



Staff Report to the Ogden Valley Planning Commission

Weber County Planning Division

Synopsis

Application Information

Application Request: Consideration and recommendation on a proposal to amend the following sections of the Weber County Land Use Code: Definitions (§101-1-7), General Provisions (§102-1), Natural Hazards Overlay Districts (§104-27), Supplementary and Qualifying Regulations (§108-7) and Hillside Development Review Procedures and Standards (§108-14) to clarify that the Planning Commission is not the only land use authority over projects with natural hazards, and to provide clarity, remove redundancies, and include process steps and appeal provisions for natural hazards reviews.

Agenda Date: Tuesday, July 05, 2016
Staff Report Date: Wednesday, June 29, 2016
Applicant: Weber County Planning Division
File Number: ZTA 2016-01

Staff Information

Report Presenter: Charlie Ewert
cewert@co.weber.ut.us
(801) 399-8763
Report Reviewer: RG

Applicable Ordinances

§101-1-7: Definitions
§102-1: General Provisions
§104-27: Natural Hazards Overlay Districts
§106-1-8: Final plat requirements and approval procedure
§108-7: Supplementary and Qualifying Regulations
§108-14: Hillside Development Review Procedures and Standards

Legislative Decisions

Decision on this item is a legislative action. When the Planning Commission is acting on a legislative item it is acting as a recommending body to the County Commission and has wide discretion. Examples of legislative actions are general plan, zoning map, and land use code amendments. Typically, the criterion for providing a recommendation on a legislative matter suggests a review for compatibility with the general plan and existing ordinances.

Summary and Background

Weber County has many various natural hazards. The natural hazards overlay ordinance¹ was created decades ago in an attempt to address mitigation measures for building on potentially hazardous sites. Hazard study areas are identified based on the best hazards mapping

¹ See LUC §104-27.

information available for a given site.² These maps give a point of reference for the County to gauge whether additional studies are needed prior to permitting new development. After site evaluation, geologists and other experts can determine the breadth of hazards (if any), and help the County determine mitigation measures necessary to minimize impacts on the resulting occupants, surrounding property owners, and public infrastructure. Under current ordinances, if a site is in a study area it is required that the land owner has an expert review for such hazards, and offer the results and recommendations to the County's Land Use Authority for consideration during development review.³

Staff has become aware that the current Natural Hazards Overlay Zone specifies that only the Planning Commission is the Land Use Authority for development that is located within a natural hazard study area. While this provision may make sense for certain types of more complicated applications, it does not lend to an efficient or expedient review of simple applications, like single family dwelling building permits.

Additionally, this requirement conflicts with other provisions in the Land Use Code. Those provisions designate other entities, such as the Planning Director or the County Commission, as the Land Use Authority for some types of applications.⁴

We are now emerging into a busy building season. Without the proposed modifications there will be a significant delay for building permit applications while they wait for a Planning Commission review of natural hazards. There is significant urgency to get the proposal adopted to replace the existing code. For this reason, this proposal has been expedited for Planning Commission review without the typical work session deliberation. It is critical to the current building season to get the changes completed as soon as possible.

Despite the expedited nature of this proposal, staff took considerable time and effort carefully reviewing and modifying the ordinance. Review and modification has been a cross collaboration between the Planning Division, Engineering Division, Attorney's Office, and outside expert legal counsel. We have also reached out to a private geologist for comments.

Through this careful evaluation it became apparent that there is significant work needed on this ordinance, including the need for clarifying provisions, and in some places, reconstruction. This proposal makes a best effort to initiate the effort, but only provides an intermediary solution to resolve the Land Use Authority problem, and a few other simple clarifications.

The proposal provides better consideration for the designated Land Use Authority when considering natural hazards; it also helps clarify the role of the Planning Director in certain Land Use Authority decisions; and then, generally, it provides for clarity, removes redundancies, and includes process steps and appeal provisions for reviews of projects when natural hazards are present.

Policy Analysis

² LUC §104-27 was originally created with specific hazards maps; however, mapping of hazards throughout Weber County has evolved since then. The Utah Geological Survey currently has several relevant mapping resources, including an online map service.

³ See LUC §104-7-4.

⁴ For example, LUC §102-1-2 sets up certain land use authority permissions for the planning director.

How to review the proposal. The complete proposal is presented in the attached exhibits in track changes. The exhibits provide a more specific analysis of the changes in the text-balloons in the margins.

The proposal is lengthy. To ease in the Planning Commission's review, consider the following. Exhibit B is the complete text of the proposed changes, which is in the same format that the proposal will be presented to the County's codifiers. However, because the natural hazards code is being removed from §104-27 and added into §108-22, this exhibit does not emphasize in track-change all of the changes being made between the two. Rather, it only shows that §104-27 was deleted and §108-22 was added. For this reason staff offers Exhibit D, which is a document that emphasizes in track-changes what changes are occurring between the current §104-27 to the proposed §108-22. Staff recommends that the Planning Commission starts their review with Exhibit D. Some members of the Planning Commission have previously requested clean copies with the track-change copies, thus Exhibit C is being provided as well. It is the same thing as Exhibit B, but without track-changes.

A brief synopsis of the changes is provided below.

Policy considerations. It can be noted that throughout the proposal the term "planning commission" has been replaced with "land use authority." This is because the code designates different land use authorities for different types of permits. For example, the Planning Director is the land use authority for approving alternative lot access, the Planning Commission is the land use authority for approving conditional use permits, and the County Commission is the land use authority for approving road dedications. By changing Planning Commission to Land Use Authority the proposal points the reader back to whomever is the Land Use Authority for a given permit type, as otherwise designated elsewhere in the code.

The current code could be more clear for what types of permits, and under what circumstances, the Planning Director is the land use authority. This proposal addresses that.

This proposal also addresses the fact that current ordinances are made unnecessarily complicated by requiring natural hazards to be administered through a hillside review process rather than by a typical natural hazards review process. There is unnecessary overlap between the ordinances. This proposal separates the hillside review process from the natural hazards review process, and establishes better procedural guidelines for natural hazards review.

This proposal moves the natural hazards ordinance from Title 104 – Zones, to Title 108 – Standards. There are a couple of reasons for doing this. The first, natural hazards really are not zones. A zone has legislatively created boundaries intended to organize land uses based on the public will of the community. The existence of natural hazards is not subject to the will of the legislative body, and their boundaries cannot be changed by community desire. Natural hazards are more akin to hillside development or source protection areas than they are zones. It is better to create standards for development on them rather than try to govern them by a zone. Second, the natural hazards ordinance provides for a method of changing the natural hazards maps when it can be proven that the suspected hazard is not actually present. If the natural hazards ordinance is considered a "zone" and mapped as a "zoning overlay" any of these changes would be subject to the typical rezone process, which is an unnecessary complication for such a highly technical consideration.

