

## Sustainability Element

"Sustainability" is a foundational concept for planning in the 21st century, and it is vital to Langley's future. In this element we describe what sustainability means, how it applies to Langley, and how it creates a context for the rest of the elements in this comprehensive plan.

The concept of sustainability first entered mainstream awareness through the UN's 1987 Brundtland Commission Report, *Our Common Future*. The central recommendation in that report was the need for the world to engage in "sustainable development," which it defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Implicit in this definition is the concern that modern industrial society, with its dependence on non-renewable resources like fossil fuels and its degradation of the environment through such things as toxic pollutants, might not automatically leave a better, healthier world for future generations.

At its most basic, "sustainability" means simply "the ability to sustain," that is, the ability to continue into the future without being significantly diminished or impaired. Sustainability becomes a concern only when there is reason to believe that neither "business as usual" nor reacting to change as it happens will be sufficient to carry us to a positive future.

Today's world has many trends that raise this concern. Two of the most prominent are climate change and peak oil. There is broad scientific consensus that climate change is underway and that human activities are a major cause. The UN's Intergovernmental Panel on Climate Change estimates that approximately 60% of greenhouse gases come from burning fossil fuels, with significant additional contributions coming from commercial agriculture and deforestation. Avoiding the potentially catastrophic consequences of increased climate change will require profound changes in the way that humanity deals with energy, food, and forests.

Peak oil, which refers to the peak in world oil production due to reaching the physical limits of how much oil per year can be pumped out of the ground, may force us to diminish our use of that fossil fuel, but brings with it other challenges. A recent report to Congress by the Government Accountability Office concluded that the world may have already reached that peak and if not, it will likely do so within the next twenty years. Regardless of the timing of the peak, it is clear that oil is getting harder and more costly to find and produce at the same time that increased economic activity all over the world is raising the demand for this and many other resources. We can't safely assume that we will be able to go on consuming these resources indefinitely at the price levels that characterized the 20th century. Because oil is so central to the current global economy, there is a serious risk that the shift from the era of cheap oil and rising production to the era of costly oil and physically-imposed declining production could be wrenching -- especially because we have done so little to prepare for this transition.

Yet sustainability is about more than just climate change and peak oil. Sustainability, as a process, requires anticipating change and thereby gaining more time to prepare for and proactively adjust to that change -- whatever the changes might be. This proactive approach allows us to tap the opportunities that these changes offer rather than just reacting to change as threat.

Sustainability deals with two major types of change:

- Change that we have good reason to believe is coming and for which a reactive strategy is likely to be inadequate. Climate change and peak oil are both good examples. This type of change is best dealt with through steady, proactive investment in new systems that allow us to adapt to the new conditions as smoothly as possible. This will often involve evaluating such investments in new systems not in terms of present prices but in terms of expected future prices, such as for costs for energy. Much of what can be done in this regard is capable of leading us to a genuinely better future.
- Change that takes us by surprise, such as has unfolded after the 9/11 attack on the World Trade Center in Manhattan. One of the consequences of this attack, felt here in Langley, was a decline in tourism for a few years after. A major earthquake in the Puget Sound region would affect us even more strongly. This type of change is best dealt with by keeping our eggs in lots of baskets, that is, by diversification. A key word here is "resilience." In preparing for surprises, we need to look at which systems (such as water and food) are most important to our lives, then work to make these systems resilient through diversification and other means. Just as in ecosystems, greater diversity can lead to greater richness, interest, and beauty as well as more resilience.

Many of the actions that make sense from a sustainability point of view also make sense in terms of emergency preparedness. For example, the likely rise in the cost of energy, and so also the cost of transportation, encourages the sustainability strategy of more local production of basic consumables, like food and energy. Correspondingly, in an emergency, like a power outage or an earthquake, the less dependent we are on distant sources for things like food and energy, the more resilient we will be. This is especially true given our location on an island.

It can be helpful to look at the interest in sustainability as, in part, an insurance strategy. We do not know for sure what the impacts of things like climate change and peak oil will be on our lives. They are both so large in scale, so pervasive, and so unprecedented that they could unfold in many different ways. It is possible that some wonderful new technology or other discovery will come along and easily solve these problems. It is also possible that we are just at the beginning of a difficult time when we will wish that we had started preparing sooner. The risk of "buying the insurance" by preparing now is that events will work out so that the preparation was not necessary. The risk of not preparing is that it will turn out that we needed to.

And just as with insurance, there is a balance to be struck between the amount of time and resources we devote to preparing for the future and the amount we devote to living in the present. Fortunately many sustainability strategies, such as improving energy efficiency, make cost-effective sense today as well as in a wide variety of possible futures. The sooner we begin the process of preparing for a sustainable future, the easier and more sustainable the process itself can be.

