, three other key lessons emerged:

Instrument quality is critical

After identifying what information is needed, carefully craft the instrument and pretest it. Using a poorly designed instrument risks wasting participants' time. The Big Look Survey was poorly crafted, leading to public frustration with the process and feelings of mistrust, as participants were forced into answer choices that did not allow them to represent their true values. Some individuals attending the public meetings were so frustrated with the poor survey instrument that they turned in blank surveys. By using a flawed survey, planners wasted important resources: public goodwill as well as staff and participant time and energy.

Engaging in multiple approaches is best

In order to capture the broadest swath of information, multiple engagement approaches are best. While Internet surveys can cheaply reach individuals everywhere, certain groups are more or less likely to participate in this way; this can be said of any type of participation process. By engaging in multiple approaches (i.e., internet survey, town meetings, focus groups, etc.), researchers are better able to capture a more complete picture of the community's opinions.

To keep costs down, it makes sense to engage in a two-phase approach to participation. First, begin with cheaper, internet-based methods, exploiting these as much as appropriate. The preliminary results from these efforts can be used to identify community representation gaps in responses. Once these groups have been identified, they can be targeted in phase two using more focused and expensive procedures (i.e., town hall meetings, focus groups).

Timing is crucial for keeping citizens engaged

The Pleasant Valley Concept Plan illustrates the importance of timing. If public engagement occurs too early in the visioning process, participants have a difficult time discerning how their input matters. By contrast, if engagement occurs too late, participants may feel that major decisions have already been made and their participation is not truly valued.

Future Vision Public Participation Recommended Plan of Action

Before any research is conducted, planners should identify precisely what information they are seeking and who (i.e., community leaders, ethnic minorities, youth, particular geographic region etc.) must be included in the sample for validity purposes. This pre-research phase should represent a large investment of time from the planners, because it sets the framework for the entire public participation process.

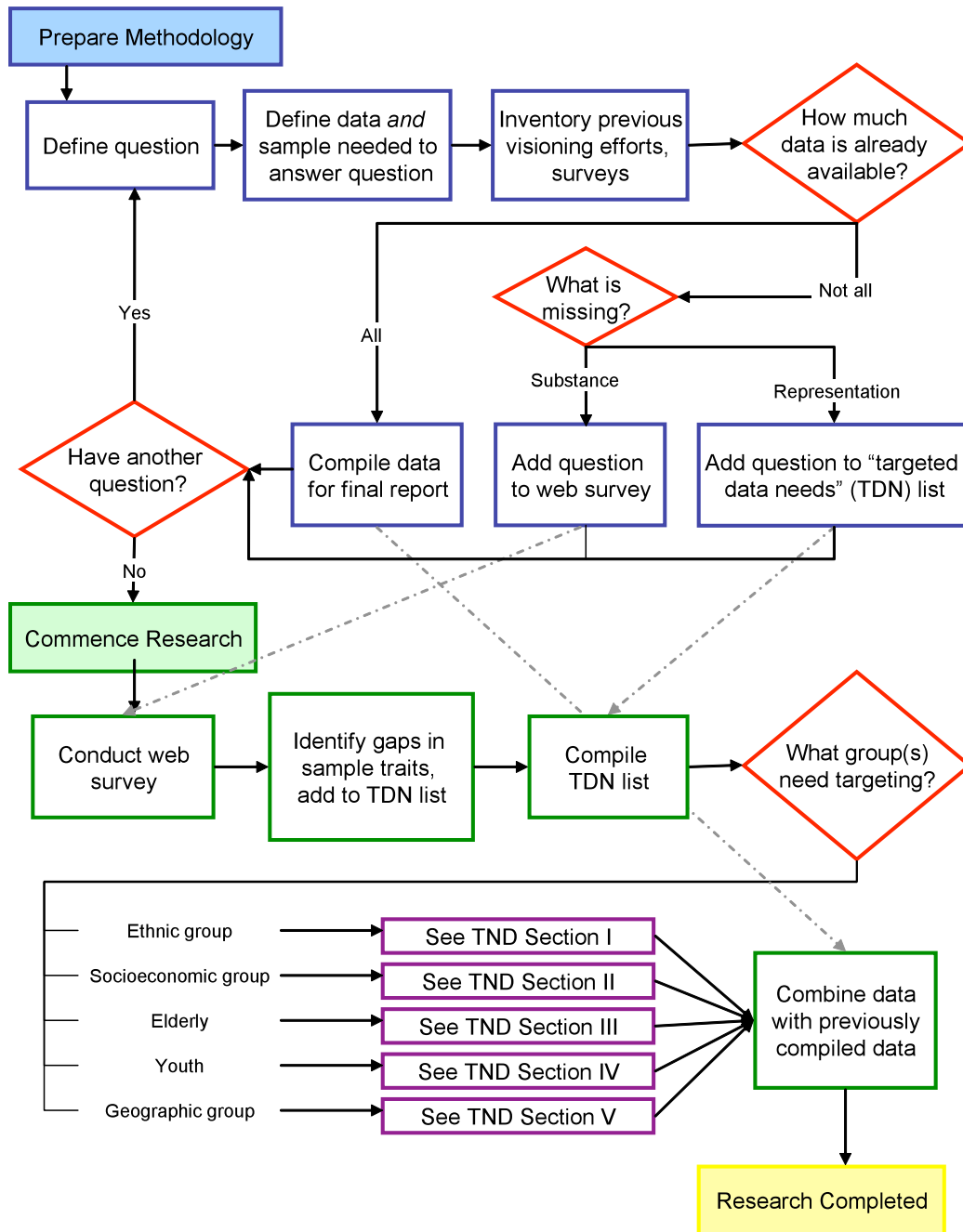
Once planners know their data needs, they can begin preparing a methodology to satisfy those needs. Because funding for this project is limited, this stage begins with a review of recent visioning efforts to catalogue information that is already available, helping to identify substantive data needs and gaps in sample representation. By doing this, planners will not only avoid duplicating efforts, they will automatically bring past public engagement participants into the Future Vision process. In turn, the use of past information should create goodwill with the community as past participants are made to feel that their input was, and continues to be, important.

