

SUBDIVISION AND SITE DESIGN STANDARDS



HAZARDS ADDRESSED



HOW IT WORKS

Subdivision and site design standards are used by communities to regulate how parcels of land are divided into developable lots, and how those lots are subsequently designed and laid out through the development process. Subdivision typically includes the creation of a sketch plan (showing basic lot layout and provisions for public infrastructure), and subsequent creation of a more detailed preliminary plat (indicating building footprints and specific measurements), and then culminating in a final plat that creates the new lots. Abbreviated procedures are typically established for minor subdivisions that involve the creation of just a handful of lots.

Site design standards are related and define the basic parameters for development on individual lots, including maximum or minimum lot size, how buildings are situated on a lot, traffic and circulation patterns, pedestrian connectivity, preservation of open areas, and avoidance of hazardous areas.

Communities increasingly consider hazard mitigation when adopting site layout standards. For example, applicants are required to avoid mapped hazard areas (like floodplains) in new development or to develop strategies to mitigate the hazard risk.

IMPLEMENTATION

As communities grow, they should identify where new growth should be concentrated through long-range planning mechanisms, such as the comprehensive planning process. There can be pressure to locate new development in areas that are known to be at risk from hazards. Communities must balance competing interests when reviewing proposed development. For example, the need for additional workforce housing in a community should be balanced against the desire to protect natural areas, view corridors, and natural hazard areas, as well as the safety and welfare of future inhabitants of the development. Communities are challenged with keeping development out of

harm’s way while allowing individuals to develop land consistent with stated policies. Communities can often find middle ground through subdivision standards that allow for new subdivisions to be approved when they meet conditions to mitigate hazards, such as water cisterns for wildfire protection, slope stabilization for landslide and rockfall, and keeping buildable lots out of the floodplain. Additional incentives and regulations can be explored such as **cluster subdivisions**, **density bonuses**, and **Transfer of Development Rights (TDRs)**, each of which are good tools for promoting avoidance of hazards. Each of these are discussed in separate planning tool profiles.

According to APA’s *Zoning Practice* issue on Safe Growth Audits (Godschalk, 2009), communities should ask themselves the following questions related to their subdivision regulations:

1. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?
2. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?
3. Do the regulations allow density transfers where hazard areas exist?

As with zoning codes, adoption of subdivision ordinances or site design standards requires approval by the governing body (City Council, Board of Trustees, or County Commissioners).

WHERE IT’S BEEN DONE

Pagosa Springs adopted sensitive area protection standards for subdivisions and for redevelopment of existing areas in its *Land Use and Development Code* (2015). The standards generally address the following issues:

- **Slopes.** Slopes greater than 30 percent, or otherwise unstable or subject to hazards, are not allowed to be platted or developed for residential uses without mitigation controls in place.
- **Natural Features.** Subdivisions or development shall protect waterways, vegetation, and rocks and other natural features or vistas.
- **Areas of Special Flood Hazard.** Mapped special flood hazard areas identify areas where subdivisions shall not be approved without evidence that it is not in a flood hazard or meets other flood damage protection regulations to the satisfaction of the floodplain administrator.
- **Geologic Hazard Areas.** Subdivisions and site plans must meet mitigation conditions prior to approval in mapped geologic hazard areas in the Town as the information becomes available, including provisions to prevent danger to human life or property.
- **Wildfire Hazard Areas.** Applicants for subdivisions or other development must provide evidence from a professional forester that the proposal meets several conditions, including adequate roads for emergency services and criteria for wildfire areas published by the Colorado State Forest Service.
- **Perimeter Fencing.** Limits the height to protect migration of elk and deer.
- **Riparian Setbacks.** To promote and preserve the quality of the river ecology, aesthetic, and recreation.

In addition to these standards, approval criteria for major subdivisions also address areas that may involve soil or topographical conditions that present hazards.

