



American Planning Association

Making Great Communities Happen

Policy Guide on Planning for Sustainability

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I. Findings

There is growing concern for the issue of sustainability — whether the Earth's resources will be able to meet the demands of a growing human population that has rising aspirations for consumption and quality of life, while maintaining the rich diversity of the natural environment or biosphere.

Patterns of human development — physical, social, and economic — affect sustainability at the local and the global level. City and regional planning is integrally related to defining how, where, and when human development occurs, which affects resource use. Planners can therefore play a crucial role in improving the sustainability of communities and the resources that support them.

There are several dimensions to the "sustainability" issue:

1. We want to sustain communities as good places to live, and that offer economic and other opportunities to their inhabitants.
2. We want to sustain the values of our society — things like individual liberty and democracy.
3. We want to sustain the biodiversity of the natural environment, both for the contribution that it makes to the quality of human life and for its own inherent value.
4. We want to sustain the ability of natural systems to provide the life-supporting "services" that are rarely counted by economists, but which have recently been estimated to be worth nearly as much as total gross human economic product.

A sustainable community is one that is consistent with all of these dimensions of sustainability.

A range of indicators suggest that there is a growing gap between human consumption of resources and Earth's capacity to supply those resources and reabsorb resulting wastes. Several of these are described below:

Global Indications of Unsustainability

Global Warming. Human activity, particularly the combustion of fossil fuels, adds gases like carbon dioxide and methane to the atmosphere. The world's scientific community continues to document that this buildup of gases is altering global climatic patterns. Over the past century, the land surface temperature worldwide has risen an average of 0.8 -1.0 Fahrenheit degrees. Over the same period, average precipitation has increased about 1% while the worldwide sea level has risen about 6-8 inches.

Soil Degradation. For the past 50 years, agricultural mismanagement has resulted in severe degradation of the Earth's soils, erosion being the most common type of degradation. Soil lost to wind and water erosion ranges from 5-10 tons per hectare annually in Africa, Europe, and Australia, 10-20 tons per hectare in North, Central, and South America, and 30 tons per hectare in Asia. Given

that soil is created at roughly one ton per hectare per year, current rates of erosion are depleting the nutrient base of agriculture.

Deforestation. The world has lost 1.5 billion acres of forest in the last 200 years. Tropical rainforests, which support more than 60% of all known plant species are currently disappearing at a rate of 2.4 acres (two football fields) per second, 214,000 acres (larger than New York City) per day, and 78,000,000 acres (the size of New Mexico) per year.

Species Extinction. Human activity is creating a "biodiversity deficit" by destroying ecosystems faster than nature can create new ones. Rates of species extinction are currently estimated at one hundred to one thousand times higher than pre-human levels. In North America, an estimated 36% of fish, 35% of amphibians, 17% of mammals, and 11% of birds are either in jeopardy or are already extinct.

Declining Fisheries. After many years of continually increasing worldwide seafood catches, the tonnage of seafood harvested peaked in 1989 and has plateaued since. Harvests for many species have declined. For example, the annual salmon catch in British Columbia fell by nearly 50% from 1985 to 1995.

Economic Inequity. The fifth of the world's people living in the highest-income countries controls 86 per cent of world gross domestic product (GDP), 82 per cent of world export markets, 68 per cent of foreign direct investments, and 74 per cent of world telephone lines.

In addition to these global indicators, a variety of local and regional indicators also show unsustainable trends. The reasons that our lifestyles are unsustainable are varied and complex. Here are a few of the key factors contributing to unsustainability.

What is Contributing to Unsustainability?

Overconsumption. Over the last 40 years, the increase in per capita energy and material consumption has increased even faster than the world's human population. Scientists estimate that our present consumption level is exceeding the Earth's carrying capacity by 30%. We are making up that difference by depleting "natural capital". The United States leads the world in material consumption and waste generation. The 'ecological footprint'(estimated amount of land to support consumption and waste generation patterns) of the typical U.S. resident per year is 25.5 acres, compared to 6.9 acres for the average world resident and 2 acres for the average resident in India.

Population Growth. The world's human population is growing at a rate of 385,000 per day. Almost all of this growth (98%) is occurring in developing nations. Many developing nations remain impoverished because economic development cannot keep pace. Even in the United States, where the growth rate is a relatively modest 1.1%, the nation's population will double in roughly 60 years.

