EXECUTIVE SUMMARY

OVERVIEW

Planning for Hazards: Land Use Solutions for Colorado enables counties and municipalities to prepare for and mitigate multiple hazards by integrating resilience and hazard mitigation principles into plans and codes related to land use and the built environment. This guide provides detailed, Colorado-specific information about how to assess a community's risk level to hazards and how to implement numerous land use planning tools and strategies for reducing a community's risk.

Hazards are occurring more frequently in Colorado, and with greater severity. Experts believe this trend will continue. This guide helps Colorado communities be more resilient and able to protect its residents and property from the devastating impacts of natural and human-caused hazards. This guide provides detailed descriptions of a range of land use planning strategies that can be used to reduce risk to hazards.

The Colorado Department of Local Affairs led the development of this guide, working with an Advisory Committee comprised of representatives from state and federal agencies, local government, and other subject-matter experts in hazard mitigation and land use planning. The Advisory Committee provided guidance and valuable input at critical milestones, identified key resources, and reviewed interim deliverables. The result is this guide that includes information from Colorado's leading experts on the subject, and represents varying community sizes, locations, and values.

The following Colorado hazards are addressed in this guide:

Avalanche	Drought	Earthquake	Extreme Heat	Flood	Hazardous Material Release
Landslide, Mud/Debris Flow, and Rockfall	Severe Winter Storm	Soil Hazards	Wildfire	Wind Hazards	

THE WEBSITE COMPONENT

An essential component of this guide is the project website. Users may view the same information presented in the printed guide, supplemented over time with additional videos, links to resources, and new tools and strategies. From this website, users can choose to view the guide material "cover-to-cover," or navigate the site through a more targeted route based on the user's need for information.

planningforhazards.com

COLORADO
Department of Local Affairs

PLANNING FRAMEWORK

Some of the most beautiful developable lands in Colorado also pose significant risk from hazards, such as dense forests with a high risk of wildfire, river corridors subject to frequent flooding, or hillsides at risk of landslide or rockfall. Many people are drawn to build homes and businesses in these attractive places, despite the potential loss of life and property.

The challenge for Colorado's local governments is to plan for appropriate development to occur while also protecting people and property from the impacts of hazards. Often the simplest way to ensure safer communities is to prohibit building in hazardous areas. However, stopping development altogether in high-risk areas is not always feasible, and planners and local officials must balance the protection of public health and safety with other important goals such as economic development and the provision of affordable workforce housing.

The guide includes a discussion on the various considerations for communities when mitigating hazards through planning, including a range of approaches:

- **Prevent development in hazardous areas.** An obvious solution for making communities safer is to avoid hazardous areas altogether, as discussed in the sidebar on the right. Communities can discourage or restrict development in vulnerable areas such as floodplains, landslide areas, the wildland-urban interface (WUI), or other known hazard areas. Avoiding hazardous areas can be accomplished through regulations (such as overlay zoning) or through incentives (such as cluster subdivisions). There are also non-regulatory approaches, such as land acquisition.
- **Direct future growth to safer areas.** Preventing development in hazardous locations is only part of the equation. Communities can also encourage growth in locations that are less vulnerable to natural hazards. Directing future growth requires that the community identify locations deemed suitable for development and redevelopment. This process often forms the core of future land use elements in comprehensive plans. Once safe areas have been identified, communities can back up those policy decisions by directing investment (such as capital improvements and schools) and removing barriers to developing in those areas.
- **Protect existing development in hazardous areas.** Avoiding hazard areas protects future development; however, protecting people, property, and facilities in already-developed areas is just as important. Strengthening existing development can be achieved through many land use and mitigation strategies, such as upgrading development standards to protect vulnerable areas (e.g., stronger floodplain regulations), requiring nonconforming properties to be brought into compliance with updated standards, updating building codes to promote safer development, and in some cases relocating existing structures to less-vulnerable areas.

AVOIDANCE

The most effective way to protect development from hazards is simply to prohibit development in known hazard areas. However, strictly prohibiting development in any area with a potential hazard can be not only logistically challenging, but often politically infeasible. Nevertheless, many of the tools and strategies discussed in this guide are designed to keep development out of harm's way through avoidance. They include:

- *Transfer of development rights*
- *Cluster subdivision*
- *Conservation easement*
- *Land acquisition*
- *Overlay zoning*
- *Stream buffers and setbacks*
- *Subdivision and site design standards*
- *Post-disaster building moratorium*

The guide also looks into other considerations for communities looking to develop new planning tools or enhance existing tools with a focus on hazard mitigation, including the interrelatedness of natural hazards, the impacts of climate change, and community context (such as size, geographic location, capacity, and political will).

