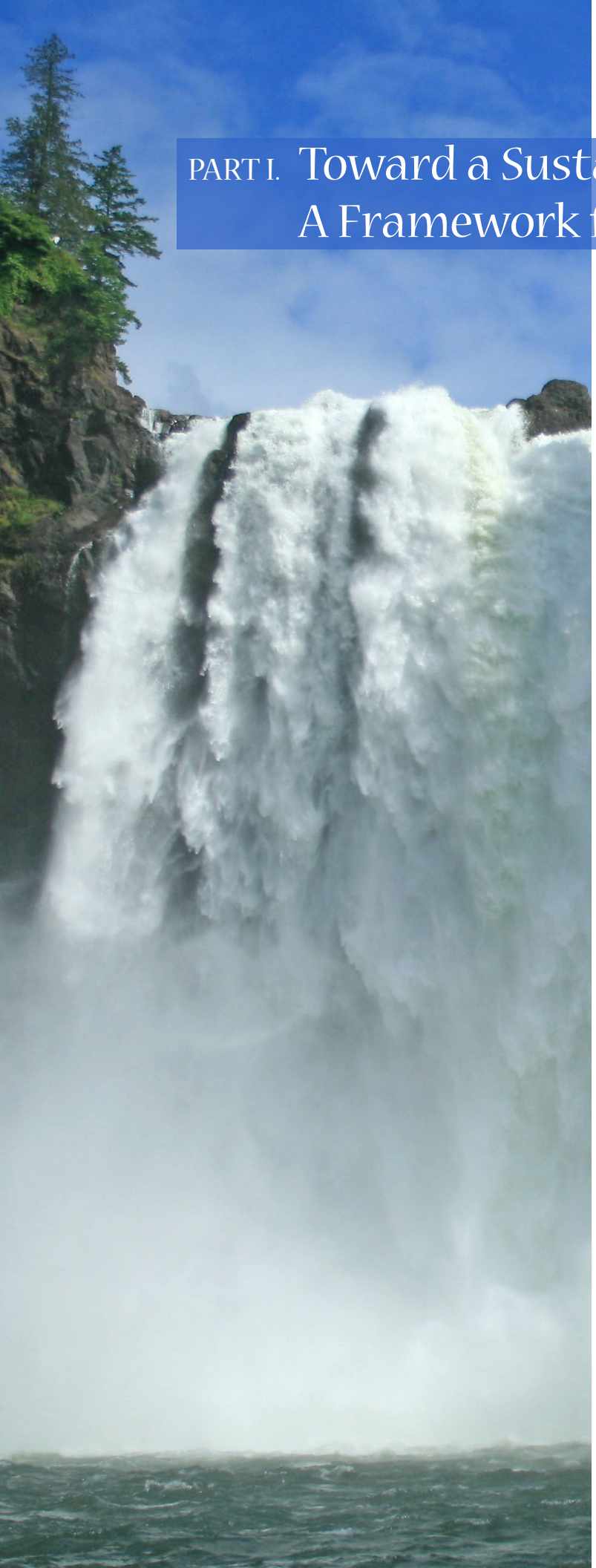


PART I. Toward a Sustainable Environment: A Framework for the Future

The central Puget Sound region's surroundings create stunning backdrops for our cities and towns, contribute to our economic prosperity and quality of life, and lend themselves to many recreational activities, including hiking, fishing, boating, and wildlife watching. Moreover, the communities of the central Puget Sound region are interconnected. They are linked by ecosystems, culture, transportation systems, and the economy. The way land is developed affects air and water quality, the climate, the natural environment, and human health. Development patterns and the siting of infrastructure have an impact on the character of communities, as well as the natural environment. The health of the region's economy is also tied to having a healthy natural environment. Working toward a sustainable environment serves as a framework for VISION 2040.

There is growing awareness within the central Puget Sound region and beyond of the need to live and grow in a more sustainable manner that meets the needs of the present without compromising the ability of future generations to meet their own needs. A sustainable approach is one that strengthens the region's economic, social, and environmental resiliency, while enhancing our ability to cope with adverse trends, including the challenges associated with climate change.