This proposal brings the appeal process for geologic hazards into compliance with the governing state statutes.

Conformance to the General Plan

Generally, land use code changes should be vetted through the filter of policy recommendations of the applicable general plan. There are not specific recommendations regarding this proposal in either of the County's plans, however, it can be determined by the Planning Commission that the proposal is not in conflict with the general plan's guidance.

Past Action on this Item

No action has occurred on this item.

Noticing Compliance

A hearing for this item before the Planning Commission has been posted for public notice in compliance with UCA §17-27a-205 and UCA §17-27a-502 in the following manners:

- Posted on the County's Official Website
- Posted on the Utah Public Notice Website
- Published in a local newspaper

Staff Recommendation

Staff recommends approval of the text included as Exhibit B and Exhibit C with the following findings:

1. The changes are necessary to reduce conflicting provisions in the Land Use Code.
2. The changes are necessary to provide clarity in the Land Use Code.
3. The clarifications will provide for a more efficient administration of the Land Use Code.
4. The changes comply with the intent of the Land Use Code.
5. The changes are not detrimental to the effect of the general plan.
6. The changes are not found to be detrimental to the health, safety, and welfare of County residents.

The Planning Commission's decision should be made as a recommendation to the County Commission.

Exhibits

- A. Summary, List, and Key to Proposed Changes.
- B. Code Change [Redlines] – Natural Hazards Code.
- C. Code Change [Clean] – Natural Hazards Code. [Omitted from paper packet due to length. See Miradi project file for complete packet: <https://miradi.co.weber.ut.us/projects/view/2339>].
- D. Comparison of only the current and proposed Natural Hazards ordinances.
- E. Land Use Code Revision Process Flowchart.

Exhibit A: Summary, list, and key to proposed changes

The following code changes are being proposed to clarify that the Planning Commission is not the only land use authority over projects with natural hazards, and to provide clarity, remove redundancies, and include process steps and appeal provisions for natural hazards reviews.

This change addresses the following code sections:

§ 101-1-7. Definitions

§ 102-1: General provisions

§ 104-27: Natural hazards overlay districts

§ 108-7: Supplementary and qualifying regulations

§ 108-14: Hillside development review procedures and standards

Key to reading track changes:

Three periods (...) indicates that there are codes sections that have been left out of the proposed changes. These code sections will remain unchanged.

Language that has been added is shown in blue underline

~~Language that has been moved to a new location is shown in green double strikeout~~

~~Language that has been deleted is shown in red strikeout~~

Language that has been moved from an old location is shown in green double underline

1 Title 101 - GENERAL PROVISIONS

2 ...

3 Sec. 101-1-7. - Definitions.

4 ...

5 Building parcel designation. The term "building parcel designation" means two or more lots within an
6 approved subdivision are recognized as one lot for building purposes. ~~This does not allow for the creation~~
7 ~~of additional lots, and the original lot lines as recorded do not change. The planning director can~~
8 ~~administratively approve a building parcel designation application.~~

9 ...

10 Geologic and Geotechnical terms.

11 Active fault. The term "active fault" means a seismic (earthquake) fault displaying evidence of
12 greater than four inches of surface displacement along one or more of its traces during Holocene
13 time (approximately 10,000 years ago to the present).

14 Active landslide. The term "active landslide" means a landslide which is known to have moved
15 or deformed and which has not been proven to be stable by a geotechnical investigation.

16 Aquifer. The term "aquifer" means a geological unit in which porous and permeable conditions
17 exist or a geologic unit of stratified drift, and thus are capable of yielding usable amounts of water.

18 Aquifer recharge. The term "aquifer recharge" area means an area that has soils and geological
19 features that are conducive to allowing significant amounts of surface water to percolate into
20 groundwater.

21 Area of deformation. See "zone of deformation."

22 Critical acceleration. The term "critical acceleration" means the minimum amount of ground
23 acceleration during seismically induced ground movement required to induce liquefaction or other
24 forms of ground disruption.

25 Critical facilities. The term "critical facilities" means:

26 (1) Lifelines such as major communication, utility and transportation facilities and their
27 connection to emergency facilities;

28 (2) Essential facilities, such as:

29 a. Hospitals and other medical facilities having surgery and emergency treatment areas;

30 b. Fire and police stations;

31 c. Tanks or other structures containing, housing, or supporting water or other fire-
32 suppression materials or equipment required for the protection of essential or
33 hazardous facilities, or special occupancy structures;

34 d. Emergency vehicle shelters and garages;

35 e. Structures and equipment in emergency-preparedness centers;

36 f. Standby power generating equipment for essential facilities;

37 g. Structures and equipment in government communication centers and other facilities
38 required for emergency response;

Comment [c1]: Currently, there is only this definition explaining what a building parcel designation is, but not any statutes allowing it. A statute has been added in 108-7-33 (herein) that uses this stricken language, and provides additional standards based on the County's historic and routine procedure.

Comment [c2]: All of the definitions in the natural hazards ordinance were removed and added here. Some of these definitions were supplemented with the definitions found in the natural hazards codes. Some have been re-worked or updated for clarity or best management practices. All definitions have been cross referenced for their use in other chapters to verify consistency.

39 (3) Hazardous facilities such as structures housing, supporting or containing sufficient
40 quantities of toxic or explosive substances to be dangerous to the safety of the general
41 public if released; or

42 (4) Special occupancy structures, such as:

43 a. Covered structures whose primary occupancy is public assembly (capacity greater
44 than 300 persons);

45 b. Buildings for schools through secondary or day care centers (capacity greater than 50
46 students);

47 c. Buildings for colleges or adult education schools (capacity greater than 50 students);

48 d. Medical facilities with 50 or more resident incapacitated patients, but not included
49 above;

50 e. Jails and detention facilities;

51 f. All structures with occupancy greater than 5,000 persons;

52 g. Structures and equipment in power-generating stations and other public utility facilities
53 not included above, and required for continued operation;

54 h. Unique or large structures whose failure might be catastrophic, such as dams holding
55 over ten acre feet of water, lifelines, such as major communication, utility and
56 transportation facilities and their connection to emergency facilities, unique or large
57 structures whose failure might be catastrophic, such as dams or buildings where
58 explosive, toxic or radioactive materials are stored or handled, high occupancy
59 buildings such as schools, hotels, offices, emergency facilities, such as police and fire
60 stations, hospitals, communication centers and disaster response facilities.

61 Debris flow. The term "debris flow" means a mass of rock fragments, soil, and mud which, when
62 wet, moves in a flow-like fashion. Debris flows will follow a confined channel, but may alter course if
63 present on an alluvial/debris fan surface.

