

Sustainable Land Use Policy Options for the City of Lake Oswego

Jessica Sarver

Field Area Paper
Master of Urban and Regional Planning Candidate
Portland State University

Readers:
Connie Ozawa, Ph.D
Barry Messer, Ph.D

December 2008

Abstract

This paper discusses ecologically and environmentally-focused sustainable land use policies and implementation methods for consideration by the City of Lake Oswego as it moves forward with various planning initiatives over the next few years. The rationale for why local governments should adopt land use policies and regulations to encourage and/or require sustainable development is discussed and the current state of sustainable policies and regulations in the City's development codes, including existing barriers and opportunities, are described. Specific examples of sustainable land use policies and regulations that could be applied by the current planning, building, and engineering divisions are provided, including a discussion of expected challenges to the policies and regulations. The paper concludes with recommendations for next steps.

Table of Contents

Introduction.....4
Rationale for Sustainable Land Use Policies at the Local Level6
 What Other Local Governments are doing8
 Sustainable Land Use Policies Defined12
Current Status of Sustainable Land Use Policies in the City of Lake Oswego14
 Overview of Barriers and Constraints16
 Opportunities to Address Sustainable Land Use20
Sustainable Land Use Policy Options.....21
Expected Challenges27
Conclusion29
REFERENCES32

Sustainable Land Use Policy Options
for the City of Lake Oswego

Over the past two decades, widespread concern about the sustainability of our contemporary lifestyles and development patterns has been steadily mounting. More and more citizens and elected officials are becoming aware of the negative impacts that our current development patterns and practices have on both a local (e.g. sprawl, automobile dependence) and worldwide (e.g. global warming) scale and are looking to all levels of government for solutions.

Local governments are especially critical to the success of the sustainability movement because they have the tools at their disposal to directly guide and regulate development as well as the ability to implement sustainable practices in a manner that is suitable to the geographical and cultural characteristics of the locality. Increasingly, local governments are committing themselves to building, growing, and operating green by enacting ordinances and/or establishing compulsory or voluntary initiatives to encourage sustainable development and land use. Cities with exemplary sustainability initiatives include Seattle, WA, Portland, OR, and Santa Monica, CA. However, there are numerous examples of local municipalities of all sizes that have incorporated sustainable land use and development practices to varying degrees.

The City of Lake Oswego has adopted ordinances and various regulations over the years that promote aspects of sustainability, including a tree ordinance, solar ordinance, and development and design standards that encourage pedestrian-oriented development and good design, but until recently, has not attempted to address sustainability in a comprehensive manner.

As a result, the few sustainable land use standards that do exist in city codes address only a part of the problem and in some cases conflict with other City standards.

Starting in 2002, the City Council began adopting sustainability goals in its goal-setting sessions, which eventually led to the creation and implementation of a sustainability plan to guide City operations and the recent appointment of a Sustainability Advisory Board to promote sustainability community-wide. While these accomplishments are big steps toward making Lake Oswego a more sustainable city, there is an even greater opportunity to address sustainability on a more comprehensive, city-wide basis; over the next few years, the City plans to develop a community sustainability plan, will undergo periodic review to update its comprehensive plan, which could include a community visioning process, and will be updating various master plans. This is a critical opportunity to comprehensively integrate sustainability in city planning and to incorporate sustainability as a major factor in decision-making for all city departments.

The purpose of this paper is to present a range of sustainable land use policies and regulatory or incentive-based approaches for consideration by the City of Lake Oswego as it moves forward with its various planning initiatives. While the need for the City to address sustainability in all aspects (social, environmental, and economical facets) and across all departments is emphasized, the scope of this paper will be limited to ecologically and/or environmentally sensitive land use practices that are administered by the development review, or “current” land use planning, building, and engineering divisions. I will begin by discussing why local governments should adopt land use policies and regulations to encourage and/or require sustainable development; next I will describe the current state of sustainable policies and regulations in the City’s development codes, including existing barriers and opportunities; then I will describe sustainable land use policies and regulations that could be applied at the

development review stage, analyze expected opposition to the policies and regulations, and conclude with recommendations for next steps.

Rationale for Sustainable Land Use Policies at the Local Level

Local governments are critical to the success of sustainability initiatives because they have the tools to directly guide and/or control land development patterns and practices, which have an enormous direct and indirect impact on human health and well-being and the environment. The tools at local government's disposal are design standards, building and development codes, engineering standards, and permit approval processes; however, these tools are rarely examined under a sustainability lens. Instead, many cities approach sustainability in a piecemeal fashion, by adopting a tree ordinance or starting a recycling program; however, this only addresses symptoms of the larger problem. Cities must take a close look at the development they are actually permitting on a case-by-case basis in order to understand how their current practices are contributing to unsustainable development and land use patterns (Condon, 2008, p.26). Without this comprehensive evaluation and understanding of what is actually allowed by current codes, standards, and approval processes, local governments are simply adopting what Selman (1996) calls a "veneer of sustainability" (p.4).

For instance, larger-scale commercial, institutional, or multi-family developments are perceived as creating the greatest impacts and are often the most tightly regulated; but it is single-family residential development – particularly low density residential development – that occupies the majority of the land area and building floor areas of a typical city. While it is true that on a single project basis, larger-scale developments can have substantial environmental and

social impacts, these types of projects are quickly outpaced by the more prolific development of single-family homes, which cumulatively consume large amounts of land and water, waste energy, overload storm sewer systems, and utilize massive amounts of construction materials (Wenz, 2008, p. 13). It is therefore essential that local governments recognize the full impacts of all types of development, not just highly visible, large-scale projects.

Our land use and development practices affect nearly every aspect of our lives, from our health and well-being, to our social interactions and the quality of our air, land and water on both a local and global scale. Sprawling, low-density, single-use districts are a direct cause of our automobile-dependent lifestyle, forcing us to burn fossil fuels to go about our daily activities and necessitating the development of vast road systems and surface or structured parking lots to accommodate more and more cars (Farr, 2008, p. 23).