### **Decision-Making**

As we attempt to improve Langley's ability to sustain itself in changing times ahead, we can learn some lessons from those societies in the past that did not sustain themselves. In his book, *Collapse, How Societies Choose to Fail or Succeed*, Jared Diamond finds that the poor social decision-making that led various societies to collapse grows out of one or more of the following:

- the failure to anticipate a problem before it actually arrives
- the failure to perceive a problem once it has arrived
- the failure to attempt to solve the problem even after it is perceived

These failures are often due to such things as the role of special-interest selfishness, rigid belief systems that insist on "staying the course" in the face of growing signs that change is needed, and the all-too-common denial with which humans often confront unfamiliar conditions.

Learning from this, we can improve our chances of success.

| *Goal S-1: Engage in anticipatory decision-making, basing decisions on likely future conditions.*

| Policy [S-1.1](#): Consider multiple scenarios for future conditions when making decisions with long-term impacts. As appropriate, consider likely implications over many decades, including multi-generational time horizons.

| Policy [S-1.2](#): Use innovative analytic measures, such as the ecological footprint, to help perceive current conditions and trends more clearly.

| Policy [S-1.3](#): Track and publicize relevant local trends, and in this and other ways help the community to more clearly see itself and more quickly anticipate likely future challenges and opportunities.

| Policy [S-1.4](#): Use public consultation as a means of keeping perceptions and problem-solving fresh and multi-faceted.

### **Community**

| The most important resource for moving Langley toward a sustainable future is the quality of our community. When people are well informed and in good relationship with their neighbors, they are able to work with change in creative and confident ways.

A sustainable community can take many forms, with many elements of those forms including issues such as walkability and bikeability. In addition, many communities now recognize that the quality of life includes identifying and taking steps to preserve “Places of the Heart.” The Orton Family Foundation has developed “Heart and Soul Community Planning,” a process that involves the community in identifying specific places within the community that are worthy of preservation. The first step in the process is identifying core community values. Those values that are most often identified are:

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1. Working locally and growing locally-owned businesses.
2. Living and shopping locally.
3. Participating in local schools, organizations, churches, and community events and festivals.
4. Keeping culture and nature in close proximity.
5. Providing easy access to goods and services.
6. Fostering a strong sense of community where people trust one another and feel safe.

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The development of this sense of community is a key element towards a sustainable community.

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Goal S-2: Help the community to be well informed, well connected, and confident.

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Policy S-2.1: Within its available resources, provide citizens with timely, relevant information about the state of the community.

Policy S-2.2: Encourage good neighbor-to-neighbor relationships.

Policy S-2.3: Encourage high levels of volunteer participation in both City-related and general community activities.

Policy S-2.4: Promote civic engagement for the sake of the long-term common good of the whole community, present and future.

Walkability is a key element of a sustainable community. The median age in Langley is approximately 58 years. In an aging community, regular exercise is an essential element of a healthy and sustainable lifestyle. Access to trails and other opportunities to get about the city on foot are critical to this effort.

Goal S-3: Promote a walkable community.

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Policy S-3.1: Encourage the creation of walking trails within new developments.

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Policy S-3.2: Plan for additional sidewalks where feasible.

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<sup>1</sup> Excerpted from Rural by Design, Second Edition by Randall Arendt. ©2015, American Planning Association.

Policy S-3.3: Enable the creation of maps of existing walking and bicycling trails.

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### Demographics

A fundamental characteristic of a sustainable community is that it has a good balance of people of all ages, plus a diversity of skills and experience. The City cannot control the demographic balance of the community. It does, nevertheless, influence the demographic patterns through such things as land-use, housing, and economic-development policies. To strengthen the community's sustainability, the City should take into account the demographic implications of its policy choices and make choices that foster demographic diversity.

Goal 3: Foster a multi-generational, and economically and culturally diverse community.

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### Energy

Regardless of when the actual peak in world oil production occurs, it looks increasingly likely that we have left the over-100-year era of low-cost oil, in particular, and low-cost fossil fuels in general. In the face of this major challenge to industrial society, we do have choices. For example, the Centre for Alternative Technology in Britain has created a transition plan that could replace Britain's fossil-fuel dependence with renewable energy sources in twenty years. Such a transition is technically feasible. The obstacles to doing this are primarily institutional and involve the same issues described above in the section on decision-making.

The City of Langley can play only a small role in this global challenge, but insofar as we are able, the City chooses to be part of the solution.

Goal S-4: Foster the timely transition for the whole community away from dependence on fossil fuels and towards the efficient use of renewable energy.

Policy S-4.1: Foster state-of-the-art resource-efficiency in both new and existing buildings and neighborhoods of all kinds in Langley by promoting "green building" concepts such as those outlined by the U.S. Green Building Council and similar organizations.

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Policy S-4.2: Foster local renewable-energy generation.

Policy S-4.3: Foster approaches to transportation that reduce per capita fossil fuel use, such as the location of recharging stations for electric vehicles.

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Policy S-4.4: Model these examples, where practical and cost-effective, through City facilities and activities.