64 Engineering geologist. The term "engineering geologist" means a geologist who, through
65 education, training and experience, is able to assure that geologic factors affecting engineering
66 works are recognized, adequately interpreted and presented for use in engineering practice and for
67 the protection of the public. This person shall have:

68 (1) At least a four-year degree in geology, engineering geology, or a related field from an
69 accredited university; and

70 (2) At least three full years of experience in a responsible position in the field of engineering
71 geology.

72 (3) A Utah State Professional Geologist's license.

73 Engineering geology. The term "engineering geology" means the application of geological data
74 and principles to engineering problems dealing with naturally occurring rock and soil for the purposes
75 of assuring that geological factors are recognized and adequately interpreted in engineering practice.

76 Fault. The term "fault" means a fracture in the earth's crust forming a boundary between rock or
77 soil masses that have moved relative to each other (also see "active fault").

78 Fault scarp. The term "fault scarp" means a steep slope or cliff formed directly by movement
79 along a fault.

80 Fault trace. The term "fault trace" means the intersection of the fault plane with the ground
81 surface.

82 Fault zone. The term "fault zone" means a corridor of variable width along one or more fault
83 traces.

Comment [c3]: New standard.

84 | Geotechnical report. The term "geotechnical report" means a technical report or study prepared
85 | by a geotechnical professional who is qualified in the field of expertise examined and analyzed in
86 | such a report. A person shall be considered "qualified" upon presentation of credentials providing
87 | recognition in the professional field, an academic degree from an accredited college or university in
88 | geology, geotechnics and/or geotechnical engineering.

89 | Landslide. The term "landslide" means a general term for the down slope movement of a mass
90 | of soil, surficial deposits or bedrock.

91 | Liquefaction. The term "liquefaction" means a process by which certain water saturated soils
92 | lose bearing strength because of ground shaking and increase of groundwater pore pressure.
93 | Liquefaction potential categories depend on the probability of having an earthquake within a 100-
94 | year period that will be strong enough to cause liquefaction in those zones. High liquefaction
95 | potential means that there is a 50% probability of having an earthquake within a 100-year period that
96 | will be strong enough to cause liquefaction. Moderate means that the probability is between 10% and
97 | 50%, low means that the probability is between 5% and 10%, and very low means less than 5%.

98 | Natural hazard. The term "natural hazard" means any hazard listed in Section 108-22-2,
99 | including, but not limited to, liquefaction, surface fault rupture, rock fall, debris flow, flood, tectonic
100 | subsidence, landslide and other hazards.

101 | Natural hazard map. The term "natural hazard map" means any map that has been published
102 | by a qualified professional or applicable governmental agency, which contains the best available
103 | information, as determined by the County Engineer, and which delineates a potential natural hazard.

104 | Natural hazard study area. The term "natural hazard study area" means any area identified on
105 | any natural hazard map or within any natural hazard studies or reports as having potential for being
106 | a natural hazard. In addition, the County Engineer has discretion to identify a natural hazard study
107 | area as a new hazard or potential hazard becomes known.

108 | Rock fall. The term "rock fall" means the gravity-induced drop of a newly detached segment of
109 | bedrock or perched rock of any size from a cliff or steep slope.

110 | Structure designed for human occupancy. The term "structure designed for human occupancy"
111 | means any residential dwelling or any other structure used or intended for supporting or sheltering
112 | any use or occupancy which is expected to have occupancy rate of more than 2,000 person-hours
113 | per year.

114 | Zone of deformation. The term "zone of deformation" means the zone along a fault in which
115 | natural soil and rock materials are disturbed as a result of movement along the fault.

116 | ...

117 | **Title 102 - ADMINISTRATION**

118 | **CHAPTER 1. - GENERAL PROVISIONS**

119 | **Sec. 102-1-1. - Purpose and intent.**

120 | The purpose of this section is to establish regulations and procedures for the processing and
121 | consideration of applications allowed by this Land Use Code.

122 | **Sec. 102-1-2. - ~~Administrative~~ Planning director authority.**

123 | (a) The planning director, or his designee, is authorized to deny, approve, or approve with conditions an
124 | application for an administrative approval. Administrative approval can be given for the following
125 | applications:

126 | (1) Site plan approval, when required by this Land Use Code, for which the Land Use Authority is not
127 | otherwise specified by this Land Use Code;

Comment [c4]: The changes in this section are intended to clarify the role of the Planning Director when acting as the Land Use Authority.

128 ~~(2) site plans~~ Design review for with buildings under 10,000 square feet ~~located on a parcel less than~~
129 ~~one acre in size, and which impact an area of less than one acre, as provided in Section 108-1-2;~~

130 ~~(3) Home occupations with or without visiting clientele, as provided in Section 108-13-2;~~

131 ~~(4) Building parcel designation, as provided in Section 108-7-33;~~

132 ~~(5) combining of lots within an approved subdivision which meet ordinance requirements, minor~~
133 ~~Small subdivisions as defined by the subdivision definition, as provided in Section 106-1-8(f) of this~~
134 ~~Land Use Code; and~~

135 ~~(6) Flag lots, access to a lot/parcel using a private right-of-way or access easement, and access to~~
136 ~~a lot/parcel at a location other than across the front lot line, as provided in Title 108, Chapter 7 of~~
137 ~~this Land Use Code.~~

138 ~~(b)~~ The planning director may deny an application for an administrative approval if the use fails to
139 comply with specific standards set forth in this ~~chapter~~ Land Use Code or if any of the required
140 findings are not supported by evidence in the record as determined by the director. At the discretion
141 of the planning director, the planning commission can hear the request for an administrative
142 approval.

143 ~~(bc)~~ The ~~administrative planning director~~ approval process includes public notice and comment from
144 adjacent property owners, ~~when~~ as required by this Land Use Code or state code.

145 ...

146 **Sec. 102-1-4. - Notice of decision.**

147 After ~~hearing~~ reviewing the evidence and considering the application, the ~~approving authority~~
148 ~~(planning commission, planning director or his designee, board of adjustment, and county commission on~~
149 ~~land use applications)~~ Land Use Authority, as designated by this Land Use Code, shall make its findings
150 and decision. It shall then send have them entered in the minutes. Upon a decision by the approving
151 ~~authority, a notice of decision shall be mailed to the applicant at the address or e-mail address given in~~
152 ~~the application. A notice of decision can be a new~~ written notice of decision, a copy of the written
153 ~~administrative approval form~~ signed by the planning director or designee, or a copy of the approved
154 minutes. A decision by the ~~approving authority~~ Land Use Authority is final at the time the notice of decision
155 is ~~issued~~ sent. If a notice of decision is not sent, and the decision was made in a meeting where minutes
156 are kept, the decision shall be final on the date the minutes from the meeting are approved by the
157 ~~approving authority~~ Land Use Authority. The planning division shall also mail notice of any decisions to
158 any person or agency who, in writing, requested such notification before the decision was rendered.
159 Unless the Land Use Authority's final decision specifies otherwise, the Land Use Authority's decisions
160 ~~is~~ are subject to requirements and conditions stated in the staff report and, if applicable, listed in the
161 meeting minutes.