To begin, planners should define a question surrounding a particular piece of information they want and identify what data and sample will be needed to adequately answer that question. After an inventory of data from previous visioning efforts, planners will find that they already have all of the needed data or that some is missing. If all of the data is present, it should be compiled and set aside for later analysis. If data is missing, it will either be substantive and/or representational. If the data missing is substantive, the question should be added to the list of questions to be formulated into an Internet survey. If substantive information is present but representation is lacking, this question should be added to the Targeted Data Needs (TDN) list, accompanied by details about underrepresented groups. This process should be iterated until the planner has no further questions.

Once data needs have been solidified, planners may commence with the public engagement process. A web survey should be carefully crafted, vetted, and pre-tested prior to being posted online. After a pre-determined amount of time, demographic information from preliminary results can be used to identify sample representation gaps. These questions and information about underrepresented groups should be added to the TDN list.

Once the TDN list has been completed, planners can commence the more targeted, small-scale engagement of specific groups (i.e., utilizing multiple approaches to maximize engagement) as described in the following sections. When this is complete, all information can be compiled into a final report in a timely manner, close to but sufficiently before major decision-making occurs.

FUTURE VISION PUBLIC PARTICIPATION PLAN FLOWCHART



Targeted Data Needs

This section discusses strategies for targeting the participation of groups frequently unrepresented in planning processes. This is by no means an exhaustive list of underrepresented groups. The process outlined in the above flowchart may reveal additional areas requiring targeted research; some of the techniques outlined below may be appropriate for use in those areas, while other areas may require additional research.

Section I: Minority & Non-English Speaking Stakeholders

The population of minority and non-English speaking residents is projected to increase throughout the Pacific Northwest, including the Portland region. In order to develop a Future Vision that accurately reflects the values and goals of these groups, Metro must develop a targeted approach that surmounts language and cultural barriers to participation in planning by recognizing and responding to divergent social and cultural needs.

Recommendations^{xxii,xxiii}:

- Plan materials should be available in multiple languages. Interpretation services should be available at public meeting events.
- Language skills alone are not sufficient to engage in multicultural planning. Planners should also develop cultural competency. Doing so will provide them with a better understanding cultural norms and communication styles of their constituents and allow them to create engagement processes that respect diverse needs.
- In an Irvine Foundation report^{xxiv}, canvassers from the local community had the most success, especially in neighborhoods where the community was mostly homogenous. In communities where many languages might be spoken, and particularly in Asian-American communities, telephone banks provide an easier way to engage respondents one on one in the language of their choice.
- Hispanics in America, designed to support future get-out-the-vote drives, indicates that over 70% of respondents watch television news everyday or most days. Only 25% of respondents read a daily newspaper everyday or most days, though, so outreach conducted through television spots is more likely to be seen by a greater number of Hispanics.^{xxv}
- Hold meetings in areas that are heavily used by the community. Religious centers such as churches are frequently social centers as well and may serve as an ideal avenue for engagement.
- Identify and engage community leaders who can provide insight on targeted public participation efforts as well as act as cultural ambassadors for the planning process.