Similarly, **Park County** has adopted a dedicated set of natural resource protection standards in its development code that address steep slope protection; ridgeline protection; drainage, erosion, and sedimentation control; irrigation and mining ditches; wildlife habitat; and geologic and wildfire hazards. The latter section incorporates approaches that are common in Colorado communities. It provides that:



On US24/285 in Park County, CO.

Source: Ken Lund

- Land uses are restricted to geologic and wildfire hazard-free areas if such areas exist on a site.
- If no hazard-free area exists on a site, the diversity of uses and permitted residential land use densities may be limited to minimize potential dangers to persons or wildlife.
- Land use applications shall be denied if the Board of County Commissioners finds that site planning and engineering techniques cannot reasonably mitigate potential hazards to public health, safety and welfare; land use shall also be prohibited if it subjects persons or the County to dangers or expenses required to mitigate hazardous conditions to respond to emergencies created by such conditions, or to rehabilitate improvements and lands (*Use and Development Standards*, 2014, p. 23).

ADVANTAGES AND KEY TALKING POINTS

In terms of hazard mitigation, the primary benefit of adopting effective subdivision and site design standards is to ensure that new development occurs in a high quality, well-designed manner that avoids potential high-hazard areas, in addition to meeting other important community goals. Other benefits include:

- Effective at managing new development in growing communities. Clearly defining hazard areas allows elected officials to say no to new development in unsafe areas.
- Provides additional protection for defined hazard areas without negotiation on a case-by-case basis. Approval criteria can be stated in the code, making expectations clear to the developer and the decision makers.
- Can be tailored to fit a common set of review procedures. Adding natural hazards as a component of existing subdivision regulations can be done relatively easily through an ordinance amendment.
- Relatively easy to maintain over time, following initial adoption.

CHALLENGES

As is the case with many planning tools, subdivision and site design standards that address hazard mitigation must also strike a balance with other community objectives and private property rights.

- To mitigate natural hazards, a fairly technical mapping of hazard areas is required. Identifying hazard areas can be costly, and keeping mapped areas up-to-date following successful mitigation measures requires a continual maintenance program.

- Requires a land use code amendment, which requires action by the governing body.
- Geared toward new development, and has little ability to address existing development in hazardous areas.

MODEL CODE LANGUAGE AND COMMENTARY

Subdivision regulations typically cover lot and block design, street design and improvements, drainage easements, layout of utility systems, and water distribution systems. Site design standards address a wide variety of site-specific design and operational issues such as parking (lot layout, location, and design), landscaping, exterior lighting, and trash enclosures. Key elements related to subdivision and site design that specifically address natural hazards include:

- Suitability of land for subdivision;
- Subdivision improvement agreements;
- Standards for natural hazard area mitigation, including but not limited to flood hazard, geologic hazard, and wildfire hazard; and
- Cross-references to zoning, site development, and subdivision requirements.

The following sections provide example language for each of the common elements. Model language is in blue shading. Commentary is located in *italics* in the column at the right. The model language used in this document is based on several existing ordinances and programs from varying communities around the state, including municipalities and counties. The language is illustrative only; consult local counsel to tailor language for your jurisdiction.

Suitability of Land for Subdivision

Subdivision regulations often specifically prohibit the subdivision and subsequent development of land found to have or be subject to natural hazards. This prohibition often is included in the general design standards of the jurisdiction's subdivision regulations.

Suitability of Land for Subdivision: Land subject to natural hazards such as flooding, wildfire, falling rock, landslides, and avalanches shall be considered unsuitable for any occupancy that may impair the health, safety, or welfare of the inhabitants. Such land shall be identified and shall not be subdivided until the hazards have been mitigated or will be mitigated by the subdivision and construction plans in accordance with the Sensitive Area Protection Standards of

Commentary

Suitability of Land for Subdivision:
Some subdivision codes contain standards for natural hazards mitigation or sensitive area mitigation. The Teller County subdivision regulations have a "Site and Development Goals, Objectives, and Guidelines" table stating design requirements for geologic, fire, flood and slope hazards.

this Land Development Code. Where such hazardous conditions are adjacent to lands proposed for subdivision, the proposal may be denied unless potentially hazardous conditions are appropriately mitigated per this Code.