162 ...

163 **Title 104 - ZONES**

164 ...

165 **CHAPTER 27. - RESERVED NATURAL HAZARDS OVERLAY DISTRICTS**

166 **Sec. 104-27-1. - Purpose and intent.**

167 ~~(a) — The purpose and intent of this chapter is to coordinate the application of natural hazards~~
168 ~~guidelines and standards, in order to protect the health, welfare and safety of the citizens of the county,~~
169 ~~and to minimize potential effects of natural and manmade hazards by identifying known hazardous~~

Comment [c5]: Here is part of the new statute of for "building parcel designation." See the rest in 108-7-33.

Comment [c6]: This land use code no longer references "minor subdivisions." Only "small subdivisions."

Comment [c7]: Changes to this section clarify the role of the land use authority when offering a final decision and when notifying the applicant of the decision.

Field Code Changed

Comment [c8]: This whole section has been moved in its modified form to section 108-22. This removes it from the zoning chapter and places it in the standards chapter where it belongs.

170 ~~areas. This portion of the chapter specifies the areas for which an environmental analysis shall be~~
171 ~~performed prior to development, the content of the analysis and the procedure by which development~~
172 ~~applications requiring the analysis are reviewed and processed.~~

173 ~~(b) — The county recognizes individual property rights and shall make every effort to balance the right~~
174 ~~of the individual property owner with the health, welfare, safety and the common good of the general~~
175 ~~public.~~

176 ~~**Sec. 104-27-2. Potential hazards.**~~

177 ~~The following potential hazards have been identified:~~

178 ~~(1) — Surface fault ruptures.~~

179 ~~a. — Surface faulting has been identified as a potential hazard in the county. Maps have been~~
180 ~~produced delineating the known area where a hazard may exist from surface fault ruptures. Broad~~
181 ~~subsidence of the valleys accompanying surface faulting may affect areas several miles away from the~~
182 ~~fault. These effects are not considered here, but are covered in subsection b of this section.~~

183 ~~b. — Studies along the Wasatch fault have indicated that during a "characteristic" earthquake which~~
184 ~~produces surface faulting, offsets of six feet or more may occur on the main trace of the fault zone. This~~
185 ~~offset will result in formation of a near-vertical scarp, generally in unconsolidated surficial deposits, that~~
186 ~~begin to ravel and erode back to the material's angle of repose (33-35 degrees) soon after formation.~~
187 ~~Antithetic faults west of the main trace may also form, generally exhibiting a lesser amount of offset, but~~
188 ~~sometimes as much as several feet. The zone between these two faults may be complexly faulted and~~
189 ~~tilted with offset along minor faults of several inches or more.~~

190 ~~c. — Based upon this data, it is difficult, both technically and economically, to design a structure to~~
191 ~~withstand six feet or more of offset through its foundation. Thus, avoidance of the main traces of the~~
192 ~~fault is the principal risk reduction technique that can be reasonably taken.~~

193 ~~d. — No critical facility or structure for human occupancy shall be built astride an active fault. In some~~
194 ~~areas adjacent to the main trace but still within the zone of deformation, avoidance may not be~~
195 ~~necessary. Less damaging (smaller) offsets of less than four inches, and tilting may occur and structural~~
196 ~~measures may be taken to reduce casualties and damage. However, structural damage may still be~~
197 ~~great, and buildings in the zone of deformation may not be safe for occupants following a large~~
198 ~~earthquake.~~

199 ~~e. — Due to the scale used to map these zones, there is not enough detail to delineate all fault traces~~
200 ~~and zones of deformation at a particular location, therefore, site specific plans and studies shall be~~
201 ~~required for development in or adjacent to the delineated areas.~~

202 ~~f. — Upon submittal, review and planning commission approval of site specific plans and studies with~~
203 ~~recommendations, produced by a qualified engineering geologist, setbacks shall be a minimum of 50~~

204 feet from an active fault trace. A reduction in the setback will be considered if the report presents
205 evidence to justify a reduction acceptable to the planning commission.

206 ~~(2) — Landslide/tectonic subsidence.~~

207 ~~a. — Landslide. Landslides, historically, have been one of the most damaging geologic processes~~
208 ~~occurring in Weber County. Most active landslides, and most older slides, have been mapped and are~~
209 ~~shown on the Sensitive Lands Overlay District maps. These designations serve as an indication of~~
210 ~~unstable ground. The maps designate areas of landslides and slopes which are potentially unstable~~
211 ~~under static (non-earthquake) conditions, and are especially vulnerable under conditions of high to~~
212 ~~abnormally high precipitation. Landslides can damage structures, roads, railroads and power lines.~~
213 ~~Furthermore, landslides may rupture canals, aqueducts, sewers and water mains, all of which can add~~
214 ~~water to the slide plane and promote further movement. Flooding may also be caused.~~

215 ~~b. — Many methods have been developed for reducing landslide hazards. Proper planning and~~
216 ~~avoidance is the least expensive measure, if landslide-prone areas are identified early in the planning~~
217 ~~and development process. Care in site grading with proper compaction of fills and engineering of cut~~
218 ~~slopes is a necessary follow-up to good land-use planning. Where avoidance is not feasible, various~~
219 ~~engineering techniques are available to stabilize slopes, including de-watering (draining), retaining~~
220 ~~structures, piles, bridging, weighting or buttressing slopes with compacted earth fills and drainage~~
221 ~~diversion. Since every landslide and unstable slope has differing characteristics, any development~~
222 ~~proposed within a designated landslide hazard area, as delineated on the Sensitive Lands Overlay~~
223 ~~District maps, shall require the submittal, review and approval by the planning commission, of specific~~
224 ~~site studies, including grading plans, cut/fill, and plans produced by a qualified engineering geologist and~~
225 ~~a Utah licensed geotechnical engineer. The site specific study shall address slope stability (including~~
226 ~~natural or proposed cut slopes), evaluate slope failure potential, effects of development and~~
227 ~~recommendations for mitigative measures. Slope stability analysis shall include potential for movement~~
228 ~~under static, development-induced and earthquake-induced conditions as well as likely groundwater~~
229 ~~conditions.~~