Our auto-dependent lifestyles and lack of adequate parks, green spaces, and pedestrian amenities also make us sedentary and disconnected from nature. Most of our time is spent indoors or in cars, which contributes to the fact that 30% of the U.S. population over the age of 20 is obese (Ibid, p. 19). Other evidence of our indoor lifestyles is that the average size of a single-family home has risen from 1,385 square feet to 2,140 square feet since 1970 even though household size has shrunk from 3.14 to 2.62 people (Ibid, p. 21).

Conventional building practices, regardless of how small or large the building is, require raw materials that are harvested in far away places and transported over great distances; large amounts of construction waste are generated and transported to landfills; runoff from buildings and associated impervious surfaces require connections to expensive storm water systems that drain to local waterways; and huge amounts of energy are expended to heat, cool, and light the buildings after construction. The result is that building materials account for 40% of the material

resources in the global economy today and buildings in the U.S. alone account for 10% of the entire global energy use even though the U.S. population accounts for only 5% of the world population (Eisenberg & Yost, 2001).

Local governments must come to terms with the fact that virtually all of the climate-changing, health-hazardous sprawl and unsustainable building practices that exist today have been authorized by or developed legally under existing local comprehensive plans, zoning, and building codes (Farr, 2008, p. 59). While efforts towards making our communities more sustainable will require solutions on federal, state and regional levels, local governments are best equipped to use the tools at their disposal to undertake the practical steps needed to achieve sustainability.

What other Local Governments are doing

Certain cities are cited over and over again in planning literature for their sustainability accomplishments. These are typically larger cities that have the resources and capabilities to try innovative solutions that are often too costly or risky for smaller municipalities to undertake. While these exemplary cities may be larger in size than the City of Lake Oswego, there is much to learn from their efforts, and the sustainable programs they have implemented can either be translated directly or easily adapted to cities of a smaller size.

The following cities were chosen as examples because their sustainability initiatives are comprehensive, based on widely accepted principles of sustainability, and have been in place for several years. A summary of each of these cities is discussed below to demonstrate the various approaches taken to launch their sustainability initiatives community-wide. Later on, I will discuss specific policies and regulations that these and other cities have adopted to guide and/or regulate sustainable land use and development.

City of Seattle, Wa. Seattle's comprehensive plan, *Toward a Sustainable Seattle*, was first adopted in 1994 and was most recently updated in 2005. It is a 20-year plan that includes goals and policies to help guide development toward a more sustainable future. The comprehensive plan covers broad policies, but provides a flexible framework for adapting to real life conditions over time in recognition that new ideas and innovations in sustainable development and planning will continue to emerge and that it is important to remain open and flexible to leading edge tools, models, strategies, and technologies that support the city in meeting its sustainability goals and policies (Seattle Office of Sustainability, n.d.).

In 1998, the City launched its *Environmental Management Program*, which provided an overarching framework to systematically reduce the environmental impacts of the City's operations. While several parts of this program are still in existence, the program was replaced by the *Environmental Action Agenda* in 2006, which goes beyond the City's operations to consider broader community sustainability issues. The action agenda is organized into four priority areas, as follows (City of Seattle, n.d.):

- Climate Protection Initiative: The goal is to reduce global warming pollution and improve air quality by focusing on Seattle's main climate pollutants, emphasizing solutions that reduce driving, increase fuel efficiency and use of biofuels, and reduce energy use in homes and businesses.
- Green Seattle Initiative: The goals are to restore the urban forest, increase open space and the greening of the built environment through public-private partnerships, adoption of an Urban Forest Management Plan, and open space impact fees.
- Restore Our Waters: Goal is to protect and improve water quality and aquatic habitat by adopting stronger regulations, providing grants for restoration, revising drainage

code to provide incentives for on-site stormwater management, and an update of the Shoreline Master Program.

- Healthy People & Communities: The goals are to create healthy, livable urban centers, promote sustainable practices, and improve environmental justice by strengthening the City's Green Building Program, adopting zoning changes to reduce sprawl, and providing information and education to inspire individual action.

The City's Office of Sustainability and the Environment oversees the implementation of the Environmental Action Agenda and is charged with the mission to accelerate environmentally sustainable practices by the City government and in the community at-large by collaborating with City departments, business partners, non-profit & community-based organizations, and learning institutions to develop and implement the Mayor's priority sustainability initiatives (Seattle Office of Sustainability, n.d.).

Santa Monica, CA. The City created the Office of Sustainability and the Environment (OSE) to "protect the environment and safeguard the public health to create a more sustainable future" (About OSE, 2008). OSE develops and implements programs to manage natural resources and promote conservation, and administers and enforces the City's environmental laws. OSE is also responsible for implementing the Sustainable City Plan and other significant policy initiatives to conserve energy and water, reduce toxics, and integrate sustainability into city operations.

The Santa Monica Sustainable City Plan was adopted in 1994 and revised in 2006, and includes goals and strategies for both City government and the community as a whole. The plan aims to conserve and enhance local resources, protect the health of both humans and the environment, maintain a healthy and diverse economy, and improve livability and quality of life.

The plan represents the community's vision of Santa Monica as a sustainable city and includes goal specific indicators to measure progress toward meeting the goals by 2010. The goals address resource conservation, environment and public health, transportation, economic development, open space and land use, housing, community education and civic participation, and human dignity (City of Santa Monica, 2006).

Portland, OR. Portland has been at the cutting edge of land use planning and green building for quite some time, but those efforts were not coordinated by a specific department until the City of Portland Office of Sustainable Development (OSD) was established in 2000. OSD was created by merging together the Solid Waste & Recycling Division and the Energy Office. Its mission is to “bring together community partners to promote a healthy and prosperous future for Portland. OSD advances improvements and innovation in reducing global warming emissions, energy efficiency and renewable energy, biofuels, waste reduction and recycling, sustainable economic development, sustainable food systems and green building practices” (City of Portland Office of Sustainable, n.d.).