Dependence upon Non-Renewable Resources. Modern economies rely on a host of substances that are not part of nature's cycle of growth and decay. Because these substances are not renewable, their supplies are constantly diminishing. This causes competition for limited resources, with societal repercussions and resulting damage to the environment.

Pollution. The use of substances that accumulate in the ecosphere and are not part of nature's cycle causes environmental pollution in various forms. Carbon dioxide has increased 30% over its natural occurrence in our atmosphere. Poisonous elements mined from below the Earth's crust, such as cadmium and lead, are found at five and eight times, respectively, their natural rates in the ecosphere. Over 70,000 chemical compounds are now present and accumulating in the ecosphere. Many of these may be toxic to humans or other species.

Environmentally and Socially Destructive Development Patterns. Historically, human development has not considered the natural processes upon which we depend, thereby damaging or destroying the systems that support us. The typical suburb paves over land that was once the habitat of other species. It also reduces opportunities for social interaction, once as easy as walking

down the street to go to the corner store. Today, fewer than 10% of daily commute trips in the U.S. are by walking or bicycling.

Inequities in Resource Distribution. Between 1960 and 1994, the disparity in per capita income between the richest and poorest fifth of the world's nations rose from 30:1 to 78:1. The historic solution to poverty — economic growth — has generally served to exacerbate inequities, while degrading the resources upon which all life depends.

Limited Public Participation. Problems arise when sectors of society are disenfranchised from political and economic decision-making, contributing to social and economic inequalities. Limited public participation and lack of equity undermine the ability to sustain the natural and community systems upon which all people depend.

One of the root causes of the problems described above is the failure to recognize the fundamental limits to Earth's ability to withstand alterations to its natural systems. As a result, most Americans consume wastefully, using our limited resources inefficiently and inequitably. People need to acknowledge that we are an interconnected part of nature. Policies and actions must reflect the important linkages among a healthy environment, a strong economy, and social well being. Indeed, it may be necessary to change some of the operational definitions of "strong economy" and "social well being."

These global problems are reflected in — and are affected by — localized unsustainable activity in communities and regions throughout the United States and in other regions of the Earth. Many of these environmentally, economically and socially unsustainable practices are directly connected to local — including remotely influenced local — decision-making. Some examples are summarized as follows:

U.S. Indications of Community Unsustainability

Suburban Sprawl. Current growth in urban and suburban land use far exceeds the population growth in many major metropolitan centers in the U.S. Between 1970 and 1990, for example, metropolitan Chicago's population grew by 4% while the amount of land dedicated to housing grew by 46%. During that same period, metropolitan Cleveland's population fell by 11% but developed land still increased by 33%. This trend has resulted in increased costs for public services, the decline of central cities, increased vehicle miles traveled and emissions of carbon dioxide, the destruction of farmland and open space, and arguably a loss of community.

Segregation/Unequal Opportunity. Communities all over the United States continue to be largely divided along economic and racial lines, both physically and socially. Poverty is increasing among whites as well as minorities. Minority groups continue to have less access to economic opportunities, adequate food and shelter, and needed services. Nationwide, nearly 28% of people of color live below the poverty level, as compared to about 11% of whites.

Loss of Agricultural Land and Open Space. From 1970 to 1990, more than 19 million acres (30,000 square miles) of rural lands were developed. Every year, construction transforms 400,000 acres of high quality farmland. This amounts to 45.6 acres every hour of every day. Such development weakens the agricultural basis upon which people depend, as well as the natural resources upon which all life depends.

Depletion and Degradation of Water Resources. Groundwater over-pumping is occurring in many of the nation's regions. In California, groundwater overdraft averages 1.6 billion cubic meters per year, which amounts to 15% of the state's annual groundwater use. Depletion of the High Plains Aquifer System, which underlies nearly 20% of all irrigated land in the U.S., totals 325 billion cubic meters while current annual depletion is estimated at 12 billion cubic meters. Despite progress made under the Clean Water Act, carcinogens have been found in wells in fourteen different states throughout the Corn Belt and many of the nation's waterways remain badly polluted. In addition, the continuing increase in impermeable surfaces such as parking lots and buildings acts to prevent groundwater recharge, create destructive runoff patterns, and destroy the treatment capacity of natural systems.