230 ~~c. — Tectonic subsidence. Tectonic subsidence, also called seismic tilting, is the warping, lowering~~
231 ~~and tilting of a valley floor that accompanies surface faulting earthquakes on normal (dip slip) faults~~
232 ~~such as the Wasatch fault zone. Inundation along the shores of lakes and reservoirs and the ponding of~~
233 ~~water in areas with a shallow water table may be caused by tectonic subsidence. Certain structures~~
234 ~~which require gentle gradients or horizontal floors, particularly wastewater treatment facilities and~~
235 ~~sewer lines may be adversely affected.~~

236 ~~d. — Because subsidence may occur over large areas (tens of square miles), it is generally not~~
237 ~~practical to avoid the use of potentially affected land except in narrow areas of hazard due to lake~~
238 ~~shoreline flooding. For gravity flow structures such as wastewater treatment facilities that are within~~
239 ~~areas of possible subsidence, it is advisable to consider the tolerance of such structures to slight changes~~
240 ~~in gradient. Some structures may have to be relevelled after a large magnitude earthquake. Critical~~

241 ~~facilities which contain dangerous substances should have safety features to protect the structure, its~~
242 ~~occupants and the environment from both tilting and flooding.~~

243 ~~e.—— Flooding problems along lakes from tectonic subsidence shall be reduced using standard~~
244 ~~techniques such as raising structures above expected flood levels and dikes can be built. Development~~
245 ~~adjacent to lakes or reservoirs shall be prohibited within three feet of elevation above projected lake~~
246 ~~levels to protect against natural rises from wet periods, storm waves and earthquake induced seiching,~~
247 ~~as well as hazards associated with tectonic subsidence.~~

248 ~~f.—— Rises in the water table accompanying tectonic subsidence may cause water to pond, flood~~
249 ~~basements and disrupt buried facilities in areas of shallow groundwater adjacent to the fault on the~~
250 ~~down dropped side.~~

251 ~~g.—— The principal application of the identified tectonic subsidence areas is to make the public aware~~
252 ~~of the hazard and to indicate those areas where further study may be necessary. Site specific tectonic~~
253 ~~subsidence studies are recommended only for critical facilities in areas of potential lake margin and~~
254 ~~ponded shallow groundwater flooding. However, certain vulnerable facilities such as high cost~~
255 ~~wastewater treatment plants and hazardous waste facilities should also consider potential tilting.~~

256 ~~(3)—— Rock fall.~~

257 ~~a.—— Rock falls are a naturally occurring erosional process in mountain areas in Weber County. As~~
258 ~~development advances higher onto the bench areas and into the canyons the risk from falling rocks~~
259 ~~becomes greater. A primary mechanism responsible for triggering rock falls is water in outcrop~~
260 ~~discontinuities. Rock falls present a hazard because of the potential damage a large rock mass, traveling~~
261 ~~at a relatively high velocity, could cause to structures and personal safety. Buildings shall be located so~~
262 ~~that structures are not positioned in an area susceptible to rock falls. When new developments cannot~~
263 ~~be designed around a rock fall path, and hazard reduction measures must be considered, a site specific~~
264 ~~plan and hazard study, with recommendations for mitigation, shall be produced by a qualified~~
265 ~~engineering geologist, submitted for review and approval by the planning commission. Mitigation may~~
266 ~~require design by a Utah licensed geotechnical engineer, and may include rock stabilization techniques~~
267 ~~such as bolting, cable lashing, burying, and grouting discontinuities, removal or break up of potential~~
268 ~~rock clasts, as well as deflection berms, slope benches, and rock catch fences to stop or at least slow~~
269 ~~down falling rocks. Strengthening a structure to withstand impact is an example of modifying what is at~~
270 ~~risk. Mitigation problems can arise when rock source areas are located on land not owned by the~~
271 ~~developer.~~

272 ~~b.—— In areas where the rock fall hazard is present but very low, disclosures of potential hazards to~~
273 ~~land owners and residents with an acknowledgment of risk and willingness to accept liability may be an~~
274 ~~acceptable alternative to avoidance or mitigation for single family residences.~~

275 ~~(4)—— Debris flows.~~

276 a. ~~Debris flows are mixtures of water, rock, soil and organic material (70-90 percent solids by~~
277 ~~weight) that form a muddy slurry much like wet concrete and flow down slope, commonly in surges or~~
278 ~~pulses, due to gravity. They generally remain confined to stream channels in mountainous areas, but~~
279 ~~may reach and deposit debris over large areas on alluvial fans at and beyond canyon mouths.~~

280 b. ~~The county debris flow hazard maps were constructed from the boundaries of active alluvial~~
281 ~~fans and areas with slopes steeper than 30 percent. Any proposed development in areas identified as~~
282 ~~debris flow hazard areas shall be evaluated prior to approval of the proposed development.~~

283 1. ~~A study shall be prepared by an engineering geologist for any development proposed in or~~
284 ~~adjacent to a debris flow hazard area and shall include:~~

285 (i) ~~An analysis of the past history of debris flow at the site based on subsurface exploration to~~
286 ~~determine the nature and thickness of debris flow and related alluvial fan deposits.~~

287 (ii) ~~An analysis of the drainage basin's potential to produce debris flows based on the presence of~~
288 ~~debris slides and colluvium-filled slope concavities, and an estimate of the largest probable volumes~~
289 ~~likely to be produced during a single event.~~

290 (iii) ~~An analysis of the stream channel to determine if the channel will supply additional debris,~~
291 ~~impede flow, or contain debris flows in the area of the proposed development.~~

292 (iv) ~~An analysis of manmade structures upstream that may divert or deflect debris flows.~~

293 (v) ~~Recommendations concerning any channel improvements, flow modifications and catchment~~
294 ~~structures, direct protection structures or floodproofing measures, if necessary, in order to protect the~~
295 ~~development.~~

296 (vi) ~~Upon approval of the county engineer, the report shall be presented to the planning~~
297 ~~commission along with review comments for recommendation of approval by the county commission.~~

298 (5) ~~Liquefaction areas.~~

299 a. ~~Earthquake ground shaking causes a variety of phenomena which can damage structures and~~
300 ~~threaten lives. One of these is termed soil liquefaction. Ground shaking tends to increase the pressure in~~
301 ~~the pore water between soil grains, which decreases the stresses between the grains. The loss of~~
302 ~~intergranular stress can cause the strength of some soils to decrease nearly to zero. When this occurs,~~
303 ~~the soil behaves like a liquid. When liquefaction occurs, foundations may crack, buildings may tip,~~
304 ~~buoyant buried structures such as septic tanks and storage tanks may rise, and even gentle slopes may~~
305 ~~fail as liquefied soils and overlying materials move down slope.~~

306 b. ~~Areas of potential liquefaction have been delineated and the following regulations and~~
307 ~~mitigation measures have been adopted in order to reduce the hazard and consequences. Areas of~~
308 ~~moderate to high liquefaction potential need not be avoided. Structural measures and site modification~~
309 ~~techniques are available to reduce hazards. A site specific liquefaction study shall be required to be~~

310 prepared, and shall be prepared by an engineering geologist and/or a state licensed geotechnical
311 engineer.