A sustainable future is one that ensures the well-being of all living things, carefully meshing human activities with larger patterns and systems of the natural world. This translates into avoiding the depletion of energy, water, and raw natural resources. A sustainable approach also prevents degradation of land, air, and climate, while creating built environments that are livable, comfortable, safe and healthy, as well as promote productivity.

To have a more sustainable future means that we encourage positive trends and take action to reverse negative ones. This requires our combined efforts to achieve the region's vision. It means that decisions about how we

live and how we travel will require assessing social considerations, economic implications, and impacts to the natural environment. It means being attentive to *people, prosperity and planet*.

Regional, countywide, and local planning efforts developed in response to the Washington State Growth Management Act have placed the region on a solid path to restoring and protecting the environment. Efforts to maintain and restore features of the environment — such as cleaning up Lake Washington in the 1960s and the Thea Foss Waterway in the 1990s — contribute to the region's high quality of life.

Even though the region has been successful with a number of environmental efforts, significant challenges remain, such as cleaning up additional waterways, reducing greenhouse gas emissions (which include carbon dioxide, methane, nitrous oxide, and fluorinated gases), ensuring adequate and clean water in rivers and streams, conserving key habitats, and protecting endangered species. As the region anticipates a population of 5 million by the year 2040, can housing, infrastructure, and services be provided in more sustainable ways?

VISION 2040 has the potential to affect these issues, both through its collaborative process and through the use of multicounty planning policies.

VISION 2040 is a call to action — a call to meet the needs of a growing population, while ensuring that a healthy environment remains available for future generations. It is a call that acknowledges that as the region grows, it already has many, if not all, of the tools needed to protect, conserve, and restore the environment. Some tools may be expensive or difficult to implement, or represent a change in the status quo. However, over the course of the planning horizon — out to the year 2040 — the region can make substantial progress toward creating a truly sustainable environment.

VISION 2040 is built on the recognition that the region:

- Enjoys a magnificent natural environment
- Acknowledges practices that harm the environment
- Is working together to restore and sustain the environment

Each of these themes is explored in the following portions of this section.

A Magnificent Natural Environment

The central Puget Sound region is a wonderful metropolitan area in which to live, work, and play. It is internationally known as a clean, healthy, safe, and diverse place with a vibrant economy and a temperate climate.

The region's natural setting includes snowcapped peaks, abundant waterways and shorelines, and lush forests and greenery. There are complex and varied ecological systems — ranging from coniferous forests to open prairies, from oak savannas to marine and estuarine environments. Vegetation ranges from lowland forest (western hemlock with western red cedar and Douglas fir) to subalpine forest (mountain hemlock with subalpine fir and Alaska cedar). The foothills are dominated by rolling ridges and valleys formed around the rivers and streams that rush down from glaciers and mountains.

These rivers and streams empty into the Puget Sound, a large inlet of the Pacific Ocean. Water is one of the defining features of the region and serves as the lifeblood for both native habitat and human settlement. Waters of estuaries support plants and animals adapted for life at the edge of the Sound. These include hundreds of fish species, such as chinook, chum, coho, pink, and sockeye salmon, and dozens of marine mammals, such as harbor seals, orcas, whales, and porpoises, as well as a hundred species of seabirds, and thousands of marine invertebrate species, including the giant Pacific octopus.

The central Puget Sound region hosts a wide diversity of native wildlife and habitats. Among the wildlife species native to the region are elk, bear, wolves, wolverines, lynx, fishers, martens, goshawks, owls, and salamanders. A great many plants, wildflowers, mushrooms, mosses, and lichens also make their homes in the forests and lowlands of the region.

The area's natural environment provides habitat and, at the same time, creates economic opportunities through traditional industries, such as fishing, timber harvest, recreation, and tourism, as well as new industries based on clean technologies. Our magnificent natural environment and strong regional economy continue to make the region a magnet for growth.

Natural Ecosystem Conditions

Clean Air
Clean air contributes to healthy forests and habitats, as well as beneficial climate conditions.

Mountain Snowpack
Mountains contribute to weather patterns, and melted snowpack provides summertime streams with cold, clear water.