Loss of Wetlands. Among the most productive ecosystems in the world, wetlands on non-federal lands in the U.S. are disappearing at a rate of 70,000 to 90,000 acres annually. In the 1600s, over 220 million acres of wetlands are thought to have existed in the lower 48 states. By the 1980s, only an estimated 103 million acres remained.

Traffic Congestion and Air Pollution. Vehicle-clogged roadways and deteriorating air quality diminish quality of life and health for millions of Americans in cities, suburbs, and outlying areas. Since 1970, vehicle miles traveled have increased by 121%, more than four times the population growth over that same period. Traffic congestion is estimated to cost the nation \$168 billion in lost productivity. Although air quality has improved in several metropolitan areas due to more stringent emission standards, 46 million Americans continue to live in counties that do not meet federal air quality standards.

Disproportionate Exposure to Environmental Hazards. Low-income people and people of color continue to be disproportionately exposed to environmental hazards in urban and rural areas. In Los Angeles County, California, minorities are three times as likely as whites to live within half a mile of a large, hazardous waste treatment, storage, or disposal facility. Nationwide, Black children from poor families are five times as likely to have dangerous blood lead levels than wealthier White children. White children from households with annual incomes of under \$6,000 are three times as likely as White children from families with incomes over \$15,000 to have dangerous blood levels of lead.

II. Framing the Issue

Sustainability is the capability to equitably meet the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. The concept of sustainability describes a condition in which human use of natural resources, required for the continuation of life, is in balance with Nature's ability to replenish them. However, humans are depleting and degrading many resources faster than Earth's natural systems can replenish them, and human consumption continues to grow every year. This is a far-reaching issue that extends well beyond the realm of today's urban and regional planner. Nevertheless, planners are in a position to protect the natural environment and its ability to support human life by working with communities to implement concepts of sustainability in their current and long range planning daily practices.

Planning for sustainability promotes responsible development — not anti-development. It requires a democratic process of planning to achieve the greatest common good for all segments of our population, protect the health of the environment and assure future generations of the resources they will need to survive and progress. Specifically, planning for sustainability includes the following *processes, practices* and *outcomes*.

Planning processes include:

- Making planning decisions in a holistic and fully-informed manner that involves all segments of the community and the public and private sectors.
- Educating all age groups to raise public understanding of and regard for the future consequences of current planning decisions and ultimately change human behavior.

Planning practices include:

- Developing a future-oriented vision, which look beyond current needs and recognizes environmental limits to human development.
- Fostering projects/activities that promote economic development by: efficiently and equitably distributing resources and goods; minimizing, reusing and recycling waste; and protecting natural ecosystems.
- Upholding a widely held ethic of stewardship that strongly encourages individuals and organizations to take full responsibility for the economic, environmental, and social

consequences of their actions, balancing individual needs and wants with nature and the public good.

- Taking leadership in the drafting and implementation of local, regional and state policies that support sustainability, such as APA's Growing Smart statutes.

Planning outcomes include:

- Local and regional development patterns that expand choice and opportunity for all persons, recognizing a special responsibility to address the needs of those that are disadvantaged..
- Resilient, diverse, and self-sufficient local economies that meet the needs of residents and build on the unique characteristics of the community to the greatest extent possible.
- Communities with a healthy economy, environment and social climate that function in harmony with natural ecosystems and other species and allow people to lead healthy, productive and enjoyable lives.

III. Policy Positions

A. GENERAL POLICY OBJECTIVES

The American Planning Association and its Chapters have identified four basic objectives for planning toward greater sustainability that can be used as a framework for policy development at each level of decision-making — local, state, regional, and federal — in the broad range of matters with which planners are concerned — land use, housing, transportation, economic development — among others. The four objectives are based upon a framework developed by a group of scientists in Sweden and the U.S combining knowledge of physics, biology, and other fundamental sciences with understanding of societal decision-making.

Using these basic objectives as a guiding framework, planners and decision-makers can develop policies, legislation, and action plans toward sustainability that are appropriate to their particular circumstances and communities. For example, efforts to reduce the use of fossil fuels (*Objective 1*) may take very different form in an urban settlement compared to efforts in rural communities. Similarly, initiatives to improve the quality of life for disadvantaged residents may be very different in a bedroom suburb than in an inner-city neighborhood (*Objective 4*). The Specific Policies in the section that follows are guided by these objectives. The attached Appendix illustrates how these objectives can be used systematically to generate a comprehensive strategy of planning actions in the direction of sustainability. While any one of these objectives pursued separately is a worthy endeavor, it is the integrated, comprehensive application of all four objectives that is needed to move toward sustainability in planning and development; hence, no one objective is more important or of greater value than the others.

