

3. Natural Environment

The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected. It is the framework within which growth and development take place. The city and county recognize that the Boulder Valley is a complex ecological system and that there are inextricable links among our natural environment, the economy, the built environment and community livability. The Boulder Valley is an open system in that our natural and human systems are connected to the region as well as to the entire world. The city and county acknowledge that regional and global changes can have a profound effect on the local environment and that the local economy and built environment can have adverse impacts on natural systems beyond the Boulder Valley.

Boulder has been at the forefront of environmental protection and preservation for many years. The vast amount of natural land protected by the city and county contributes to the high quality of life for residents. The community's historic and on-going emphasis on clean air and water has resulted in significant progress toward a sustainable and healthy urban environment.

The city places strong emphasis on being a leader and role model to other communities for its exemplary environmental protection practices and accomplishments. The city will continue to develop and implement state of the art environmental policies both community wide and within the city government organization to further its environmental sustainability goals.

The policies in this section support the following city and county goals related to the conservation and preservation of land, water, air resources and pollution prevention:

- Biodiversity and Native Ecosystems
- Urban Environmental Quality
- Geologic Resources and Natural Hazards
- Water and Air Quality

3.01 Incorporating Ecological Systems into Planning

The city and county will approach planning and policy decisions in the Boulder Valley through an ecosystem framework in which natural regions like airsheds and watersheds are considered and incorporated into planning.

3.02 Adaptive Management Approach

The city will employ an adaptive management approach to resource protection and enhancement. An adaptive management approach involves ongoing monitoring of resource conditions, assessment of the effectiveness of management actions, revision of management actions based on new information from research, and learning from experience what works and what does not.

Biodiversity and Native Ecosystems

3.03 Natural Ecosystems

The city and county will protect and restore significant native ecosystems on public and private lands through land use planning, development review, conservation easements, acquisition and public land management practices. The protection and enhancement of biological diversity and habitat for federal endangered and threatened species and state, county and local species of concern will be emphasized. Degraded habitat may be restored and selected extirpated species may be reintroduced as a means of enhancing native flora and fauna in the Boulder Valley.

3.04 Ecosystem Connections and Buffers

The city and county recognize the importance of preserving large areas of unfragmented habitat in supporting the biodiversity of its natural lands and viable habitat for native species. The city and county will work together to preserve, enhance, restore and maintain undeveloped lands critical for providing ecosystem connections and buffers for joining significant ecosystems.

3.05 Maintain and Restore Ecological Processes

Recognizing that ecological processes, such as wildfire and flooding, are integral to the productivity and health of natural ecosystems, the city and county will work to ensure that, when appropriate precautions have been taken for human safety and welfare, ecological processes will be maintained or mimicked in management of natural lands.

3.06 Wetland and Riparian Protection

Natural and human-made wetlands and riparian areas are valuable for their ecological and, where appropriate, recreational functions, including their ability to enhance water and air quality. Wetlands and riparian areas also function as important wildlife habitat, especially for rare, threatened and endangered plants, fish and wildlife. The city and county will continue to develop programs to protect and enhance wetlands and riparian areas in the Boulder Valley. The city will strive for no net loss of wetlands and riparian areas by discouraging their destruction or requiring the creation and restoration of wetland and riparian areas in the rare cases when development is permitted and the filling of wetlands or destruction of riparian areas cannot be avoided.

3.07 Invasive Species Management

The city and county will promote efforts, both public and private, to prevent the introduction or culture of invasive plant and animal species and seek to control their spread. High priority will be given to managing invasive species that have, or potentially could have, a substantial impact on city and county resources.

3.08 Public Access to Public Lands

Certain city and county-owned or managed lands provide a means for educating users on the importance of the natural environment. Public lands may include areas for recreation, preservation of agricultural use, unique natural features, and wildlife and plant habitat. Public access to natural lands will be provided for, except where closure is necessary to protect areas from unacceptable degradation or impacts to agriculture, habitat or wildlife, for public safety, or limits on access necessary to preserve the quality of the visitor experience.

Urban Environmental Quality

3.09 Management of Wildlife-Human Conflicts

The city recognizes the intrinsic value of wildlife in both the urban and rural setting. The city will promote wildlife and land use management practices to minimize conflicts with residents and urban land uses while identifying, preserving and restoring appropriate habitat for wildlife species in the urban area. When a wildlife species is determined to be a nuisance or a public health hazard, a full range of alternative wildlife and land use management techniques will be considered by the city and county in order to mitigate the problem in a manner that is humane, effective, economical and ecologically responsible.

3.10 Urban Environmental Quality

To the extent possible, the city and county will seek to protect the environmental quality of areas under significant human influence such as agricultural and urban lands and will balance human needs and public safety with environmental protection. The city will develop community wide programs and standards for new development and redevelopment so that negative environmental impacts will be mitigated and overall environmental quality of the urban environment will not worsen and may improve.

3.11 Urban Forests

The city will support, promote and, in some cases, regulate the protection of healthy existing trees and the long term health and vitality of the urban forest in the planning and design of public improvements and private development. The city will encourage overall species diversity, native and low water demand tree species where appropriate.

3.12 Water Conservation

The city and county will promote the conservation of water resources through water quality protection, public education, monitoring and policies that promote appropriate water usage. The city will endeavor to minimize water waste and reduce water use during peak demand periods. New development and redevelopment designed to conserve water will be encouraged.