Forests
Forested areas provide a diverse habitat for plants and animals, supporting a vast majority of a region's wildlife species

Lowland Habitats
Mixed plant life below around 2,500 feet provide rich bio-diversity. Soils absorb storm water, reducing erosion and flooding, raising summer stream flows and providing favorable conditions for salmon.

Migrating River Channels
Healthy lowland rivers constantly migrate from side to side of the river valley. This migration creates valuable wetlands and harvests fallen trees, both important sources of food and habitat.

Large Wood Debris
Debris alters river channels and creates key habitat refuge areas.

Feeder Bluffs
Bluffs erode and provide sand and gravel that feed the sound's beaches. Without them, the beaches would diminish and nearshore habitats would degrade.

Streams
Streams deliver water, sediment, organic matter and nutrients that support terrestrial and aquatic life.

Wetlands
Critical functions include reducing flooding by storing water, filtering pollutants and providing diverse habitats.

Nutrients from Migrating Salmon
Decaying salmon provide critical nutrients for forest habitats and species.

Meadows and Prairies
Grasslands provide areas for grazing and seasonal migration.

Riparian Areas (shoreline edges)
Vegetation along rivers, lakes and marine shorelines provides shade, insects, and slope stability, all important to salmon and other aquatic species. About 85% of Washington's wildlife species depend on shoreline vegetation.

Estuaries
Saltwater and freshwater mix here, creating some of the region's biologically richest habitats. Estuary mudflats and salt marshes support complex ecosystems of plants, insects, shellfish, fish, and birds.

Nearshore Habitats
The intertidal area provides rocky tidepools, gravel beaches and eelgrass beds, which support not only the invertebrates and fish, but also the waterfowl and marine mammals that feed on the smaller animals.

Source: John Owen, MAKERS Architecture and Urban Design

Harm to the Environment

Growth and development have caused a wide range of environmental impacts, some irreversible. The region's abundant natural resources have been used for industry and employment, and land, water, and forests have been developed for the region's cities, homes, and businesses. Knowledge about and values associated with the environment have changed in recent decades. We now know more about the environment and the effects of various practices on ecosystems and human health.

The way people live has changed dramatically over the past century. There have been great strides with technological advances, improving living standards, increasing mobility, and enhancing the quality of life. At the same time, there have been profound physical transformations of our communities, largely characterized by sprawling, low-density development patterns. We have also come to learn that certain technological achievements can come with environmental costs, including pollution of the air and water, which threaten both human health and the health of the environment.

All four counties in the central Puget Sound region have witnessed the conversion of natural areas and open space to urban and suburban development. The result is fragmentation of open space areas, including wildlife habitat and corridors, and depletion of important resource lands, including farms and forests. Encroachment on natural resource lands by residential development has also created conflicts between residents and long-term resource use. Poorly planned development and urban sprawl have damaged habitat and ecosystems, contaminated lands and waterways, and contributed to polluted air.