A strategic plan for OSD was completed in 2004 to identify goals, core service areas, and to establish a unifying vision and set of values. The core programs and policies of OSD focus on solid waste, energy, greenhouse gases, and food systems; however, OSD works closely with other City agencies to complement and/or implement sustainability programs and activities for water efficiency, stormwater, jobs, equity, toxics, air quality, land use, contaminated land, parks/open spaces, and transportation. These City agencies include Portland Office of Transportation, Bureau of Environmental Services, and the Water Bureau. OSD also works with neighborhoods, businesses, and members of the building industry to provide education,

assistance, and training on sustainable practices, including green building, solar energy, sustainable food programs, recycling, and sustainable businesses (City of Portland, n.d.).

Sustainable Land Use Policies Defined

Because the focus of this paper is sustainability as it relates to ecologically and/or environmentally sensitive land use practices that are administered by the current planning, building, and engineering divisions, it is necessary to formulate a specific description/definition of what is meant by “sustainable land use policies” for the purposes of this paper in order to articulate the desired policy objectives.

The broadest and most widely-used definition of sustainability is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” as defined by the Brundtland Commission in 1987 (Roseland, 2005, p. 3). This definition is succinct, but too broad and open to interpretation to be practical. Roseland argues that most people view sustainability as simply environmental protection: “as a society, we point to a few things we think of as nature – some trees here, a pond there – draw a box around them, then try to ‘protect’ what’s within the box. Meanwhile, we ignore the fact that human activity *outside* that box – housing, economic development, transportation, and so on – has a far greater impact on the environment than do our ‘environmental’ policies” (2005, pp.3-4). Sustainable land use policies should aim not just to solve environmental problems, but to holistically consider all impacts of land use planning and to integrate humans and nature to their mutual benefit; the goal should not be to mitigate human impacts, but to design harmonious developments in the first place (Garvin, 2008, p. 63).

Over the past few decades, there have been several significant environmental reform movements related to land use and development that are sustainable in theory, but which have

been too inwardly focused to live up to it in practice. These reform movements include Smart Growth, New Urbanism, and Green Building. Smart Growth is a planning theory that promotes the concentration of growth in city centers to create attractive, compact, walkable, transit-oriented, and mixed-use neighborhoods. New Urbanism is an urban design movement that focuses on a traditional neighborhood structure that has a defined center and edge, interconnected street connectivity, contains a mix of uses and housing types, quality architecture, and that is walkable and provides a range of transit options. Green Building (LEED) is a design and construction practice promoting high performance buildings with environmentally sound site development, efficient use of water, energy, and materials, and a focus on indoor environmental quality. According to Farr, these reform movements are all based on sound principles that promote sustainability, but that they are too short-sighted and focused in on themselves to serve as a real long-term comprehensive solution (2008, pp. 28-29). Smart growth tends to have vague standards and its significance has been watered down by projects that call themselves smart growth, but that are only a minimal improvement over contemporary development (Ibid, p. 30). New Urbanism tends to be more project-focused and quite frequently results in the development of green fields in areas that are not supported by transit (Ibid, p. 35). Green Building also tends to be more narrowly focused on individual projects and lacks a larger perspective. The certification process emphasizes the building rather than the location and context of the site, and as of 2006, only 1,000 buildings have been LEED certified even though it is estimated that 150,000 buildings are constructed each year (Ibid, p. 36).

Farr believes that despite their shortcomings, these reform movements can be integrated into a design philosophy with a comprehensive approach to achieving real, long-term sustainability. He calls this integrated design philosophy “Sustainable Urbanism”. The attributes

of Sustainable Urbanism are defined neighborhoods, compact development, completeness (range of uses), integration of land use and transportation, connection of humans and nature, and high-performance buildings (2008, pp. 41-53).

Farr's integrated design philosophy is a more complete perspective on the ill effects of conventional land use policies: sprawl, auto-dependence, deterioration of human and natural environments, and wasteful development practices. As such, it provides an ideal basis for defining the desired policy objectives to be embodied by sustainable land use policies.

Adapting Farr's concept of Sustainable Urbanism, for the purposes of this paper, "sustainable land use policies" will be defined as policies that encourage land use patterns that are compact, pedestrian and transit-oriented, mixed-use, and interconnect humans and nature to their mutual benefit, and that promote high-performance buildings and infrastructure.

Current Status of Sustainable Land Use Policies in the City of Lake Oswego

The City of Lake Oswego is primarily a suburban community with typical growth and land use patterns that result from single-use, low density zoning. Most neighborhoods have homogenous land uses, are automobile dependent, have poor street connectivity, and have little or no access to transit; however, there are areas of the City platted at the turn of the century that boast higher densities, mixed uses, walkability, and access to transit. One such neighborhood is First Addition, which was named a Great Neighborhood by the American Planning Association in early 2008 for its character, livability, and positive community feeling (Hinshaw 2008).

Over the past few decades, incremental changes to the City's land use policies and regulations have been made to incorporate Smart Growth and New Urbanist principles in the

design of streets, sidewalks, and buildings, and several ordinances have been adopted that encourage infill development, preserve trees, protect sensitive lands, and require new lots to be oriented for solar access. These changes have encouraged better design, higher densities, and mixed land uses in certain districts and have resulted in the protection of trees, streams and wetlands city-wide. While the City has much to be proud of for these accomplishments, the existing sustainable land use policies and regulations only address part of the problem and are sporadic and uncoordinated.

The first official act to acknowledge that a more coordinated and comprehensive approach to sustainability was needed in the City of Lake Oswego occurred in 2002 when the City Council included the “adoption of sustainable practices” as a Council goal in its biennial goal-setting session. The Council included sustainability goals in subsequent goal-setting sessions; however, progress on meeting these goals was relatively slow due to a lack of an organized program and dedicated staff.

In 2006, a sustainability steering committee consisting of a broad cross-section of staff was appointed and charged with the tasks of evaluating the City’s current sustainability efforts, developing recommendations to improve these efforts, and establishing both short and long term procedures towards meeting the City’s sustainability goals. The result of the steering committee’s work was the City of Lake Oswego Sustainability Plan, which was adopted by the City Council in November of 2007. The plan focuses on City operations and outlines a sustainable City vision and guiding principles, sustainability action areas, and recommendations for next steps.