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### Economy

The end of the era of low-cost oil, the growth of the world economy in places like China and India, and the impacts of climate change are likely to cause a profound restructuring of the global economy over the next 20 years in ways that will be felt locally. In the context of these trends, it would make sense from a sustainability point of view for local business activity to decrease its dependence of fossil fuels, to increase the amount of local production for local use, and to diversify. Most of these changes will need to come through private efforts, but the City can help through policies and regulations that encourage these directions.

*Goal S-5: Foster a diverse local economy that minimizes its dependence on fossil fuels and that includes a strong component of local production for local needs.*

**Policy S-5.1:**

**Policy S-5.2:**

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### **Food and Agriculture**

Just as we are likely at the end of the era of low-cost oil, we are likely also at the end of the era of low-cost food. The reasons are many:

- Industrial agriculture depends heavily on fossil fuels -- to run farm machinery, to create fertilizers and pesticides, to pump irrigation water, to process and store foods, and to ship foods over long distances. On average every calorie of food produced requires ten calories of fossil fuels. As fuel costs go up, so will the cost of food produced by these energy-intensive means.
- The rising cost of fossil fuels has led to more land being devoted to producing biofuels instead of growing food. The competition between land for food and land for fuel will further drive up the cost of food.
- Industrial agriculture still depends on climate, yet climate change produces greater climate variability as well as shifting climate zones from one geographic region to another. The net result is not favorable to reliable crop production.
- Arable land is constantly being lost by erosion and other forms of land degradation, and by conversion to other uses such as urbanization. During the past 50 years the amount of arable land per person in the world has declined by about fifty percent and will likely decline further in the coming decades.
- The supply of fresh water available for agriculture, which accounts for sixty percent of national water use, is declining even without the effects of climate change. More water is going to cities, aquifers are being drawn down through overuse, and pollution is decreasing the usable supply. This growing water shortage will also raise food costs.
- Perhaps the most critical resource for agriculture is skilled farmers, yet today the average age of farmers is over fifty-five and rising, with less than six percent of farmers thirty-five and younger. Moreover, dealing with the challenges of higher energy costs, erratic climate, and declining water supply will likely require many more farmers. Estimates are that a successful non-fossil-fuel agriculture would

require from fifteen to twenty-five percent of the population to be involved in growing food -- more than ten times the present percentage.

While the new agriculture of the 21st century will likely take many forms at many different scales, there is likely to be an important component at Langley's small-town scale. One of these forms will be personal gardens, either at the residence or as a plot in a community garden. Another form will be somewhat larger commercial market gardens, including various forms of community-supported agriculture (CSA). Two of the advantages of having such market gardens within Langley are: easy access to part-time labor, and reduced transport and handling costs to a significant local market. In addition, market gardens that also serve as teaching facilities and/or visitor attractions may benefit from the additional facilities and amenities that Langley provides. We also have our waterfront, which provides us with important access to marine food sources.

Beyond food production, additional important components of a more localized and less energy-dependent food system are food processing and food distribution.

Here again, within its available capacity, the City can be part of the solution.

*Goal S-6: Foster more localized and less energy-dependent food production, processing, and distribution. Do so in ways that take into account adverse impacts on neighboring land uses, fairness to all parties, and meet the needs of the present without compromising the likely needs of the future.*

Policy S-6.1: Preserve and protect land for growing food by ... ?

### Water

Unlike energy and food, water is already localized. Langley has a municipal water system that currently provides an ample high-quality water supply as well as sewage treatment. However, both the water supply and sewage treatment require significant amounts of energy, primarily for pumping. As energy becomes more expensive, the cost of supplying these services will rise unless the system can be made more efficient. The aquifers that provide our supply are fed by rainwater, so they are subject to climate shifts and to contamination from surface sources. Increased food production in Langley may increase demand on the water system. The City can address these issues by enhancing the sustainability and diversity of its water systems.

*Goal S-7: Conserve its water supply and diversify our water systems.*

Policy S-7.1: Protect the quality of the water supply by ...

Policy S-7.2: Increase the energy-efficiency of the water supply and treatment system.

Policy S-7.3: Encourage water conservation by users through ...

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Policy [S-7.4](#): Encourage water-system diversification through such approaches as rainwater catchments, grey water recycling, and alternative biological waste treatment systems, where appropriate.

### Ecological Footprint

Since its beginnings at the University of British Columbia in 1992, ecological footprint analysis has become widely used around the world as a tool for guiding progress towards a more sustainable way of life. Since it combines consideration of the environmental impacts of energy use, food production, forest products, and the built environment, it provides a useful way of assessing which actions have the most overall environmental benefit. By using ecological footprint analysis, and encouraging others in the community to use it, in conjunction with other criteria specified through the City's code, the City can help guide the community towards a positive sustainable future.

Goal [S-8](#): Encourage the reduction of Langley's ecological footprint, both per capita and overall.

Policy [S-8.1](#): Provide the public with an understanding of the meaning of "ecological footprint analysis."

Policy [S-8.2](#): Review city regulations to determine where such analysis may be useful.

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