Subdivision Improvement Agreements

Land that is subject to hazardous conditions may need specific mitigation improvements that will be completed pursuant to a Development or Subdivision Improvement Agreement. The terms of this agreement should specify the work that will be completed and time-frame for completion. The long-term maintenance of such improvements will need to be identified in that agreement, as well. This agreement will need to be accepted by both the developer and the governing board of the local jurisdiction. As well, the developer will need to post a bond or letter of credit sufficient to complete the improvements as specified in the agreement.

If land with hazardous conditions is to remain undeveloped within the subdivision, an easement or deed restriction should be recorded specifically restricting its development and use based on the conditions posed by the natural hazard. The subdivision plat should specifically show the area to be restricted from development and reference the recorded easement or deed restriction.

Sensitive Area Protection Standards

A. Purpose: Certain areas of [name of local government] contain natural resources that contribute to the [name of local government] character, such as waterways, wetlands and drainages, wildlife habitat, viewsheds, and hillsides. There are also certain areas that may pose hazards to property, infrastructure, and public safety because of natural hazard conditions on or adjacent to buildable lots, including flooding, geologic conditions, wildfire hazard, or soil conditions. The standards of this section are intended to ensure that environmental features are protected, the natural character of [name of local government] is maintained, and development on potentially hazardous lands protects inhabitants and minimizes environmental and aesthetic impacts.

B. General Site Design: Developments shall minimize impacts to sensitive natural resources, natural hazards, and other unique and fragile site elements including but not limited to wetlands, open space, and steep slopes. Such resources and features shall be preserved where

Sensitive Area Protection Standards: *These are site layout/design standards similar to other required site design standards applicable to all development, whether in a new subdivision or a redevelopment/re-use of property on previously subdivided land. They are typically included in the jurisdiction's code and generally applicable to development and design standards since they are intended to apply to projects where subdivision may not be required, as well as new subdivisions.*

practicable. Subdivisions and any development shall be designed to preserve existing waterways (lakes, rivers, and streams), primary vegetation (trees), rock formations, and other natural vistas, as well as other environmental resources and features.

- C. Slopes:** Steep land (30 percent or greater slopes), unstable ground, and land subject to hazards such as landslides, rockfall, ground subsidence, wildfire, or flooding shall not be platted or developed for residential or other uses that may endanger life and limb or habitable improvements, unless appropriate provisions, as deemed necessary by the [Building Department], are made to eliminate or control the hazard.
- D. Natural Features:** Subdivisions and any development shall make every effort to preserve existing waterways (lakes, rivers, and streams), primary vegetation (trees), rock formations, and other natural vistas.
- E. Flood Hazard Areas:** The [Planning Department] shall keep on file and available to the public a set of maps showing all known and identified areas of special flood hazard in [name of local government]. A subdivision or development in a special flood hazard area shall not be approved unless adequate evidence, prepared by a registered professional engineer, is submitted that shows the proposed subdivision or development is not in an area of special flood hazard or that the conditions of Section [X.X], Floodplain Regulations, will be met.
- F. Geologic Hazard Areas:** The [Planning Department] shall keep on file and available to the public a set of maps clearly showing all known and identified geologic hazard areas in the [name of local government], as such become available. [name of local government] shall not approve any subdivision plan or site plan if the proposed subdivision or development is either in one of these identified geologic hazard areas or is in an area suspected of being in a geologic hazard area, unless the applicant can submit adequate evidence, prepared by a registered professional geotechnical engineer, that the proposed subdivision or development meets the following conditions:
 1. Provisions have been made for the long-term health, welfare, and safety of the public from geologic hazards to life, property, and improvements;
 2. The proposed development will not create an undue financial burden on the existing or future residents of

Steep Slopes and Natural Features: Areas of particular sensitivity should be listed based on local environmental hazard assessments. In the model code example, two types of sensitive features are included: one to illustrate a natural hazard condition (steep slopes) and the other to describe an example of important local characteristics (natural Features). Local communities could identify other important visual and ecological features for protection under this section, as well as natural hazards.