In early 2008, the City Council approved the establishment of the Sustainability Advisory Board. The board is guided by the sustainability principles adopted in the Sustainability Plan and

is responsible for moving sustainability beyond City operations and promoting it community-wide. The board members began meeting in the summer of 2008 and are currently in the process of developing goals and a work plan. One of their main goals is to draft a Community Sustainability Plan.

The City currently has only one Sustainability Planner and an intern to coordinate sustainability efforts, though various staff members in the Planning Division also provide support. At this time the City does not have a dedicated sustainability department; instead it is a program within the Planning Division. It is anticipated, however, that the existing Community Development Department, which includes the Building, Engineering, and Planning Divisions, will eventually be renamed the Department of Sustainable Community Development and over time, more staff will either be trained or hired to assure the successful implementation of sustainability efforts.

Overview of Barriers and Constraints

As discussed previously, the City must holistically address all aspects of its land use development policies and procedures in order to understand how their current practices are contributing to unsustainable development and land use patterns. This would involve an in-depth analysis of the City's building and development codes, engineering standards, and permit approval processes to identify the existing barriers and constraints to sustainability.

Below is a discussion of barriers commonly found with conventional development and building codes, engineering standards, and permit procedures. Though it is beyond the scope of this section to go into an in-depth analysis of Lake Oswego's codes, standards, and procedures, specific examples are discussed to illustrate that barriers and obstacles exist and that a more in-depth analysis of the City's codes, standards, and procedures is warranted.

Development/Zoning Codes. Typically, obstacles to sustainability exist in conventional development/zoning codes either directly or indirectly through the actual regulations themselves, the formatting of the code, and the administration of the code. For instance, zoning codes play an important role in protecting neighborhoods from incompatible uses, but they often restrict the permitted uses to such a degree that homogenous single-use districts are formed, uses are spread far apart, and mixed use developments that reduce vehicle trips are difficult or impossible to develop. Other regulations such as height, setback, and design standards can have the effect of intentionally or unintentionally prohibiting the installation of solar panels and small wind turbines (Duerksen, 2008, p. 30).

The format, organization, and administration of the code can also create obstacles to sustainable development. Lengthy, complex code language is intimidating, confusing, and frustrating for all and often times, regulations are contained in several different sections of the code that are not readily apparent to inexperienced users. Similarly, if development review procedures are cumbersome, expensive, or overly time-consuming, they can also have the effect of deterring sustainable development (Local Government Commission, n.d.).

Lake Oswego's Community Development Code (CDC) has similar regulatory, organizational, and administrative barriers. Design standards, setbacks, and height restrictions effectively prohibit or make installation of solar panels and small wind turbines difficult; the Tree Code, which encourages the preservation of trees, and the Solar Code, which requires that the dwelling be protected from shade, conflict directly with one another; related code regulations are contained in several different sections or articles of the code; certain articles of the CDC and related ordinances (e.g. Lake Grove Village Overlay District and the Solar Ordinance) contain lengthy, complex language and are organized or formatted in a confusing manner so that even

experienced staff has a difficult time understanding the regulations; and the complexity of the code contributes to longer application review times and lengthy staff reports.

Building Codes. Most impediments to green building practices are found in building, not development or zoning, codes. Building codes protect public health, safety, and general welfare as they relate to the construction and occupancy of buildings and structures. Because this is a very serious issue, building codes are notoriously conservative and difficult to change. Green building technologies and/or low tech solutions are often times effectively prohibited by code or require modifications that make them impractical. An example is the recycling of household gray water for use in irrigation. Most building codes prohibit this reuse due to the potential for harmful bacteria to multiply, or if allowed, the codes require the gray water be treated to potable standards, effectively making reuse impractical (Wenz, 2008, p. 13).

Another impediment is that city building officials, plans examiners, and building inspectors lack knowledge of green building technologies. If building staff are not receptive to green technologies, then builders will be unwilling to incorporate them in their project. A savvy building official or plans examiner might interpret the building code more flexibly and work more cooperatively with builders if they are trained and knowledgeable about green building (Ibid, p. 16).

The City of Lake Oswego has adopted the Oregon Structural and One and Two Family Dwelling Specialty Codes as a part of its Building Code, which is primarily a conventional code with few green building standards. Though not yet on the cutting edge of sustainability and green building, the State Building Codes Division (BCD) recently created a Green Building Services section, which is working with stakeholders to develop green building standards, training and outreach programs, and a best practices guide. Additionally, BCD is working on minimum

performance standards that would allow local jurisdictions flexibility to adopt higher standards for green building or other programs to meet local conditions without having to adopt a local ordinance (Building Codes Structures Board, 2008).

Engineering Standards. Engineering standards regulate the construction and management of utilities, streets, and sidewalks and the management of hazard areas such as flood zones and hillsides. Typically, conventional standards that create the greatest barriers to sustainable land use are those governing utilities, streets, and sidewalks. Besides providing little to no incentives for green storm water disposal methods, such as rain gardens, swales, green roofs, flow-through planters, etc., conventional standards are often overly conservative to the extent that conventional storm water disposal systems are necessary to meet standards. For example, most cities use a design-storm approach, which requires storm water systems to be designed to accommodate 25- to 100-year storm events; however, long-term simulations of local weather conditions show that these events can be too conservative and underestimate the value of green methods (Miller, 2008, pp. 182-183). Other barriers include the lack of engineering staff with technical knowledge of green storm water disposal methods, and the fact that storm water fees charged by municipalities are rarely representative of the full cost of utility service, thereby providing little incentive for developers to reduce their storm water runoff (Ibid, p. 183).

Street standards are typically designed primarily with the automobile in mind; pedestrians and bicycles are secondary concerns and community design is frequently not considered at all (Farr, 2008, p. 56). This often results in unnecessarily wide streets with conventional curb and gutter systems that encourage faster moving traffic, are unattractive to pedestrians and bicycles, and negatively impact neighborhood character.