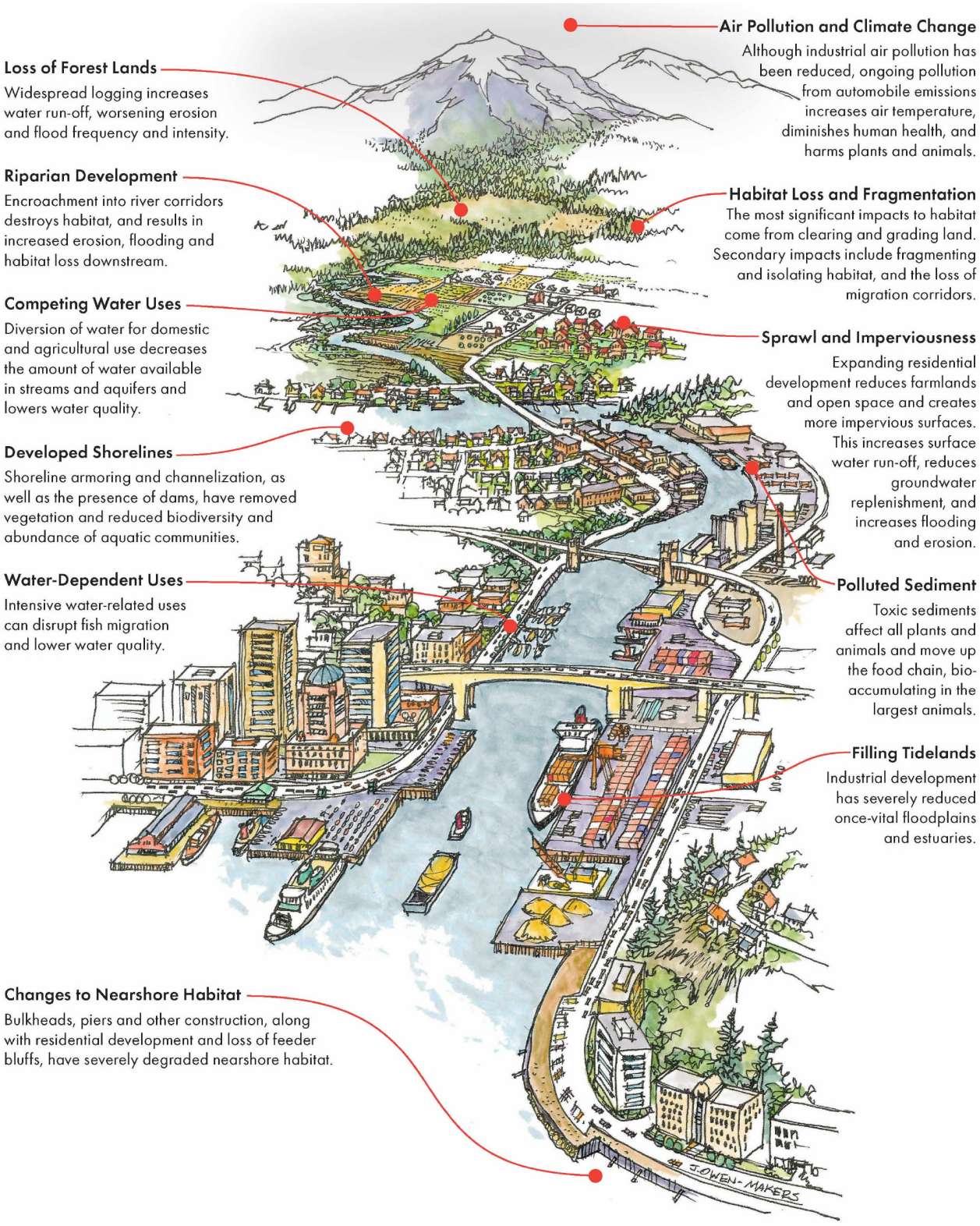
Rapid outward spread of the region's urban footprint has had unintended environmental consequences. The increase in pavement and other impervious surfaces has intensified flooding and erosion. Polluted sediment has affected a host of plants and animals with toxins moving through the food chain. Airborne pollutants harm human health and contribute to climate change.

Water is and will remain a challenge for the region. What was once a seemingly abundant resource has become polluted, diverted, and, in some instances, a health risk. There have been changes to water quality, the quantity of water flowing through natural ecosystems, and even to water temperature. These changes have not only affected wildlife and habitats, they also threaten people with increased flooding and exposure to contaminants now in the water.

The region will face environmental challenges over the coming decades that are not necessarily a direct result of local or regional actions alone, but rather from the global occurrence of climate change. Research conducted for the *Puget Sound Clean Air Agency* indicates that rising sea levels and wetter winters will present challenges for the Pacific Northwest in coming decades. This is likely to increase the rate of coastal erosion and landslides, as well as near-shore habitat loss. Climate change will probably create severe pressure for the already stressed Puget Sound salmon population by affecting its physical environment, including the availability of food. The Clean Air Agency's research suggests that as the region's average temperatures continue to rise, warmer summer weather, accompanied by reduced runoff in spring, could increase drought, water shortages, and the risk of forest fires, affecting air pollution and human health. A hotter climate could also lead to more noxious pest infections and damage to the food chain.