Section II: Elderly Stakeholders

As the elderly make up an increasingly large proportion of the population, it will be critical to solicit their input in guiding the area's future. Because many members of the elderly population are not employed fulltime, limits on their participation often come from transportation or outreach barriers rather than time barriers.

Recommendations^{xxvi}:

- Establish credit or voucher programs to help pay for the cost of transportation for seniors who participate.
- Emphasize the physical and mental health benefits of civic engagement, and promote the notion of seniors as being valuable resources in the Future Vision effort.
- Involve the aging population through groups such as AARP, Elders in Action, and community senior centers.
- Do not rely solely on Internet tools when engaging this group.
- Eyesight and the ability to read small font deteriorates with age. When using printed media, consider a font size greater than the standard 12 point that those with poor eyesight can read.

Section III: Young Stakeholders

Youth are an often-overlooked stakeholder in planning processes. Despite what may be perceived as a lack of “relevant” experience or naiveté, children and young adults can offer a planning process the advantage of a fresh perspective and new insight. In return, their participation can foster a lifetime of civic engagement as they take action to shape their environments. As the ultimate beneficiary of a visioning document that extends into their early retirement years, today’s youth should be given an opportunity to articulate their visions for the region in the year 2060.

Recommendations^{xxvii,xxviii}:

- Engage via the educational system

Schools offer an efficient and convenient method of outreach to the youth populations. Collecting input can involve a variety of methods, many of them creative, such as essay writing and art competitions that ask students directly how they envision the region to look and function in 50 years. Input can be solicited through incorporation into curriculum, such as a class project that documents the interests and values of the youth in a single classroom, school, or neighborhood, while offering real-world exposure to themes like participatory democracy and social justice. Opportunities to participate should also be made available for home-schooled children and children with special needs.

- Engagement via youth-oriented non-profit/not-for-profit organizations

Youth-oriented non-profit organizations such as Girl/Boy Scouts, Teen Centers, Boys & Girls Club provide convenient access to young stakeholders. Activities can mirror those in schools but can also benefit from more creative and unconventional approaches, such as providing youth access to cameras to engage in photovoice research.

- Engagement via formal committee

The formation of a committee composed entirely of young adult representatives that report to plan staff or the decision-making body provides an opportunity to directly inform the plan. It also provides an opportunity to engage youth over a longer period of time.

- Engagement via social networking

Social networking technologies, such as MySpace, Facebook, and Twitter, are cost-effective and convenient methods of distributing information to the public (particularly youth and young adults) that offer several advantages over traditional media. Metro can use these services to provide real-time updates, action alerts, photos or other media, and to generate discussions related to the Future Vision. Anyone with an email address can sign up for MySpace, Facebook, or Twitter and add Metro to their network to receive information and participate in discussions via personal computers or mobile phones. With each new person who “follows” or “subscribes” to Metro’s social network, Metro’s visibility grows exponentially by also becoming visible or available to the new subscriber’s network.

Increasingly, educational institutions^{xxxix} and government agencies have begun using social networking technologies to engage the public. Recently, the Federal Government Services Administration signed service agreements with several social networking services formally establishing ways for government agencies to use these resources without violating federal regulations^{xxx}. In addition to the ability to subscribe to agency information updates, the extra web presence provided through social networking sites allows users to quickly access relevant information without having to redirect and search through an agency’s official website.

While these technologies allow the easy distribution of information, it is important that agencies establish policies for using these resources conservatively and strategically, so as not to overload subscribers with non-essential information. Agencies should also establish expectations for frequency of updates and response times for public inquiries made using social networking technologies. While social networking technologies are inexpensive relative to traditional media communications, agencies considering their use must ensure that adequate resources are dedicated for on-going updates, security, maintenance, and management of these resources. Additional inexpensive internet-based technologies that may be used for information dissemination and public engagement include podcasts, personalized e-cards, widgets, and RSS (also referred to as a “web feed”).

Effectively using social networking tools can provide an efficient way to engage participants in the Future Vision project, but the tools can also provide a rich source of informal feedback about the process and about Metro in general. By using compiled web feed searches, Metro staff can gather publicly available comments being made about Metro or about specific planning processes.^{xxxi}

Section IV: Low-Income Groups

Barriers to civic engagement that low-income populations experience are several and varied, but addressing these barriers will often benefit the engagement process for other communities as well. Time and resource constraints are often cited as the primary reason that low-income populations participate less in civic activities than other income groups.