The City of Lake Oswego is fortunate to have relatively progressive engineering standards. In designing streets, provisions for sidewalks, pathways, and bike lanes are considered as are neighborhood conditions and design guidelines to create attractive pedestrian environments, street connectivity, and transit amenities. Existing storm water standards are flexible enough to allow most green methods, but a lack of incentives and staff expertise contribute to the fact that few developers utilize green methods.

Opportunities to Address Sustainable Land Use

Though much of the City is built out, there are still plenty of development prospects in the form of infill and redevelopment, remodels, and infrastructure improvements. Large areas of land in the Forest Highlands, Lake Forest, and Rosewood neighborhoods have the potential to be annexed to the City and could be redeveloped and/or subdivided. The City is also considering a significant rezoning and redevelopment project in the Foothills neighborhood that could include an extension of the streetcar from Portland or enhanced bus service, and there is continuing redevelopment in downtown Lake Oswego and Lake Grove

Over the next few years, the City will be undertaking several planning initiatives, providing an ideal opportunity for sustainability to have a significant influence on the policy direction and future planning of the City. These initiatives include the state-mandated Periodic Review process to update the City's Comprehensive Plan, a community visioning process to provide direction on key topics for Periodic Review and neighborhood planning, the development of a Community Sustainability Plan, and various master plan updates.

Ideally, sustainability would provide a framework for all of these initiatives, not just in drafting the Community Sustainability Plan; however, regardless of the overall approach chosen by the City, the Community Sustainability Plan should holistically address all aspects of the land

use development policies and procedures utilized by the City as described above. This will identify policies and procedures that are functioning well, what needs improvement, and what is not being addressed at all. It will also aid in deciding what level of actions (code amendments or code rewrite) are needed to update codes and procedures and the appropriate land use policies and policy instruments that will best address the issues.

The next section outlines ecologically and/or environmentally sustainable land use policies and regulatory or incentive-based approaches for consideration by the City of Lake Oswego as it moves forward with its various planning initiatives.

Sustainable Land Use Policy Options

As defined previously, “sustainable land use policies” are policies that encourage land use patterns that are compact, pedestrian and transit-oriented, mixed-use, and interconnect humans and nature to their mutual benefit, and that promote high-performance buildings and infrastructure. A variety of policy instruments should be utilized in order to successfully implement sustainable land use policies. Jacobs identifies four categories of policy instruments that influence the behavior of the intended target populations: regulations, voluntary instruments, expenditure, and financial incentives (as cited in Roseland, 2005, p. 32). Regulations are the most common policy instruments and include laws, permits and standards, tradable permits, and *quid pro quos*. Voluntary instruments encourage target populations to act on their own behalf without regulatory or financial incentives and include providing information, technical assistance, or connections to volunteer, non-governmental organizations. Expenditures require the use of public money to achieve the desired policy outcome and could include contracting, public/private partnerships, and procurement. Finally, financial incentives include using pricing,

taxes, and charges to discourage undesired behavior, and providing subsidies, tax incentives, grants or loans, and rebates to encourage desired behavior (Ibid, pp. 33-39).

In Lake Oswego, the existing sustainable land use policies administered by current planning, building, and engineering divisions are by and large regulatory with few if any voluntary instruments or financial incentives available to influence behavior. Coupled with the fact that the City lacks a comprehensive sustainability framework, the success of the existing sustainable land use policies has been mixed. For example, the City's Tree Code has been effective at preserving and protecting the City's mature tree canopy through strict regulations, but is quite unpopular and misunderstood by many of the residents who view the regulation of trees on private property as overreaching. The use of voluntary instruments, such as providing information about the sustainable policy objectives the Tree Code achieves, various educational tools to promote the benefits of trees on both a site and city-wide scale, and providing information or technical assistance such as selecting the proper tree species to plant or information about tree maintenance, could aid in the wider understanding and acceptance of the City's tree regulations.

Another example is the City's Solar Code, which requires 80% of all newly created lots to be oriented for solar access and protects abutting properties from shading. The Code provides ample opportunity for homes to utilize passive solar heating and/or the use of solar panels; however, the Code has been a virtual failure at encouraging any homes to actually employ passive solar heating or other solar technologies. While relatively cheap energy costs have greatly influenced why these technologies have not been utilized in Lake Oswego, the lack of any voluntary or incentive-based policy instruments to encourage these technologies is also a big factor. As with the Tree Code, information about the sustainable policy objectives that the Solar

Code achieves, education about solar technologies, and the addition of financial incentives would greatly increase the potential for these technologies to be utilized in the City.

Tables 1.1 through 1.3, below, outline various examples of sustainable land use policies and policy instruments that might be utilized by the City of Lake Oswego in its development/zoning code, building code, and engineering standards to more effectively implement existing sustainable land use regulations or in the implementation of new sustainable land use policies. The policies were selected based on their capacity to address the objectives outlined in the definition of “sustainable land use policies” and are categorized by the type of policy instrument they utilize to influence behavior (note: expenditure tools are not covered as they are more widely utilized to promote sustainability in internal City operations). A reference is provided identifying the city that currently implements the policy and/or the source of the policy for further research.

Table 1.1: Development/Zoning Code		
Type of Policy Instrument	Sustainable Policy	Reference
Regulatory	<ul style="list-style-type: none"> Allow green roofs to count towards open space requirements. 	Minneapolis, MN (Lowitt & Peck, 2008)
	<ul style="list-style-type: none"> Allow community gardens with associated structures as an outright permitted use in residential zones and in dedicated open spaces that do not have sensitive lands constraints. 	(Duerksen, 2008 p. 33)
	<ul style="list-style-type: none"> Simplify development/zoning codes by adopting a form-based format that is well-organized, clear, and easy to understand. Make the code user-friendly by clearly outlining the processes for land development, site plan approval, etc. (note: this type of code format is promoted by the Smart Growth movement.) 	(Farr, 2008 pp. 88-91)
	<ul style="list-style-type: none"> Utilize codes, covenants, and restrictions (CC&R's) to clearly explain desired outcomes, maintenance requirements, etc. of sustainable development qualities that are utilized or required on the site (e.g. green 	(Ibid, pp. 92-93)