The identity, values, and quality of life in the region are deeply connected to the environment. A challenge for the future is to develop in ways that are less harmful. At the same time, it is possible to undo some of the damage of the past and take steps to enhance the environment.

Human Impacts to Ecosystem Conditions



Source: John Owen, MAKERS Architecture and Urban Design

Restore and Sustain the Environment

There is a growing understanding of the role the environment plays in personal well-being, water quality, economic prosperity, food production, recreational opportunities, visual and aesthetic features, sense of place, and overall quality of life. We better understand the region's ecology, how natural systems function, and how human actions impact the environment.

Environmental protection and restoration efforts — such as the listing of salmon species on the federal Endangered Species List — have also increased. There are dozens of efforts underway to improve the environment. This is the work of resource management agencies, local governments, tribal governments, research institutions, health agencies, and advocacy groups, as well as other nongovernmental organizations. These efforts have vastly increased our knowledge of the varied functions and systems that make up our environment. A unifying vision of the ways those efforts interconnect at the regional level would be a valuable contribution to environmental management activities.

A sustainable approach to accommodating growth is possible, given the region's recent successes in redirecting growth away from rural and natural resource lands into the designated urban growth area and centers, revitalizing older cities and neighborhoods, and protecting and restoring natural systems. Building and development practices can be carried out in a manner that minimizes impacts to the environment or even improves the environment where damage has previously occurred.

Increases in the region's population and employment do not have to result in deterioration of the environment. There are examples all around the globe of urban regions that have adapted as they have grown, using innovative and environmentally sustainable development practices, and changing their approach to accommodating growth. These regions — which include the central Puget Sound — have cleaned up polluted waterways, restored damaged lands and estuaries to more natural states, increased open space while refurbishing worn-out districts, and moved to more energy-efficient forms of construction and mobility.

Continued growth in the region can in fact present opportunities for us to restore our watersheds, develop more environmentally sensitive approaches to treating stormwater, enhance habitat, and pioneer new technologies and industries that benefit both the environment and the regional economy.

Creating and maintaining a sustainable environment reflects the choices we make as individuals, as well as our willingness to act as a region. Our greatly improved air quality, our recycling programs started in the 1980s, and local regulations to protect environmentally critical areas in the 1990s are just a few examples of major successes. More recently, the region's ports have stepped up their efforts to reduce pollution. Several communities in the region have day-lighted streams that were once funneled into underground pipes. However, even with these successes and many others, significant challenges remain, including cleaning up inland waterways, implementing the recovery strategy for salmon, and reducing greenhouse gas emissions.

Healthy ecosystems are essential to meeting the region's growth management objectives. A healthy environment contributes to ensuring we have healthy communities. Yet the region's ecosystems are complex and transcend political boundaries. Ensuring we have a sustainable environment, both now and for future generations, requires regional collaboration. Environmental stewardship is embodied in VISION 2040 and is the responsibility of each jurisdiction within the region.

Ways to Improve Ecosystem Conditions

Protecting Intact Ecosystems
This is often the most effective and highest priority measure.

Sustainable Forestry and Agriculture
Improved forest and agricultural practices can protect forest and lowland health, stream ecology, and habitat corridors.

Water Reuse
Treated wastewater and stormwater run-off can be managed and reused for irrigation and groundwater recharge.

Corridor Preservation
River and wildlife corridors can be conserved though better management, conservation easements, and land acquisitions.

Critical Area Enhancement
Better standards for residential bulkheads, piers, and vegetation conservation can protect and restore wetlands, stream channels, and other terrestrial habitats.

Water-Dependent Uses
Standards for marinas and other water-oriented uses can be improved to minimize impacts.

Transfer of Development Rights
Transfer of development rights programs can build stronger urban centers and protect natural resource lands and open spaces.

Diesel Vehicle Replacement
Diesel buses and public vehicles can employ less polluting systems.

Non-motorized Transportation
Increased bicycle and pedestrian transportation can help to decrease congestion, air pollution, and greenhouse gases.

Reducing Greenhouse Gases
Reducing emissions that cause greenhouse gases improves air quality and helps to protect the climate.

Conservation Incentives
Market incentives can encourage retention of commercial forestry and farming activities to protect open space and prevent sprawl.