Objectives Of APA's Strategy for Planning for Sustainability

Planning for sustainability requires a systematic, integrated approach that brings together environmental, economic and social goals and actions directed toward the following four objectives:

1. Reduce dependence upon fossil fuels, extracted underground metals and minerals. *Reason: Unchecked, increases of such substances in natural systems will eventually cause concentrations to reach limits — as yet unknown — at which irreversible changes for human health and the environment will occur and life as we know it may not be possible.*
2. Reduce dependence on chemicals and other manufactured substances that can accumulate in Nature. *Reason: Same as before.*
3. Reduce dependence on activities that harm life-sustaining ecosystems. *Reason: The health and prosperity of humans, communities, and the Earth depend upon the capacity of Nature and its ecosystems to reconcentrate and restructure wastes into new resources.*

4. Meet the hierarchy of present and future human needs fairly and efficiently. *Reason: Fair and efficient use of resources in meeting human needs is necessary to achieve social stability and achieve cooperation for achieving the goals of the first three guiding policies.*

B. SPECIFIC POLICY POSITIONS

Planners have a leadership role in forming and implementing the strategies by which communities seek to use resources efficiently, to protect and enhance quality of life, and to create new businesses to strengthen their economies, and supporting infrastructures. The best practices of comprehensive community planning — the way we plan the physical layout, or land use, of our communities, is key to sustainable land use.

Two main features of our land use practices over the past several decades have converged to generate haphazard, inefficient, and unsustainable development sprawl — zoning regulations that separate housing, jobs, and shopping, and low density development that requires the use of the car. Our economic development and infrastructure planning practices present opportunities for us to encourage businesses and community facilities that offer creative, economically beneficial solutions to wasteful resource use and environmental degradation. Only through the best planning practices can we hope to create healthy communities that can sustain our generation and secure a promising and sustainable future for all children.

The listed order of specific policies follows the logic of the four objectives and does not reflect an implied priority of action or importance. As is the case with the four policy objectives, while each of the specific policies are of merit if followed separately, they need to be pursued as a whole in an integrated, comprehensive, *systems* approach in order to move toward sustainability in community planning and development. While certain policies may be of greater immediate relevance to particular regions, levels of government, and planning expertise, planners can contribute substantially to communities and to society through maintaining this perspective of the whole in our thinking and in our planning approaches.

1. The American Planning Association and its Chapters support planning policies and legislation that encourage alternatives to use of gas-powered vehicles. Such alternatives include public transit, alternatively-fueled vehicles, bicycle and pedestrian routes, and bicycle and pedestrian-friendly development design.
Reason: Use of privately-owned gas-powered vehicles significantly contributes to increasing carbon dioxide concentration and greenhouse gases in the atmosphere at the global level, and to air pollution, as well as nuisance and societal costs of traffic congestion at the local and regional levels. Planning and development actions that reduce the need to drive can in turn help to reduce carbon dioxide and other emissions, as well as help reduce traffic congestion and add system capacity.
2. The American Planning Association and its Chapters support planning policies and legislation that encourage all types of development to use alternative renewable energy sources and meaningful energy conservation measures.
Reason: Use of alternative renewable energy sources will contribute to reduced dependence upon fossil fuels for heat and power, also helping to reduce concentrations of carbon dioxide and other gases in the atmosphere. Increased use of alternative energy sources will also contribute to healthier, more stable local economies through reduced dependence on one or two energy sources whose own economic future is uncertain.
3. The American Planning Association and its Chapters support planning policies and legislation that encourage development, agriculture, and other land uses that minimize or eliminate the use of extracted underground substances such as mercury, cadmium, phosphorus.
Reason: The increasing concentrations in natural systems of extracted underground metals and minerals — for example, mercury, cadmium, phosphorus — which do not readily disappear or get re-absorbed by the Earth — are increasing toxicity in natural systems. This in turn jeopardizes ecosystems, wildlife, water supplies, soil, food, and human health. Development and agriculture that reduces or eliminates the use of these substances can contribute to the increased long-term safety of human, animal and plant health, and ecosystems both for the near future and for generations to come.