Preliminary Plat Review by Technical Experts: Counties are required by state statutes (C.R.S. §30-28-136) to submit preliminary plats to the Colorado Geological Survey for an evaluation of those geologic factors that would have a significant impact on the proposed use of land, and to the Colorado State Forest Service and local conservation district to review of wildfire, soil suitability, and any potential flooding issues.

the area or community as a result of damage due to geologic hazards;

3. Structures designed for human occupancy or use will be constructed to prevent danger to human life or property;
4. Permitted land uses, including public facilities serving such use, will avoid or mitigate geologic hazards at the time of initial construction; and
5. Man-made changes will not initiate or intensify adverse natural conditions within a geologic hazard area.

G. Wildfire Hazard Areas: The [Planning Department] shall keep on file and available to the public a set of maps clearly showing all known and identified wildfire hazard areas in the [name of local government], as such become available. The [name of local government] shall not approve any subdivision plan or site plan if the proposed subdivision or development is in an area identified as a wildfire hazard area or is in an area suspected of being in a wildfire hazard area, unless the applicant can submit adequate evidence, prepared by a qualified professional forester, that the proposed subdivision or development meets the following conditions:

1. Any development in which residential activity is to take place shall be designed to minimize significant wildfire hazards to public health, safety, and property;
2. Any development will have adequate roads for emergency service by fire trucks, firefighting personnel, and fire breaks or other means of alleviating conditions conducive to wildfire hazard;
3. Precautions required to reduce or eliminate wildfire hazards will be provided at the time of initial development;
4. All subdivision and development will adhere to the Guidelines and Criteria for Wildfire Hazard Areas published by the Colorado State Forest Service; and
5. Consideration of recommendations of the State Forest Service resulting from review of a proposed subdivision or development in a wildfire hazard area.

Hazard Areas: Teller County uses a table format in its subdivision regulations that details design guidelines for specific objectives related to geologic, fire, flood and slope hazards. These guidelines must be met for a subdivision to be approved. The guidelines include use of building techniques, such as use of fire retarding roof and exterior wall materials to mitigate wildfire hazard, as part of a subdivision requirement.

KEY FACTS

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| Administrative capacity | Experienced planner |
| Mapping | Mapping should be completed to identify areas subject to special standards |
| Regulatory requirements | Zoning and/or land development regulations |
| Maintenance | Minimal |
| Adoption required | Yes |
| Statutory reference | C.R.S. §30-28-133; §30-28-136; §31-23-214 |
| Associated costs | Staff time for drafting and adoption process |

EXAMPLES

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| Town of Pagosa Springs Land Use and Development Code | municode.com/library/co/pagosa_springs/codes/code_of_ordinances?nodeId=CH21LAUSDECO_ART6DEDEST_6.4SEARPR Section 6.4 |
| Park County Land Use Regulations | parkco.us/189/Land-Use-Regulations Article VII, Division 6: Natural Resource Protection |
| San Miguel County Land Use Code | sanmiguelcounty.org/DocumentCenter/Home/View/211 Section 2-8 |
| Summit County Subdivision Regulations | co.summit.co.us/DocumentCenter/Home/View/58 Sections 3202.02 and 8101 |
| Teller County Subdivision Regulations and Critical Areas Regulations | co.teller.co.us/CDS/Planning/LandUseRegs/CH09subdivADOPTED.pdf (pg. 64-66) and co.teller.co.us/CDS/Planning/LandUseRegs/CH06criticalareasADOPTED.pdf |

FOR MORE INFORMATION

APA’s “Practice Safe Growth Audits”

planning.org/nationalcenters/hazards Safe Growth Audits located near bottom of page, under resources.