Recommendations:

- Provide childcare at public participation events.
- If possible, provide a nutritious meal for participants and their children.
- Hold events or set up information tables near grocery stores, big-box chain stores, or other places where adults can be quickly engaged during their errands.
- Provide materials at social services agencies.
- Engage parents through materials sent home with schoolchildren.
- Do not rely solely on Internet and printed outreach; television spots and door-to-door flyers may be most effective.
- Offer public meetings at a time other than weekday evenings to accommodate those who do not work a traditional 9 a.m. – 5 p.m., Monday – Friday schedule.

Section V: Geographic Group

Geographically disparate and rural groups may be harder to reach through easily available channels, but with much of the previous visioning data drawn from urban or urbanizing areas, Future Vision planners will likely find this group severely underrepresented.

Recommendations:

- Meetings in rural areas should be held in natural gathering places, such as churches, schools, and public events and spaces.
- Establish a traveling “roadshow” at public events (e.g., County Fairs) and public spaces (e.g., Parks) to both market the Future Vision effort and take input efforts directly to targeted geographic areas.
- When an area’s population is too low-density for a meeting to be effective, a telephone bank can be used to reach out to geographically dispersed groups as well as individuals who may not have access to an Internet connection.

ⁱ City of Pullman. Chapter 4: Future Vision. City of Pullman Comprehensive Plan. City of Pullman, WA. 1999. Retrieved on May 6, 2009.

<http://www.pullman-wa.gov/DrawOnePage.aspx?PageID=239>

ⁱⁱ Ministry of Land, Infrastructure and Transport, local governments, & local business

communities. *Central Japan Vision, a Picture of the Future Chubu Region*. Ports and Airports in the Chubu Region of Japan. 2006. Retrieved on May 6, 2009.

<http://www.pa.cbr.mlit.go.jp/gyoumu/2006-e/03.html>

ⁱⁱⁱ Smith, Erik. "Using a Scenario Approach: From Business to Regional Futures." Engaging The Future: Forecasts, Scenarios, Plans, and Projects. Ed. Lewis D. Hopkins and Marissa A. Zapata. Cambridge, MA: Lincoln Institute of Land Policy, 2007. 79-103

^{iv} Avin, Uri. "Using Scenarios to Make Urban Plans." Engaging The Future: Forecasts, Scenarios, Plans, and Projects. Ed. Lewis D. Hopkins and Marissa A. Zapata. Cambridge, MA: Lincoln Institute of Land Policy, 2007. 103-135

^v Franchini, T. & Valverde, F. *Madrid Strategic Plan*. Madrid, Spain. 2004. Retrieved on May 9, 2009. http://www.isocarp.net/Data/case_studies/532.pdf

^{vi} Horizon Solutions. *Efficient Transportation for Successful Urban Planning in Curitiba*. Curitiba, Brazil. 2003. Retrieved on May 9, 2009. http://www.solutions-site.org/artman/publish/article_62.shtml

^{vii} GVRD. *Livable Region Strategic Plan*. Vancouver, Canada: Greater Vancouver Regional District. 1996. Retrieved on May 9, 2009. <http://www.wd.gc.ca/eng/10598.asp>

ⁱⁱⁱ Seasons, M. "Monitoring and Evaluation in Municipal Planning." Journal of the American Planning Association 69.4 (Autumn 2003): 430-441

^{iv} Sightline Institute. Retrieved online at: (<http://scorecard.sightline.org/>)