4. The American Planning Association and its Chapters support planning policies and legislation that encourage development and businesses to reduce the use of chemicals and synthetic compounds in their construction and building materials, operations, products, and services.
Reason: Chemicals and synthetic substances that do not easily break down also are increasing in society, producing increased toxicity in ecosystems, water supplies, soil, food, the built environment, the working environment, and human health. Planning, economic development strategies, and policies that affect the built environment can help safeguard the natural and man-made environments through encouraging development that reduces or eliminates the use of these substances.
5. The American Planning Association and its Chapters support planning policies and legislation that encourage methods of landscape design, landscape and park maintenance, and agriculture that reduce or eliminate the use of pesticides, herbicides, and synthetic fertilizers as well as encouraging the use of compost and conserving water.
Reason: Pesticides, herbicides, and synthetic fertilizers accumulate in natural systems, water supplies, soil, food, animals, and humans. Landscape design, maintenance of parks and open space, and agricultural practices that use alternative approaches to pest control can help reduce toxicity in ecosystems, water, food, and human health.
6. The American Planning Association and its Chapters support planning policies and legislation that result in compact and mixed-use development that minimizes the need to drive, re-uses existing, infill, and brownfields sites that have been thoroughly reclaimed and remediated before using open land, and that avoids the extension of sprawl. ("Sprawl" refers to low-density, land-consumptive, center-less, auto-oriented development typically located on the outer suburban fringes). APA's "Growing Smart" Initiative is consistent with this Policy Position.
Reason: Scattered, land-consumptive development is bringing about the deterioration and loss of open lands, forests, ecosystems and species. These are essential elements of Nature's capacity to re-create the materials upon which all life — including ours — depends. Threatened also is the traditional and historic character of our communities and countrysides — a major source of community "quality of life", heritage and economic viability. Encouraging compact development and redevelopment of existing sites can avoid further encroachment upon diminishing land and other natural resources, helping to safeguard these for our well-being and those of future generations.
7. The American Planning Association and its Chapters support planning, development, and preservation policies and legislation that conserve undeveloped land, open space, agricultural land, protect water and soil quality, consciously restore ecosystems, and that minimize or eliminate the disruption of existing natural ecosystems and floodplains. Such policies and legislation include Growing Smart and other innovative planning approaches.
Reason: Safeguarding important lands, water, wetlands, soil, forests, coastal areas as natural ecosystems also helps to preserve the productivity and diversity of life upon which human life and well-being depends.. Efforts are needed to protect the critical land mass required to maintain the level of agricultural production needed to maintain viable agricultural operations and provide sufficient food supply for our population. These critical natural and open space resources contribute as well to "quality of life" as an essential part of local and regional community character.
8. The American Planning Association and its Chapters support planning policies and legislation that encourage forms of development, business, and agriculture that reduce the use of water, re-using wastewater on-site, and that employ innovative wastewater treatment that minimizes or eliminates the use of chemicals (example: using plants for sewage treatment).
Reason: Groundwater over-pumping is occurring in many of the nation's regions. Reducing use of and re-using water using alternatives to chemical treatment, can use this resource more efficiently, allowing for its renewal through groundwater recharge, and minimizing or eliminating increased concentrations of chemicals in natural systems.
9. The American Planning Association and its Chapters support planning policies and legislation at all levels of government that support and implement sustainable development policies that seek to equitably protect public health, safety and welfare, and which incorporate the needs of those currently disenfranchised in the process.
Reason: Certain planning decisions may improve the quality of life for some individuals at the expense of others for example, constructing a roadway, siting a bus depot or sewage

treatment plant, or building housing near an industrial zone. This problem is acute in disadvantaged communities where equal consideration, fair siting decisions, and open planning processes are not always offered. Sustainable planning and development goals aim to provide equal protection and access to opportunities in all communities regardless of income status, race, gender, or ethnicity.