312 (i) Standard soil foundation study, for the proposed development, shall include liquefaction
313 potential evaluation based upon depth to groundwater, soil types and ground failure hazard.

314 (ii) If liquefiable soils are present, standard penetration tests and/or cone penetration tests shall be
315 required to determine critical accelerations needed to induce liquefaction.

316 (iii) Report shall include accurate maps of the area showing any proposed development, the location
317 of bore holes and/or test pits, the site geology, and location and depths of any liquefiable soils noted,
318 along with the probability of critical accelerations needed to induce liquefaction in these soils being
319 exceeded for appropriate time periods.

320 (iv) The report shall include recommendations for hazard reduction techniques.

321 (v) The county engineer shall concur with the scope of the report, techniques and methodology to
322 be used in the preparation of the report and shall have input as to the specific types of information to be
323 included in the report.

324 (vi) Upon approval of the county engineer, the report shall be presented to the planning
325 commission along with review comments for recommendation of approval by the county commission.

326 (6) Flood. The floodplain standards are written to minimize the loss of life and property when floods
327 do occur, not to ban development outright from the floodplain. The Federal Emergency Management
328 Agency (FEMA) has produced official floodplain maps, depicting areas of potential stream flooding for
329 major drainages in Weber County. FEMA recommends that no new development be permitted in the
330 100-year floodplain unless:

331 a. Detailed engineering studies, prepared by a state licensed engineer, show that the proposed
332 development will not increase the flood hazard to other property in the area. Recommendations shall be
333 made for floodproofing or other mitigation techniques for development within flood hazard areas. (Site
334 investigations for proposed development in lake flooding areas near Great Salt Lake need only indicate
335 the site elevation. Development proposals in areas with elevations less than 4,218 feet will be reviewed
336 with respect to lake flooding potential and compatibility of proposed use.)

337 b. The proposed development is elevated above the 100-year flood base elevation.

338 c. For federally insured loans, flood insurance is purchased from a company participating with the
339 Federal Insurance Administration or a like private carrier.

340 d. Upon approval of the county engineer, the report shall be presented to the planning
341 commission along with review comments for recommendation of approval by the county commission.

342 ~~1. Alluvial fan flooding, which is not mapped under the FEMA program, may be a hazard on all~~
343 ~~active alluvial fans designated on the debris flow hazard maps. The hazard from such flooding shall be~~
344 ~~addressed and appropriate hazard reduction measures taken.~~

345 ~~2. Sheet flow. Certain areas of the Ogden Valley have been identified and mapped as areas of~~
346 ~~sheet flow flooding. The hazard from such flooding shall be addressed and appropriate hazard reduction~~
347 ~~measures taken.~~

348 ~~(7) Other hazardous areas:~~

349 ~~a. As in many counties in the Western United States, development in the county is constrained by~~
350 ~~the presence of natural and manmade hazards. These hazards include avalanche, slope movement, soils~~
351 ~~categorized as having severe building limitations and slopes exceeding 30 percent.~~

352 ~~b. Not all hazardous sites and conditions have been identified in the county; however,~~
353 ~~development on those identified sites shall be permitted when projects are studied and designed by a~~
354 ~~qualified engineering geologist and a state licensed civil engineer, architect and/or an engineering~~
355 ~~geologist and certified to withstand the potential hazard for which it is designed, and that the site is~~
356 ~~buildable and that the site is safe. This allows development on hazardous sites with the full~~
357 ~~acknowledgment of the property owner. The use of hazardous sites for open space is encouraged.~~

358 ~~**Sec. 104-27-3. Supplementary hazards definitions.**~~

359 ~~The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to~~
360 ~~them in this section, except where the context clearly indicates a different meaning:~~

361 ~~Active fault means a fault displaying evidence of greater than four inches of displacement along one or~~
362 ~~more of its traces during Holocene time (about 11,000 years ago to the present).~~

363 ~~Area of deformation means the zone along a fault in which natural soil and rock materials are disturbed~~
364 ~~as a result of movement along the fault. (Also Zone of Deformation.)~~

365 ~~Critical acceleration means the minimum amount of ground acceleration during seismically induced~~
366 ~~ground movement required to induce liquefaction or other forms of ground disruption.~~

367 ~~Critical facilities means:~~

368 ~~(1) Lifelines such as major communication, utility and transportation facilities and their connection~~
369 ~~to emergency facilities;~~

370 ~~(2) Essential facilities, such as:~~

371 ~~a. Hospitals and other medical facilities having surgery and emergency treatment areas;~~

372 ~~b. Fire and police stations;~~

- 373 ~~c. Tanks or other structures containing housing or supporting water or other fire-suppression~~
374 ~~materials or equipment required for the protection of essential or hazardous facilities, or special~~
375 ~~occupancy structures;~~
- 376 ~~d. Emergency vehicle shelters and garages;~~
- 377 ~~e. Structures and equipment in emergency preparedness centers;~~
- 378 ~~f. Standby power-generating equipment for essential facilities;~~
- 379 ~~g. Structures and equipment in government communication centers and other facilities required~~
380 ~~for emergency response;~~
- 381 ~~(3) Hazardous facilities such as structures housing, supporting or containing sufficient quantities of~~
382 ~~toxic or explosive substances to be dangerous to the safety of the general public if released; or~~
- 383 ~~(4) Special occupancy structures, such as:~~
- 384 ~~a. Covered structures whose primary occupancy is public assembly (capacity greater than 300~~
385 ~~persons);~~
- 386 ~~b. Buildings for schools through secondary or day care centers (capacity greater than 50 students);~~
- 387 ~~c. Buildings for colleges or adult education schools (capacity greater than 50 students);~~
- 388 ~~d. Medical facilities with 50 or more resident incapacitated patients, but not included above;~~
- 389 ~~e. Jails and detention facilities;~~
- 390 ~~f. All structures with occupancy greater than 5,000 persons;~~
- 391 ~~g. Structures and equipment in power-generating stations and other public utility facilities not~~
392 ~~included above, and required for continued operation;~~
- 393 ~~h. Unique or large structures whose failure might be catastrophic, such as dams holding over ten~~
394 ~~acre feet of water.~~
- 395 ~~Debris flow means a mass of rock fragments, soil, and mud which, when wet, moves in a flow-like~~
396 ~~fashion. Debris flows will follow a confined channel, but may alter course if present on an alluvial/debris~~
397 ~~fan surface.~~
- 398 ~~Engineering geologist means a geologist who, through education, training and experience, is able to~~
399 ~~assure that geologic factors affecting engineering works are recognized, adequately interpreted and~~
400 ~~presented for use in engineering practice and for the protection of the public. This person shall have at~~
401 ~~least a four-year degree in geology, engineering geology, or a related field from an accredited university~~
402 ~~and at least three full years of experience in a responsible position in the field of engineering geology.~~