3.13 Integrated Pest Management

The city and county will encourage efforts to reduce the use of pesticides and synthetic, inorganic fertilizers. In its own practices, the city and county commits to the use of integrated pest management principles, which emphasizes the selection of the most environmentally sound approach to pest management and the overall goal of reducing or eliminating the dependence on chemical pest-control strategies. When public or environmental health risks are identified, the city will balance the impacts and risks to the residents and the environment when choosing control measures.

Geologic Resources and Natural Hazards

3.14 Unique Geological Features

Due to its location at the interface of the Great Plains and the Rocky Mountains, Boulder Valley has a number of significant or unique geological and paleontological features. The city and county will attempt to protect these features from alteration or destruction through a variety of means, such as public acquisition, land use planning and regulation, and density transfer within a particular site.

3.15 Mineral Deposits

Deposits of sand, gravel, coal and similar finite resource areas will be delineated and managed according to state and federal laws. Mineral deposits and other non-renewable resources will be used with the greatest practical efficiency and the least possible disturbance to existing natural and cultural resources.

3.16 Hazardous Areas

Hazardous areas that present danger to life and property from flood, forest fire, steep slopes, erosion, unstable soil, subsidence or similar geological development constraints will be delineated, and development in such areas will be carefully controlled or prohibited.

3.17 Hillside Protection

Hillside and ridge-line development will be carried out in a manner that, to the extent possible, avoids both negative environmental consequences to the immediate and surrounding area and the degrading of views and vistas from and of public areas.

3.18 Wildfire Protection and Management

The city and county will require on-site and off-site measures to guard against the danger of fire in developments adjacent to natural lands and consistent with forest and grassland ecosystem management principles and practices. Recognizing that fire is a widely accepted means of managing ecosystems, the city and county will integrate ecosystem management principles with wildfire hazard mitigation planning and urban design.

3.19 Preservation of Floodplains

Undeveloped floodplains will be preserved or restored where possible through public land acquisition of high hazard properties, private land dedication and multiple program coordination. Comprehensive planning and management of floodplain lands will promote the preservation of natural and beneficial functions of floodplains whenever possible.

3.20 Flood Management

The city and county will protect the public and property from the impacts of flooding in a timely and cost-effective manner while balancing community interests with public safety needs. The city and county will manage the potential for floods by implementing the following guiding principles: a) Preserve floodplains b) Be prepared for floods c) Help people protect themselves from flood hazards d) Prevent unwise uses and adverse impacts in the floodplain e) Seek to accommodate floods, not control them. The city seeks to manage flood recovery by protecting critical facilities in the 500-year floodplain and implementing multi hazard mitigation and flood response and recovery plans.

3.21 Non-Structural Approach

The city and county will seek to preserve the natural and beneficial functions of floodplains by emphasizing and balancing the use of non-structural measures with structural mitigation. Where drainageway improvements are proposed, a non-structural approach should be applied wherever possible to preserve the natural values of local waterways while balancing private property interests and associated cost to the city.

3.22 Protection of High Hazard Areas

The city will prevent redevelopment of significantly flood-damaged properties in high hazard areas. The city will prepare a plan for property acquisition and other forms of mitigation for flood-damaged and undeveloped land in high hazard flood areas. Undeveloped high hazard flood areas will be retained in their natural state whenever possible. Compatible uses of riparian corridors, such as natural ecosystems, wildlife habitat and wetlands will be encouraged wherever appropriate. Trails or other open recreational facilities may be feasible in certain areas.

3.23 Larger Flooding Events

The city recognizes that floods larger than the 100-year event will occur resulting in greater risks and flood damage that will affect even improvements constructed with standard flood protection measures. The city will seek to better understand the impact of larger flood events and consider necessary floodplain management strategies including the protection of critical facilities.

Water and Air Quality

3.24 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county will protect, maintain and improve water quality within the Boulder Creek watershed as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will seek to reduce point and nonpoint sources of pollutants, protect and restore natural water system, and conserve water resources. Special emphasis will be placed on regional efforts such as watershed planning and priority will be placed on pollution prevention over treatment.

3.25 Water Resource Planning and Acquisition

Water resource planning efforts will be regional in nature and incorporate the goals of water quality protection, and surface and ground water conservation. The city will continue to obtain additional municipal water supplies to insure adequate drinking water, maintain instream flows and preserve agricultural uses. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions in its acquisition of additional municipal water supply to further the goals of maintaining instream flows and preventing the permanent removal of land from agricultural production elsewhere in the state.

3.26 Drinking Water

The city and county will continually seek to improve the quality of drinking water and work with other water and land use interests as needed to assure the integrity and quality of its drinking water supplies. The city and county will employ a system-wide approach to protect drinking water quality from sources waters to the water treatment plant and throughout the water distribution system.

3.27 Minimum Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

3.28 Surface and Ground Water

Surface and groundwater resources will be managed to prevent their degradation and to protect and enhance aquatic, wetland and riparian ecosystems. Land use and development planning and public land management practices will consider the interdependency of surface and groundwater and potential impacts to these resources from pollutant sources, changes in hydrology, and dewatering activities.

3.29 Wastewater

The city will pursue sustainable wastewater treatment processes to achieve water quality improvements with greater energy efficiency and minimal chemical use. Pollution prevention and proactive maintenance strategies will be incorporated in wastewater collection system management. The county will discourage the installation of private on-site wastewater systems where municipal collection systems are available or where a potential pollution or health hazard would be created.

3.30 Protection of Air Quality

Air quality is a critical health, economic and aesthetic concern. The city and county will seek to reduce stationary and mobile source emissions of pollutants. Special emphasis will be placed on local and regional efforts to reduce pollutants, which cause adverse health effects and impair visibility.