10. The American Planning Association and its Chapters support planning policies and legislation encouraging businesses, communities, institutions and development that pursue reduction and re-use of by-products and waste, especially approaches that also employ waste as a resource, such as eco-industrial development.
Reason: Reducing the amount of wastes and by-products reduces the likelihood of pollution while also reducing disposal problems and related costs for communities and businesses alike. Communities and businesses that make use of their own or each other's excess energy, water, and materials by-products can reduce or eliminate disposal and pollution problems and save, if not generate, significant revenues.
11. The American Planning Association and its Chapters support planning policies and legislation encouraging participatory and partnership approaches to planning, including planning for sustainability, integrally involving local community residents in setting the vision for and developing plans and actions for their communities and regions. Planning decisions that follow should be consistent with those community visions.
Reason: Plans that are citizen-based, reflecting citizen intents and visions for their communities' futures, have the highest probability of successful adoption and implementation. Citizen participation in planning helps ensure fair and efficient targeting of resources to community needs.
12. The American Planning Association and its Chapters support initiatives and partnerships with other organizations that: a) support research and development of technology promoting the four general policy objectives for sustainability; and b) provide best available economic, social, and environmental data and indicators on impacts, alternatives, costs, and benefits for integrated decision-making at all levels of government.
Reasons: Well-informed policy choices that take into consideration the fundamental links among the economy, the environment, and society will be more likely to result in actions that serve all three rather than one at the expense of the others. Most of the innovation or technology to achieve greater sustainability either does not exist, is in the early stages of development, or is not readily available. For example, the use of alternative fuels is growing. However, some private users or transit authorities are reluctant to purchase alternative fuel vehicles because the fueling stations are scarce and the technology is still new.
13. The American Planning Association and its Chapters support planning policies, programs, and state and federal legislation that support incentives and other economic tools to improve the sustainability of our natural environment, enhance natural resources, and improve community subdivision and building design standards.
Reason: Economic tools such as incentives hold promise for bringing about the implementation of sustainable development. Local, state, and federal legislation can support and strengthen the use of these approaches.

Appendix A

Planning Actions Toward Sustainability

[The following section is not APA policy, but rather a guide to the user showing examples of actions planners can take in support of sustainability.]

This Appendix contains examples of how the four guiding objectives can be employed as a framework to systematically generate a comprehensive strategy of *specific planning actions* toward sustainability. The four principles are applied to a range of areas for which planners are concerned — land use, transportation, housing & building, economic development, open space and recreation, infrastructure, growth management, floodplain management, watershed planning, and planning processes and education. The appropriateness of a specific action to, say — reduce fossil fuels — will vary from community to community and region to region, as well as from level to level of governmental responsibility. Hence, the most fruitful planning approach may be for communities

and agencies themselves to generate a planning and policy agenda toward sustainability, using the four guiding objectives as a framework in a participatory planning process.

I. Land Use Actions toward sustainability:

A. Reduced dependence upon fossil fuels, underground metals, and minerals by promoting:

1. Compact development that minimizes the need to drive
2. A mix of integrated community uses — housing, shops, workplaces, schools, parks, civic facilities — within walking or bicycling distance
3. Human-scaled development that is pedestrian-friendly
4. Development oriented around public transit
5. Home-based occupations and work that reduce the need to commute
6. Local food production and agriculture that reduces need for long-range transport of food.

B. Reduction of activities that encroach upon nature through:

1. Guiding development to existing developed areas and minimizing development in outlying, undeveloped areas
2. Maintaining a well-defined "edge" around each community that is permanently protected from development
3. Remediation and redevelopment of brownfield sites and other developed lands that suffer from environmental or other constraints
4. Promote regional and local designs that respect the regional ecosystems and natural functions which support human communities.
5. Creation of financial and regulatory incentives for infill development; elimination of disincentives

C. Meeting human needs fairly and efficiently by:

1. Eliminating disproportionate environmental burdens and pollution experienced by historically disadvantaged communities.

II. Transportation Actions toward sustainability:

A. Reduced dependence upon fossil fuels through:

1. Reduction in vehicle trips and vehicle miles traveled through compact, infill, and mixed use development
2. Use of alternatives to the drive-alone automobile, including walking, bicycling, and public transit
3. Development and use of vehicles powered by renewable fuel sources
4. Local street designs that encourage pedestrian and bicycle use and discourage high speed traffic
5. Street designs that support/enhance access between neighborhoods and to neighborhood-based commercial developments.