Innovative Development Practices
Jurisdictions can support best development practices, such as low-impact development, green buildings and streets, and rainwater capture.

Energy Alternatives and Conservation
Energy conservation methods can be employed and alternative energy sources developed.

Focused Growth
Compact development patterns with a mixture of uses and urban centers accessible by a variety of transportation choices can accommodate growth, strengthen the economy, and create more livable communities.

Clean Up Brownfields
Upgraded stormwater management systems, remediation of toxics, removal of unnecessary armoring, and reintroduction of native vegetation can restore shorelines for ecological functions in industrialized floodplains, while creating new development sites.

Link Habitat
Greenbelts and habitat corridors can be preserved.

Shoreline Restoration
Marine shorelines can be restored to provide intact salmonid migration corridors and increase the general health of nearshore habitats.

Transit
Improved transit service can reduce auto dependence, air pollution, and greenhouse gases.

Source: John Owen, MAKERS Architecture and Urban Design

VISION 2040: An Opportunity

VISION 2040 identifies a growth pattern that accommodates future population and employment growth in a way that minimizes adverse impacts on the environment. This growth pattern can be more efficiently served by infrastructure and services, and supports the growth of a clean economy. It provides the framework for the region to take the necessary public policy steps to bend development trends where necessary to promote a growth pattern that transitions the region into a more sustainable way of living.

The subsequent portions of VISION 2040 include more detailed provisions, including policies, actions, and measures designed to capitalize on opportunities to move the region toward a more sustainable environment.

The **Regional Growth Strategy** outlines how various groupings of the region's cities — metropolitan, core, larger, and small — along with other regional geographies, should plan for additional population and employment growth. All jurisdictions in the region have a role in accommodating growth, using sustainable and environmentally responsible development practices.

The **multicounty planning policies** provide specific guidance for implementing the *Regional Growth Strategy*. The **environment policies** call for applying our evolving understanding of best environmental science, using the best tools and techniques available, and investing in natural capital, so the region can grow in a sustainable way that restores and preserves our natural environment, our water, our air, and our climate. Many of the necessary tools already exist. Such tools can help to minimize impacts on the environment, ensure ample and clean water, create economic opportunity, and ensure that resources are there for future generations. These actions can make a positive difference.

Growth provides opportunities to enhance the region's environment — both natural and built. The **development patterns** and **housing policies** recognize that new development and infrastructure can use best practices and environmentally friendly materials. Focused growth that allows for mixed-use development and more opportunities for walking and biking is more efficient and sustainable. Redevelopment can help retrofit out-of-date systems and restore natural connections. Wise planning can ensure that new development is sensitive to the needs and function of critical habitats. Impervious surfaces can be reduced by using low-impact development techniques, green buildings, and green streets.

The **economy policies** assert that environmental quality and a strong, vibrant regional economy go hand-in-hand. Employing energy efficient business practices and avoiding environmental harm can be more cost-effective over the long term and avoid the need for environmental remediation in the future. New industries and economic opportunities related to clean technology and renewable energy are developing rapidly. They represent a unique opportunity for the region to position itself as a global hub for services, businesses, and products that are environmentally beneficial.

With half of the region's greenhouse gas emissions coming from transportation activities, VISION 2040 calls for developing a more sustainable transportation system. The **transportation policies** call for reducing pollution through cleaner cars, buses, and trucks, cleaner fuels, and fewer vehicle miles traveled. Future mobility needs must consider alternatives to fossil fuels, new transportation technologies, and more alternatives to driving alone.

The **public service policies** address the importance of conservation — recycling, reducing, and reusing. By treating and reusing stormwater and wastewater, we can leave more water in rivers and streams. More efficient and effective use of energy is also important in the region's efforts to reduce greenhouse gases.

VISION 2040 provides the framework to unify the region around an environmental, growth management, economic and transportation strategy that is efficient, sustainable, and inclusive. It is the intent of VISION 2040 to meet the needs of the present without compromising the ability of future generations to meet their needs. As the region continues to grow and makes decisions about development, the economy, and transportation, it must advance the well-being of *people, prosperity, and the planet*.