403 ~~Engineering geology means the application of geological data and principles to engineering problems~~
404 ~~dealing with naturally occurring rock and soil for the purposes of assuring that geological factors are~~
405 ~~recognized and adequately interpreted in engineering practice.~~

406 ~~Fault means a fracture in the earth's crust forming a boundary between rock and soil masses that have~~
407 ~~moved relative to each other (See Active fault).~~

408 ~~Fault scarp means a steep slope or cliff formed directly by movement along a fault.~~

409 ~~Fault trace means the intersection of a fault plane with the ground surface.~~

410 ~~Fault zone means a corridor of variable width along one or more fault traces.~~

411 ~~Landslide means a general term for the downslope movement of a mass of soil, surficial deposits or~~
412 ~~bedrock.~~

413 ~~Liquefaction means a process by which certain water saturated soils lose bearing strength because of~~
414 ~~ground shaking and increase of groundwater pore pressure.~~

415 ~~Natural hazard means avalanche, liquefaction, surface fault rupture, rock fall, debris flow, flood, tectonic~~
416 ~~subsidence and/or landslide.~~

417 ~~Natural hazard maps means the overlay maps, which delineate hazards, such as avalanche, liquefaction,~~
418 ~~surface fault rupture, rock fall and/or landslide areas.~~

419 ~~Rock fall means the gravity induced drop of a newly detached segment of bedrock or perched rock of~~
420 ~~any size from a cliff or steep slope.~~

421 ~~Structure designed for human occupancy means any residential dwelling or any other structure used or~~
422 ~~intended for supporting or sheltering any use or occupancy which is expected to have occupancy rate of~~
423 ~~more than 2,000 person hours per year.~~

424 ~~**Sec. 104-27-4. Studies and reports required.**~~

425 ~~(a) Requirement for report. Any applicant requesting development on a parcel of land within a~~
426 ~~natural hazards study area, as shown on the natural hazards maps, shall submit to the planning~~
427 ~~commission six copies of site specific natural hazard studies and reports, where required for such~~
428 ~~development according to the following chart.~~

429 ~~(1) The natural hazards report and studies shall be prepared by an engineering geologist. In the case~~
430 ~~of a snow avalanche hazard, the report shall be prepared by an experienced avalanche expert. The~~
431 ~~report shall be signed by the preparer and shall also include the qualifications of the preparer.~~

432 ~~(2) The report shall be site specific and identify all known or suspected potential natural hazards~~
433 ~~originating on site or off site affecting the particular property.~~

434 (3) — The report shall include a detailed site map (scale: one inch equals 200 feet or larger), showing
 435 the location of the hazard with delineation of the recommended setback distances from the hazard and
 436 the recommended location for structures.

437 (4) — The report shall address the potential effects of the hazard on the proposed development and
 438 occupants thereof in terms of risk and potential damage.

439 (5) — The report shall contain recommendations for avoidance or mitigation of the effects of the
 440 hazard consistent with the purposes set forth in section 104-27-1 of this chapter. The evidence on which
 441 recommendations and conclusions are based shall be clearly stated in the report.

442 (6) — Trench logs (scale: one inch equals five feet or larger), aerial photographs, references with
 443 citations, and other supporting information as applicable, shall also be included in the report.

Land Use (Type of Facility)	Liquefaction Potential High/Moderate	Landslide/Rock Fall/Debris Flow Special Study Area	Surface Fault Rupture Special Study Area
Critical facilities	Yes	Yes	Yes
Industrial or commercial >2 stories;>5,000 sq. ft.	Yes	Yes	Yes
Multifamily (4 or more units) and all other industrial or commercial	Yes	Yes	Yes
Residential subdivisions	No**	Yes	Yes
Residential, single lots/multifamily (less than 4 units/acre)	No**	Yes	Yes
**Although no special study is required, disclosure is required as described in section 104-27-7.			

444 -
 445 (b) — Review of report. In order to fulfill the purposes of this chapter, the planning commission (for
 446 conditional uses, site plan review, design review and subdivisions) shall review any proposed
 447 development which requires preparation of a natural hazards report under this chapter to determine
 448 the possible risks to the safety of persons or property from natural hazards.

449 (1) — Prior to consideration by the planning commission of any such development, the planning
 450 director shall submit the report to the Utah Geological and Mineral Survey, the U.S. Forest Service,

451 and/or any other experts for review and recommendation. Any cost for the review shall be paid by the
452 applicant prior to any planning commission action.

453 (2) — Whenever the planning commission determines that an area is subject to natural hazards which
454 present an unreasonable risk to the safety of persons or property, including public streets, such area
455 shall not be approved for development unless the applicant can demonstrate that such a risk can be
456 reduced to a reasonable and acceptable level in a manner which has a minimum effect on the natural
457 environment.

458 (3) — The planning commission may set requirements necessary to reduce the risks from natural
459 hazards as a condition to the approval of any development which requires preparation of a natural
460 hazards report.

461 (c) — Active fault consideration. No critical facility (excluding transportation lines or utilities which by
462 their nature may cross active faults) or structures designed for human occupancy shall be built astride
463 an active fault. If a fault is discovered in the excavation for such a structure, a special study and report,
464 as described in subsection (a) of this section, shall be performed to determine if the fault is active, and if
465 the fault is determined to be active, the procedures set forth in subsection (b) of this section, shall be
466 followed. No structure designed for human occupancy shall be built on a fault scarp. Footing setbacks
467 from a fault scarp shall meet the requirements of chapter 29 of the Uniform Building Code. The planning
468 commission may increase footing setback requirements where information from a geotechnical report
469 indicates slope conditions warrant a greater setback distance.

470 **Sec. 104-27-5. — Disclosure required.**

471 (a) — When a natural hazard report shows that a hazard exists which affects a particular parcel, a copy
472 of the report shall be kept for public inspection in the county planning commission office. The natural
473 hazard report denoting the type and severity of the hazard, the professional who prepared the report,
474 the fact that the report is available to the public at the county planning department, and any restrictions
475 on the use of the parcel required within the natural hazards report shall be recorded as a deed covenant
476 running with the land, in the office of the county recorder, in addition to the following:

477 (1) — Notice that the parcel is located within a natural hazards special study area as shown on the
478 natural hazards map.