B. Meeting human needs fairly and efficiently, by:

1. Providing affordable, efficient transportation alternatives for everyone, especially low-income households, elders, and others comprising 30% of the national population that cannot or do not own cars

III. Housing and Building Actions toward sustainability:

A. Reduced dependence upon fossil fuels, extracted underground metals, and minerals through:

1. Solar-oriented design of development
2. Use of regenerative energy heating and cooling source alternatives to fossil fuels
3. Provision of housing near places of employment
4. Selection of building materials with low "embodied energy," which require less energy-intensive production methods and long-distance transport

B. Reduced dependence upon chemicals and unnatural substances through:

1. Use of chemical-free and toxic-free building materials
2. Reduction of waste and recycling of building waste materials and promoting recycling by residents
3. Landscape design standards that minimize the use of pesticides and herbicides

C. Reduction of activities that encroach upon nature, through:

1. Reuse of existing buildings and sites for development
2. Compact and clustered residential development, including reduced minimum lot sizes
3. Removal of code obstacles to using recycled materials for building
4. Water conservation measures, to minimize environmentally destructive side effects of developing new water sources
5. Responsible stormwater management that reuses and restores the quality of on-site runoff — (example, — constructed marsh or wetlands systems).
6. Reduction or elimination of impervious paving materials
7. Use of recycled building materials, helping to minimize the mining of virgin materials
8. Use of "cradle-to grave" (life cycle) analysis in decision-making for materials and construction techniques.
9. Recycling of building construction waste materials and appropriate deconstruction techniques.

D. Meeting human needs fairly and efficiently, by providing for:

1. Communities and housing developments that are socially cohesive, reduce isolation, foster community spirit, and sharing of resources (example: cohousing)
2. Housing that is affordable to a variety of income groups within the same community
3. A diversity of occupants in terms of age, social, and cultural groups
4. Housing located near employment centers.

IV. Economic Development Actions toward sustainability

A. Encourage businesses that reduce dependence upon fossil fuels, extracted underground metals, and minerals; for example, businesses that:

1. Reduce employee and product transport vehicle trips
2. Use regenerative energy alternatives to fossil fuel, or that are working to reduce dependence on fossil fuel
3. Do not use or are reducing use of cadmium, lead, and other potentially toxic metals and minerals that can accumulate in the biosphere.
4. Are locally-based or home-based, reducing or eliminating the need to commute.

B. Encourage businesses that reduce dependence upon chemicals and unnatural substances; for example, enterprises that:

1. Actively seek ways to minimize the use of toxic manufactured substances
2. Meet or exceed clean air standards
3. Minimize or reduce use of chemicals and employ proper disposal and recycling mechanisms for these
4. Use agricultural methods that reduce or minimize use of pesticides, herbicides, and manufactured fertilizers
5. Use byproducts of other processes or whose wastes can be used as the raw materials for other industrial processes

C. Encourage businesses that reduce activities that encroach upon nature; for example, enterprises that:

1. Use recycled or by-products of other businesses, minimizing the use of virgin raw materials
2. Prevent activities that emit waste or pollutants into the environment
3. Use agricultural approaches that build up rather than deplete topsoil, and conserve or minimize water use
4. Maintain natural terrain, drainage, and vegetation, minimizing disruption of natural systems
5. Re-use processed water.

D. Encourage businesses that meet human needs fairly and efficiently; for example, enterprises that:

1. Fulfill local employment and consumer needs without degrading the environment
2. Promote financial and social equity in the workplace
3. Create vibrant community-based economies with employment opportunities that allow people economic self-determination and environmental health
4. Encourage locally-based agriculture, such as community supported agriculture, providing a nearby source of fresh, healthy food for urban and rural populations

V. Open Space/Recreation Actions toward sustainability

A. Reduced dependence upon fossil fuels, extracted underground metals, minerals, by:

1. Providing recreational facilities within walking and bicycling distance
2. Using local materials and native plants in facility design to reduce transport distances and reduce maintenance
3. Landscape and park maintenance minimizing use of equipment powered by fossil fuels

B. Reduced dependence upon chemicals and synthetic substances; for example by

1. Use alternatives to chemical pesticides and herbicides in park and facility maintenance (example: integrated pest management)

C. Activities that reduce encroachment upon nature, such as:

1. Funding for open space acquisition
2. Preservation of wilderness areas
3. Urban gardens, community gardens
4. Preservation of wildlife habitats and biological diversity of area ecosystems