	<p>roofs, open space, impervious surfaces). The language should be in plain English, should clearly define the owner’s responsibility, the desired outcome, and should provide resources to the owner for more information.</p>	
	<ul style="list-style-type: none"> Relax or allow exceptions to building heights and side yard requirements to accommodate solar panels on roofs, overhangs for fixed passive solar shading and thick walls (for more insulation). 	<p>Vancouver, B.C. www.vancouver-ecodensity.ca/content.php?id=49</p>
Voluntary	<ul style="list-style-type: none"> Seattle has an informative educational website covering sustainable community standards and programs, including LEED for Neighborhood Development and Built Green Communities. CITYgreen software can be utilized for public education and tree management purposes. CITYgreen is a desktop GIS program that calculates the stormwater, pollution control, and carbon storage benefits of tree cover and that allows for land cover analysis and modeling for establishing goals and analyzing alternative scenarios for tree management. 	<p>Seattle, WA (Seattle Office of Sustainability, n.d)</p> <p>(Roseland,2005 p. 50) see www.americanforest.org/productsandpubs/citygreen</p>
Financial Incentives	<ul style="list-style-type: none"> Austin’s Smart Growth Initiative identifies areas in the city that are “desired development zones” for growth to encourage more compact development in existing urbanized areas. Using a Smart Growth Matrix, the city determines what financial incentives are available for development proposed in the desired development zones. Incentives include reduction or waiver of infrastructure fees and expedited permit reviews. 	<p>Austin, TX (Wheeler & Beatley, 2004 p.313)</p>

Table 1.2: Building Code

Type of Policy Instrument	Sustainable Policy	Reference
Regulatory	<ul style="list-style-type: none"> Require scrap wood and cardboard from construction projects valued at \$50k or more to be recycled. Online recycling resources are made available to builders. 	<p>Portland, OR (Wenz, 2008, p. 16)</p>
	<ul style="list-style-type: none"> Boulder Green Building and Green Points program applies to construction, remodels, and additions to all dwelling types and establishes mandatory green building requirements. 	<p>Boulder, CO (City of Boulder, 2008)</p>

	<p>Projects that earn a minimum LEED Silver certification are exempt from the program.</p> <ul style="list-style-type: none"> Eagle County Efficient Building Code (ECObuild) applies to all new single and multi-family dwellings and expansions by more than 50%. ECObuild is a points based prescriptive green building program. LEED certified projects are exempt from the program. All new municipal buildings are required to earn LEED Silver certification. All new commercial buildings must follow the LEED for New Construction guidelines and all new residential buildings must follow Build It Green's New Construction guidelines. All new single family dwellings and multi-family dwellings less than four stories must submit a LEED for Homes checklist, a GreenPoint Rated checklist, or Santa Monica green building checklist. All other buildings must submit a LEED for New Construction checklist. 	<p>Eagle County, CO (U.S. Green Building, 2008)</p> <p>Monterey, CA (Ibid)</p> <p>Santa Monica, CA (U.S. Green Building, 2008)</p>
Voluntary	<ul style="list-style-type: none"> Free "Transformational Lecture Series" events to educate and inspire building industry professionals to build green. Projects that are enrolled in the City's Green Building Program are featured on the City website and in a newsletter promoting the program. Workshops are provided to homeowners on home energy efficiency, including information on rebates and other financial incentives for upgrades that reduce energy consumption. Green House Numbers Program awards a distinctive green number address placard and certificate to homes or buildings that achieve a certain number of points based on a variety of possible green features. The points are certified by an inspector and reported in the local newspaper. All new residents are given a booklet on how to live more ecologically, including an outline of various green materials and energy-saving appliances that can be used in their homes. A map is prepared by the city showing the location of sustainable building projects of all sizes in the city. 	<p>Seattle, WA www.seattle.gov/dpd/ GreenBuilding/Our Program/Events/DPDS_ 007557.asp</p> <p>Northbrook, IL (U.S. Green Building, 2008)</p> <p>Ashland, OR (Roseland, 2005 p. 90)</p> <p>Saarland, Germany (Beatley, 2000 pp. 310-311)</p> <p>Utrecht, Netherlands (Beatley, 2000 p. 312)</p> <p>Amersterdam (Beatley, 2000 p. 313)</p>

Financial Incentives	<ul style="list-style-type: none"> Waive building permit fees for solar installations. 	Piedmont, CA (Berkooz, 2008, p. 22)
	<ul style="list-style-type: none"> Base the cost of building permit fees for solar installations on the cost of construction work and do not include the cost of the panels or inverters. 	Portland, OR (Ibid, p. 22)
	<ul style="list-style-type: none"> Green Permit Program streamlines the permitting time to 15-30 days for commercial or industrial buildings that are LEED certified or residential projects that meet Energy Star requirements. 	Chicago, IL (Lowitt & Peck, 2008)
	<ul style="list-style-type: none"> Rebates of 25% of the building permit fee up to \$5,000 are awarded to dwellings that obtain 20 points or more above the minimum points required by the ECObuild program. For each 20-point increment above the minimums, an additional 10% rebate is rewarded. Projects that do not achieve the minimum points can pay a fee for the number of points missed and the fee is used to fund the rebates. 	Eagle County, CO (U.S. Green Building, 2008)
	<ul style="list-style-type: none"> LEED certified projects receive a 10% rebate on permit fees, LEED Silver projects receive a 20% rebate, LEED Gold projects receive a 30% rebate, and LEED Platinum projects receive a 40% rebate. 	Northbrook, IL (U.S. Green Building, 2008)