-
- ^v Pacific Estuarine Ecosystem Indicator Research Consortium. San Francisco Bay Index. Retrieved online at: (http://www.bml.ucdavis.edu/peeir/brochures/SFBay_Scorecard.pdf)
- ^{vi} Joint Venture: Silicon Valley Network. The Index of Silicon Valley. Retrieved online at: (<http://www.jointventure.org/aboutus/overview.html>)
- ^{vii} Holling, C. S. "The resilience of terrestrial ecosystems: local surprise and global change." Sustainable development of the biosphere. Eds. W. C. Clark and R. E. Munn. Cambridge University Press: Cambridge, UK, 1986. 292-317. Retrieved online at: (<http://www.ecologyandsociety.org/vol14/iss1/art15/figure1.html>)
- ^{viii} Gunderson, Lance H. and C.S. Holling. "Resilience and Adaptive Cycles," Panarchy: Understanding Transformations in Human and Natural Systems. Eds. Lance H. Gunderson and C.S. Holling. Island Press: Washington D.C., USA. 2002. 25-62.
- ^{ix} "Biological Integrity and Benthic Index of Biological Integrity." University of Washington School of Aquatic and Fisheries Science: Columbia Basin Research. 2002. 8 May 2009 <<http://www.cbr.washington.edu/salmonweb/bibi/biomonitor.html>>.
- ^x Rosenweig, Cynthia and F.N. Tubiello. 2006. "Developing Climate Change Impacts and Adaptation Metrics for Agriculture," Produced for the Global Forum on Sustainable Development on the Economic Benefits of Climate Change Policies.
- ^{xi} ICLEI USA: Local Governments for Sustainability. "Five Milestones for Climate Adaptation." May 11, 2009. <http://www.icleiusa.org/programs/climate/Climate_Adaptation/five-milestones-for-climate-adaptation>.
- ^{xii} Peterson, Garry, et al. "Uncertainty, Climate Change and Adaptive Management." *Ecology and Society* 4(2).
- ^{xiii} Hoglund, Mike. Personal interview. 28 May 2009.
- ^{xiv} Innes, Judith; Booher, David. "Reframing Public Participation: Strategies for the 21st Century." *Planning Theory and Practice* 5(2004): 419-436.
- ^{xv} The Big Look Task Force on Oregon Land Use and Planning. 2009. Oregon Task Force on Land Use Planning. 10 May 2009 <<http://www.oregonbiglook.org>>.
- ^{xvi} Fowler, F. J. Improving survey questions: Design and evaluation. Thousand Oaks, CA: Sage, 1995
- ^{xvii} Balajee, Sonia, Amanda Rhoads, and Stephanie Stephens. "VisionPDX Community Engagement Report." VisionPDX. 2009. City of Portland. 31 May 2009 <http://www.visionpdx.com/reading/engagement_report.php>.

-
- ^{xviii} Damascus/Boring Concept Plan. 2005. Clackamas County. 10 May 2009
<<http://www.clackamas.us/transportation/damascus/>>
- ^{xix} Ozawa, Connie. "Improving Land Use Planning through Consensus Building Techniques: A review of a case in Clackamas County, Oregon." Oregon Consensus. Unpublished report. Portland, OR: Portland State University, July 2008.
- ^{xx} "Pleasant Valley Concept Plan Materials." City of Gresham. CD_ROM. Gresham, OR: City of Gresham, 2009.
- ^{xxi} Adler, Sy, and Connie Ozawa. "Pleasant Valley Concept Plan: Project Evaluation." Portland: Metro, 2002.
- ^{xxii} Burayidi, Michael. "The Multicultural City as Planners' Enigma." Planning Theory and Practice 3(2003): 259–273.
- ^{xxiii} Qadeer, Mohammad A. "Pluralistic Planning for Multicultural Cities." Journal of the American Planning Association 63(1997): 481.
- ^{xxiv} Michelson, Melissa, Lisa Bodella, and Donald Green. "New Experiments in Minority Voter Mobilization." California Democracy. 2008. The James Irvine Foundation. 5 May 2009
<http://www.irvine.org/assets/pdf/pubs/evaluation/CA_VoteII_report_08Sep09.pdf>
- ^{xxv} Hispanics in America. 2009. Pew Charitable Trusts. 20 May 2009.
<http://www.pewtrusts.org/our_work_detail.aspx?id=226>
- ^{xxvi} Gerontological Society of America. "Civic Engagement in an Older America." Civic Engagement in Older America. 2007. National Academy on an Aging Society. 5 May 2009
<<http://www.agingsociety.org/agingsociety/Pages%20from%20Geron-NLSept05.pdf>>
- ^{xxvii} Bierbaum, Ariel H; McKoy, Deborah. "Y-PLAN: A Tool for Engaging Youth and Schools in Planning for the Future of Their Communities." IMPACT: 2(2008) Web. 31 May 2009. <<http://www.impacturbanyouth.org/node/39>>.
- ^{xxviii} Driskell, David. Creating Better Communities with Children and Youth: A Manual for Participation. London, United Kingdom: Earthscan Publications Ltd., 2002. Digital.
- ^{xxix} Perez, Erika. "Professors Experiment with Twitter as a Teaching Tool." Milwaukee Journal-Sentinel: Education. 26 April 2009. Milwaukee Journal-Sentinel. 30 April 2009
<http://www.jsonline.com/news/education/43747152.html>.

^{xxx} Nagesh, Gautham. “GSA Signs Facebook Agreement.” NextGov. 2 June 2009. University of Wisconsin, Board of Regents. 4 Jan. 2000 <http://techinsider.nextgov.com/2009/04/ghsa_signs_agreement_with_faceb.php>.

^{xxxi} Brogan, Chris. “Grow Bigger Ears in 10 Minutes.” Chris Brogan. 28 January 2009. Chris Brogan. 30 April 2009 <<http://www.chrisbrogan.com/grow-bigger-ears-in-10-minutes/>>.