5. On-site composting of organic waste
6. Restoration of damaged natural systems through regenerative design approaches
7. Creation of systems of green spaces within and among communities
8. Development of responsible alternatives to landfilling of solid waste
9. Using regionally native plants for landscaping
10. Encouraging landscape and park maintenance that reduce the use of mowers, edgers, and leaf blowers

VI. Infrastructure Actions toward sustainability:

A. Reduced dependence upon fossil fuels, extracted underground metals, minerals, by promoting:

1. Facilities that employ renewable energy sources, or reduce use of fossil fuel for their operations and transport needs

B. Reduced dependence upon chemicals and synthetic substances, by promoting:

1. Treatment facilities that remove or destroy pathogens without creating chemically-contaminated byproducts
2. Design approaches and regulatory systems that focus on pollution prevention, re-use and recycling.

C. Reduction of activities that encroach upon nature, through:

1. Promotion of innovative sewage and septic treatment that discharges effluent meeting or exceeding federal drinking water standards while minimizing or eliminating the use of chemicals (example: greenhouse sewage treatment facilities)
2. Recognition of the "cradle to grave" costs of waste generation and disposal
3. Promotion of and removal of regulatory barriers to composting and graywater reuse systems

D. Meeting human needs fairly and efficiently, by:

1. Cleaning, conserving, and reusing wastewater at the site, neighborhood or community level, reducing the need for large, expensive collection systems and regional processing facilities

VII. Growth Management Actions toward sustainability:

A. Reduced dependence upon fossil fuels, extracted underground metals, minerals, by promoting:

1. Development near existing transport systems; minimizing need for new road and highway construction

B. Reduction of activities that encroach upon nature, by promoting:

1. Appropriate development and population growth policies linked to carrying capacity of natural systems and community facilities
2. Development patterns that respect natural systems such as watersheds and wildlife corridors.

C. Meeting human needs fairly and efficiently, by promoting:

1. Fair and equitable growth management policies maintaining diversity in local populations and economies

VIII. Floodplain Management Actions toward sustainability

A. Reduction of activities that encroach upon nature, by:

1. Guiding development away from floodplains
2. Guiding development away from barrier beaches
3. Preserving or restoring wetland areas along rivers for natural flood control

VIX. Watershed Planning/Management Actions toward sustainability

A. Reduction of activities that encroach upon nature, such as:

1. Preservation and enhancement of water quality
2. Reduction in water use
3. Recharge of groundwater basins
4. Use of flood control and stormwater techniques that enhance and restore natural habitats
5. Prevention of wetlands destruction; restoration of degraded wetlands

X. Resource Conservation Actions toward sustainability:

A. Reduced dependence upon fossil fuels, extracted underground metals, and minerals, by:

1. Minimizing energy use
2. Encouraging the development of renewable energy sources
3. Discouraging the use of products that utilize packaging derived from non-renewable, non-degradable resources
4. Promoting the recycling of waste materials derived from non-renewable, non-degradable resources.
5. Developing community gardens that reduce the need for long-range transport of food and associated consumption of fossil fuels.

B. Reduction of activities that encroach upon nature; for example, by:

1. Promoting the preservation and planting of trees and other vegetation that absorb carbon dioxide and air pollutants

XI. Planning Processes/Education Actions toward sustainability:

A. Support activities that reduce dependence upon fossil fuels, extracted underground metals, and minerals; for example, by:

1. Encouraging and enabling people to use transport other than gasoline-powered vehicles

B. Support activities that reduce dependence upon chemicals and unnatural substances; for example, by:

1. Educating citizens and public servants about both short- and long-term risks associated with the use and disposal of hazardous materials

C. Support activities that reduce encroachment upon nature; for example, through:

1. Educational efforts to reduce levels of consumption and waste generation at the household and community levels

D. Support meeting human needs fairly and efficiently by:

1. Integrally involving local community residents in setting the vision for and developing plans for their communities and regions
2. Establishing avenues for meaningful participation in decision-making for all citizens and in particular for historically disadvantaged people
3. Providing for equitable educational opportunities for all members of society
4. Promoting retraining of those displaced in the short-term by a shift to a more sustainable economy

References

The topics and material covered in this Policy Guide on Sustainability are germane to a range of additional policy guides developed by the American Planning Association, most notably Policy Summaries addressing:

Role of Government and Growing Smart
General/Comprehensive Planning
Design and Historic Preservation
Community Development
Environmental Quality
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