Table 1.3: Engineering Standards

Type of Policy Instrument	Sustainable Policy	Reference
Regulatory	<ul style="list-style-type: none"> Green roofs and courtyard landscapes with biofiltration and rainwater harvesting are treated as undeveloped open space in estimating site runoff. 	Portland, OR and Philadelphia, PA (Miller, 2008, p.173)
	<ul style="list-style-type: none"> New development or redevelopment projects must increase the pervious surface area on the site by 20% from existing conditions. Green roofs may be used to satisfy this requirement. 	Philadelphia, PA (Ibid, p. 173)
	<ul style="list-style-type: none"> Require all outdoor lighting to be designed to eliminate glare, light trespass, and overlighting to the greatest extent possible. The amount of lighting and brightness permitted should be based upon the surrounding density, frequency of use, environmental considerations, and traffic/pedestrian safety. 	(Farr, 2008, pp. 172-173)
Voluntary	<ul style="list-style-type: none"> Green Values Stormwater Toolbox at 	(Kennedy, Haas &

	www.greenvalues.cnt.org calculates the costs and benefits of using green infrastructure over traditional stormwater management.	Eyring, 2008, p.332)
Financial Incentives	• Charge users the actual cost of providing stormwater and wastewater utilities.	Germany (Miller, 2008, p.183)
	• Discount on stormwater fees for the installation of green roofs.	Portland, OR (Wenz, 2008, p. 16)
	• Charge users for the amount of stormwater runoff that they generate based on the intensity of the development and the amount of impervious surface area on the site.	Bellevue, WA (Roseland, 2005 p.69)
	• Reduce water rates by up to 25% for property owners that recycle water on-site for non-potable uses.	New York City (Roseland, 2005 p. 69)

The key to successful implementation of these sustainable land use policies will be to provide information, education, and assistance to residents and the development community in a variety of ways (print, website, media, workshops, staff resources, etc.), to train and/or hire knowledgeable staff, and to provide a wide range of policy instruments to encourage or require sustainable practices. In short, the strategy should be to make sustainable land use policies as easy to understand and to implement as possible for residents, developers, and staff.

Expected Challenges

Undoubtedly, there will be political, economic, and social barriers to implementing sustainable land use policies. Change is difficult to bring about in a society that is accustomed and encouraged by existing social, economic, and regulatory structures to use resources without consequence and which has become complacent with its lifestyle. However, sustainability is not possible with only a few adjustments to current practices; it will take a substantial shift in existing structures, attitudes and values (Roseland, 2005, p. 222).

Residents, builders, and developers will be legitimately concerned about the economic impacts and potential inconveniences of implementing sustainable land use policies and some

will see it as an actual threat to their way of life. Additionally, with politically charged issues, such as the purchase of the West End Building and the Lake Inceptor Sewer project already at the forefront of resident's minds in Lake Oswego, elected officials may be wary of another potentially volatile issue. It will therefore be critical that a comprehensive and phased approach to implementing sustainable land use policies be undertaken to facilitate the transition. This begins by building public understanding and support through effective communication and mobilization of public participation in meaningful ways, because success or failure will ultimately depend on the participation and buy-in from the community at large (Ibid, p. 26). A comprehensive community visioning process should be undertaken in which alternative futures are discussed and a consensus is reached on the vision that is most desirable and appropriate for Lake Oswego. This vision should permeate all aspects of the City's comprehensive plan (as opposed to incorporating sustainability in just one chapter) and provide a strong foundation on which to build a community-wide sustainability plan.

Thoughtful, thorough deliberation, citizen engagement and effective communication throughout all of the planning initiatives will be essential because sustainability is a complex concept and the public does not readily grasp the connection between conventional development and the negative impacts on human health and quality of life. The communication cannot just be about rattling off statistics or warning of doom and gloom, no matter how true those statistics and warnings might be. Visual forms of communication will be necessary to convey the problem in a way that can be seen and better understood. For instance, instead of describing what is meant by sustainable development, present photographs of sustainable development juxtaposed with photographs of conventional development or photo simulations to show how a street or area might be developed under sustainable land use policies. The viewer can get a much better sense

of what sustainable development looks like and feels like, while captions can communicate the benefits (Farr, 2008, pp.68-71). Additionally, it will be important to address the perception of the costs of conventional versus sustainable development. A clear connection needs to be made regarding the environmental and social costs of conventional development to illustrate the hidden costs of our current practices, which will aid in understanding why sustainable development is not more expensive. Also, the cost savings of sustainable development should be made clear to illustrate that up-front costs can actually be less than conventional development. For instance, drainage swales and permeable pavement are considerably less expensive than conventional storm water runoff control measures and have the added benefit of providing landscaping that contributes to the aesthetics of the site, reduces the heat island effect, and prolongs the life of the pavement (Miller, 2008 pp.183-184). In cases where up-front costs are greater, as with some elements of green building, the costs are recovered in energy savings in just a few years (Platt, Leinberger, Blakely, & Maxman, 2000 p.117).

Finally, it will be necessary to address the perception that sustainable policies means a sacrifice in living standards or making do with less. Sustainable policies are really about doing development differently in ways that promote cleaner, healthier, more cohesive, and self-reliant communities. “Sustainable communities will not, therefore, merely ‘sustain’ the quality of our lives – they will dramatically *improve* it” (Roseland, 2005 p.224).

Conclusion

Land use and development practices affect our health and well-being, environment, and even our social systems on a local to a world-wide scale. Most of us are unaware of the consequences of contemporary development practices and land use patterns, which include automobile dependence, sprawl, obesity, disconnect with nature, and continued degradation of

air quality, water resources, and the natural environment. Local governments are best positioned to address these issues, because they have the practical means to implement sustainable land use policies through development/zoning ordinances, building codes, and engineering standards.

The City of Lake Oswego has incrementally adopted various sustainable land use policies in the development code over many years, but these policies address only parts of the bigger problem and have had mixed results because they are disjointed and are not based on comprehensive sustainability objectives. The City has an opportunity to address this issue as it will be undertaking several planning initiatives over the next few years including Periodic Review to update the City's Comprehensive Plan, a community visioning process to provide direction on key topics for Periodic Review and neighborhood planning, the development of a Community Sustainability Plan, and various master plan updates. Exemplary cities that have taken a comprehensive approach to sustainability were discussed and examples of various ecological and/or environmental land use policies and policy instruments were provided that could be incorporated into the City's development and building codes, engineering standards, and permitting processes as it moves forward with its various planning initiatives.

The City's current approach of implementing sustainable land use policies through incremental changes results in only a veneer of sustainability. In order for sustainable land use policies to be truly effective, they must be based on a comprehensive community vision and plan that provides a clear framework for sustainability.