THE HAZARDS

As mentioned earlier, there are several hazards addressed by the guide. Each of them is described in detail in an appendix to the guide, including:

- **A description of the hazard.** The description of each hazard includes a definition and general background information.
- **A description of the hazard's presence in Colorado.** This includes information on the history and severity of the hazard in Colorado communities.
- **A summary of related hazards.** Many of the hazards described in this guide can cause other hazards to occur, or can be exacerbated by the presence of other hazards.
- **Assessing the risk for certain hazards.** For some of the hazards, there are unique challenges associated with preparing risk assessments. This subsection addresses those challenges by presenting alternative approaches and methodologies.
- **Appropriate data sources for establishing a basis for a risk assessment.** This includes primary resources for identifying hazard areas, determining vulnerability, and preparing risk assessments.
- **Applicable planning tools and strategies.** References to applicable tools and strategies that are profiled in the guide.

PLANNING TOOLS AND STRATEGIES

This is the focal point of the guide. The 25 planning tools and strategies (listed in the table on the following page) are profiled in the guide. The table indicates which tools could be used to mitigate the hazards profiled in this guide. Each tool includes a description of the tool, how it is implemented, where it has used, advantages and challenges, and key facts. The box to the right indicates the 11 planning tools and strategies that include model code language and commentary.

MOVING FORWARD

The final chapter of the guide focuses on preparing the risk assessment, choosing appropriate planning tools, implementation strategies for the planning tools, and available resources (technical assistance, funding sources, and other guides and resources).

MODEL CODE LANGUAGE AND COMMENTARY

11 of the 25 planning tools include model code language and supporting commentary that can be tailored to communities.

- *Development Agreement*
- *Transfer of Development Rights (TDRs)*
- *1041 Regulations*
- *Cluster Subdivision*
- *Overlay Zoning*
- *Stream Buffers and Setbacks*
- *Stormwater Ordinance*
- *Subdivision and Site Design Standards*
- *Use-Specific Standards*
- *Application Submittal Requirements*
- *Post-Disaster Building Moratorium*

PLANNING FOR HAZARDS
Land Use Solutions for Colorado

FOR MORE INFORMATION:

Anne Miller | *Senior Planner*
Colorado Department of Local Affairs
anne.miller@state.co.us

Andrew Rumbach | *Assistant Professor*
University of Colorado Denver – Dept. of Planning & Design
andrew.rumbach@ucdenver.edu

COLORADO
Department of Local Affairs

SUMMARY OF PLANNING TOOLS AND STRATEGIES	Avalanche	Drought	Earthquake	Flood	Hazardous Material Release	Extreme Heat	Landslide, Mud/ Debris Flow, and Rockfall	Soil Hazards	Wildfire	Wind Hazards	Severe Winter Storm
ADDRESSING HAZARDS IN PLANS AND POLICIES											
Comprehensive Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Climate Plan	✓	✓		✓		✓	✓		✓	✓	✓
Community Wildfire Protection Plan (CWPP)									✓		
Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parks and Open Space Plan	✓	✓		✓			✓	✓	✓		
Pre-Disaster Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
STRENGTHENING INCENTIVES											
Community Rating System				✓							
Density Bonus	✓			✓			✓	✓	✓		
Development Agreement	✓			✓	✓		✓	✓	✓		
Transfer of Development Rights	✓			✓			✓	✓	✓		
PROTECTING SENSITIVE AREAS											
1041 Regulations	✓	✓	✓	✓	✓		✓	✓	✓		
Cluster Subdivision	✓			✓			✓	✓	✓		
Conservation Easement	✓			✓			✓	✓	✓		
Land Acquisition	✓			✓			✓	✓	✓		
Overlay Zoning	✓			✓			✓		✓		
Stream Buffers and Setbacks				✓			✓				
IMPROVING SITE DEVELOPMENT STANDARDS											
Stormwater Ordinance		✓		✓			✓	✓			
Site-Specific Assessment	✓			✓			✓	✓	✓		
Subdivision and Site Design Standards	✓	✓		✓	✓	✓	✓	✓	✓		
Use-Specific Standards	✓			✓	✓		✓	✓	✓		
IMPROVING BUILDINGS AND INFRASTRUCTURE											
Building Code	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Critical Infrastructure Protection	✓		✓	✓	✓		✓	✓	✓	✓	✓
Wildland-Urban Interface (WUI) Code									✓		
ENHANCING ADMINISTRATION AND PROCEDURES											
Application Submittal Requirements	✓		✓	✓	✓		✓	✓	✓		
Post-Disaster Building Moratorium			✓	✓	✓		✓	✓	✓		

The guide includes a summary table (shown above) indicating which hazards each planning tool or strategy is applicable to. Access the table at planningforhazards.com/planning-tools-and-strategies.

COLORADO
Department of Local Affairs