The next steps should be to undertake a comprehensive community visioning process to reach a consensus on the vision that is most desirable and appropriate for Lake Oswego. This vision should be incorporated in all aspects of the City's comprehensive plan and provide a strong foundation on which to draft a community-wide sustainability plan. Thoughtful, thorough

deliberation, citizen engagement and effective communication should underlie all of these processes to assure a deep understanding and buy-in from the community.

The City should also undertake an in-depth analysis of the City's building and development codes, engineering standards, and permit approval processes to identify the existing barriers and constraints to sustainability and to understand how current practices are contributing to unsustainable development and land use patterns. This will identify policies and procedures in the current planning, building, and engineering divisions that are functioning well, what needs improvement, and what is not being addressed at all.

Finally, a wide variety of policy instruments (regulatory, voluntary, and financial) should be utilized in order to effectively implement sustainable land use policies. The goal of these policy instruments should be to continuously build public understanding and support, enhance the expertise of the development community and staff, and to make sustainable policies as attractive and easy to implement as possible.

References

- About the OSE. (2008, Aug 4). Retrieved October 26, 2008, from
<http://www01.smgov.net/epd/about/index.htm>
- Beatley, Timothy (2000). *Green Urbanism: Learning from European Cities*. Washington D.C.:
 Island Press.
- Berkooz, Corry (June 2008). Let the Sun Shine In. *Planning*, 74(6), 19-23.
- Building Codes Structures Board (2008, August). *Building Codes Division Update*. Available at
http://www.bcd.oregon.gov/boards/bcsb/board_pack/08/20081105/BCSB_110808_080608dm_IIIa.pdf
- City of Boulder (2008, January 17). *City of Boulder Residential Building Guide Green Building and Green Points Guideline Booklet*. Available at www.bouldergreenpoints.com
- City of Lake Oswego (2007, Nov 21). *City of Lake Oswego Sustainability Plan*. Available at
http://www.ci.oswego.or.us/plan/Sustainability/City_Sustainability_Plan/LO%20Sustainability%20Plan%20Final%2011-21-07.pdf
- City of Portland (n.d.). *OSD Strategic Plan*. Available at
<http://www.portlandonline.com/shared/cfm/image.cfm?id=130417>
- City of Portland Office of Sustainable Development (n.d.). Retrieved November 1, 2008, from
<http://www.portlandonline.com/osd/index.cfm?c=41463>
- City of Santa Monica (2006, Oct 24). *Santa Monica Sustainable City Plan*. Available at
http://www01.smgov.net/epd/scp/pdf/SCP_2006_Adopted_Plan.pdf
- City of Seattle (n.d.). *City of Seattle 2006-2007 Environmental Action Agenda: A Global City Acting Locally*. Available at
http://www.seattle.gov/environment/Documents/ea/2006_Brochure_color.pdf

- Condon, Patrick M. (2008). *Design Charrettes for Sustainable Communities*. Washington D.C.: Island Press.
- Duerksen, Chris. (January 2008). Saving the World Through Zoning. *Planning* 74(1), 28-33.
- Eisenberg, David, & Yost, Peter (2001). Sustainability and Building Codes. In Stephen M. Wheeler & Timothy Beatley (Eds.), *The Sustainable Urban Development Reader* (pp. 193-198). New York: Routledge.
- Farr, Douglas (2008). *Sustainable Urbanism: Urban design with nature*. Hoboken, N.J.: John Wiley & Sons, Inc.
- Garvin, Alexander (2008). Greening Cities: A Public Realm Approach. In Eugenie L. Birch & Susan M. Wachter (Eds.), *Growing Greener Cities: Urban Sustainability in the Twenty-First Century* (pp. 60-83). Philadelphia: University of Pennsylvania Press.
- Hinshaw, Mark. (January 2008). Great Neighborhoods. *Planning*, 74(1), 6-11.
- Kennedy, Julia, Haas, Peter, & Eyring, Bill (2008). Measuring the Economic Impacts of Greening: The Center for Neighborhood Technology Green Values Calculator. In Eugenie L. Birch & Susan M. Wachter (Eds.), *Growing Greener Cities: Urban Sustainability in the Twenty-First Century* (pp. 326-345). Philadelphia: University of Pennsylvania Press.
- Local Government Commission (n.d). *Overcoming Obstacles to Smart Growth through Code Reform*. Available at http://www.lgc.org/freepub/PDF/Land_Use/sg_code_exec_summary.pdf
- Lowitt, Peter, & Peck, Steven (March/April 2008). Planning for Rooftops: The Benefits of Green Roof Infrastructure. *PASMEMO*. Available at www.planning.org/pasmemo/member/08mar/index.htm

- Miller, Charlie (2008). Blue-Green Practices: Why They Work and Why They Have been So Difficult to Implement Through Public Policy. In Eugenie L. Birch & Susan M. Wachter (Eds.), *Growing Greener Cities: Urban Sustainability in the Twenty-First Century* (pp. 170-186). Philadelphia: University of Pennsylvania Press.
- Platt, Rutherford H., Leinberger, Christopher, Blakely, Edward J., & Maxman, Susan. (2000). *The Practice of Sustainable Development*. Washington D.C.: Urban Land Institute.
- Roseland, Mark (2005). *Toward Sustainable Communities: Resources for Citizens and their Governments*. Gabriola Island, BC, Canada: New Society Publishers.
- Selman, Paul (1996). *Local Sustainability: Managing and Planning Ecologically Sound Places*. New York: St. Martin's Press.
- Seattle Office of Sustainability and the Environment. (n.d.). Retrieved November 1, 2008, from <http://www.seattle.gov/environment/>
- U.S. Green Building Council (2008, November 1). *LEED Initiatives in Governments and Schools*. Retrieved November 2, 2008 from <http://www.usgbc.org/ShowFile.aspx?DocumentID=691>
- Wenz, Philip S. (June 2008). Greening Codes. *Planning*, 74(6), 12-16.
- Wheeler, Stephen M. & Beatley, Timothy (Eds.). (2004). *The Sustainable Urban Development Reader*. New York: Routledge.