479 (2) — Notice of the existence and availability of the natural hazards report for public inspection in the
480 county planning commission office.

481 (3) — An agreement by the owner of the parcel and any successor in interest to comply with any
482 conditions set by the planning commission to minimize adverse effects of the natural hazard.

483 (4) — When a natural hazard report is not required, but where the parcel is located within a mapped
484 hazardous area, as shown on one of the natural hazards overlay maps, notice that the parcel is located

485 ~~within such an area shall be recorded as a deed covenant running with the land in the county recorder's~~
486 ~~office and shall be written in a form satisfactory to the county engineer and attorney.~~

487 ~~(5) — The natural hazards ordinance codified in this chapter and natural hazards maps represent only~~
488 ~~those hazardous areas known to the county, and shall not be construed to include all possible potential~~
489 ~~hazard areas. The natural hazards listed in this chapter and associated maps may be amended as new~~
490 ~~information becomes available. The provisions of this chapter do not in any way assure or imply that~~
491 ~~areas outside its boundaries will be free from the possible adverse effects of natural hazards. This~~
492 ~~chapter shall not create liability on the part of the county, any officer or employee thereof for any~~
493 ~~damages from natural hazards that result from reliance on this chapter or any administrative~~
494 ~~requirement or decision lawfully made thereunder.~~

495 ~~**Sec. 104-27-6. — Exemptions from filling natural hazard report.**~~

496 ~~Proposed development not occupied by humans shall not be required to provide a natural hazard~~
497 ~~report, except critical facilities which shall be required to provide a report.~~

498 ~~**Sec. 104-27-7. — Costs to be the responsibility of the developer/applicant.**~~

499 ~~Any of the above described technical reports and/or studies shall be performed by the required qualified~~
500 ~~professional on behalf of the county through a third party contract where all fees, costs and expenses~~
501 ~~are the responsibility of the applicant. Any other costs incurred in providing technical reports or~~
502 ~~testimony by expert witnesses shall be solely the responsibility of the applicant and not the county.~~

503 ~~**Sec. 104-27-8. — Change of use.**~~

504 ~~No change in use which results in the conversion of a building or structure from one not used for human~~
505 ~~occupancy to one that is so used shall not be permitted unless the building or structure complies with~~
506 ~~the provisions of this chapter.~~

507 ~~**Sec. 104-27-9. — Variances.**~~

508 ~~(a) — Ability to grant. The county board of adjustment, when deciding appeals for variances of~~
509 ~~distance or area within the Natural Hazards Overlay Zone shall follow both the standards of title 102,~~
510 ~~chapter 3 of the Weber County Land Use Code and the standards stated below.~~

511 ~~(b) — Items to consider. In deciding whether to grant a variance and what conditions to attach to its~~
512 ~~approval, the board of adjustment shall consider:~~

513 ~~(1) — The likelihood during a significant seismic or other geologic event that materials may be moved~~
514 ~~onto adjacent land areas causing injury to persons or property;~~

515 ~~(2) — The degree of susceptibility to damage by seismic or other geologic activity for the building~~
516 ~~design or use proposed;~~

- 517 ~~(3) — The importance of the services of the proposed facility to the community and the need for the~~
518 ~~facility to be functional following a significant event of geologic activity;~~
- 519 ~~(4) — The necessity of the facility to be in the proposed location or proposed design;~~
- 520 ~~(5) — Considering alternate locations and designs available;~~
- 521 ~~(6) — The ability of the community to provide emergency services to the facility in the event of a~~
522 ~~catastrophe;~~
- 523 ~~(7) — The degree of benefit received from the variance relative to the hazards posed to the facility's~~
524 ~~neighbors, visitors, and owners.~~
- 525 ~~(c) — Presumption relative to approval. Generally, the standards of this chapter shall not be varied~~
526 ~~unless an equally safe method of use and construction can be approved.~~
- 527 ~~(1) — The amount of variance approved shall be only the minimum amount required to provide relief.~~
- 528 ~~(2) — A variance shall be granted only if it will not result in a threat to public safety, cause~~
529 ~~extraordinary public expense, or create a nuisance.~~
- 530 ~~(3) — A variance shall be granted only if it will not result in a threat to public safety, cause~~
531 ~~extraordinary public expense, or create a nuisance.~~
- 532 ~~(4) — In a continuum beginning with hay barns and agricultural structures and going to high rise~~
533 ~~apartment buildings and auditoriums, the difficulty in obtaining a variance shall be greater for structures~~
534 ~~with a high percentage of time when the structure is utilized by humans or is occupied by a large~~
535 ~~number of people.~~
- 536 ~~Sec. 104-27-10. — Disputes, boundaries or mapped hazards.~~
- 537 ~~The boundary lines of the special study areas shown on the Natural Hazards Overlay Maps shall be~~
538 ~~determined by use of the scale appearing on the map. Where there is a conflict between the boundary~~
539 ~~lines illustrated on the map and actual field conditions, or where detailed investigations show that the~~
540 ~~mapped hazards are not present within a particular area, the dispute shall be settled as follows:~~
- 541 ~~(1) — The person disputing the hazard study area boundary or the mapped hazards present within a~~
542 ~~particular area shall submit technical and geologic evidence to support such claim to the planning~~
543 ~~commission in the form of a site-specific natural hazards report.~~
- 544 ~~(2) — The planning commission may request the Utah Geological Survey, the U.S. Forest Service,~~
545 ~~and/or other experts to review the evidence prior to making a decision concerning the dispute.~~
- 546 ~~(3) — The cost of the review shall be paid by the person disputing the map.~~

547 ~~(4) The planning commission may allow deviations from the mapped boundary line only if the~~
548 ~~evidence clearly and conclusively establishes that the natural hazard study area boundary location is~~
549 ~~incorrect, or that the mapped hazards are not present within a particular area.~~

550 ~~(5) Any decision of the planning commission may be appealed to the board of county~~
551 ~~commissioners by filing an appeal within 15 days of the planning commission's decision.~~

552 ...

553 **Title 106 - SUBDIVISIONS**

554 ...

555 **CHAPTER 1. - GENERAL PROVISIONS**

556 ...

557 **Sec. 106-1-8. - Final plat requirements and approval procedure.**

558 ...

559 (g) ~~Additional documents provisions. The Land Use Authority may impose conditions of approval as may~~
560 ~~be necessary to assure compliance with this Land Use Code. Unusual site specific conditions of~~
561 ~~development or other restrictions applied to the use/development of a lot or lots resulting~~
562 ~~attributed from to topography, geologic or environmental conditions or potential hazards, location, or~~
563 ~~zoning or other site specific regulations/conditions or restrictions authorized by this Land Use Code;~~
564 ~~etc., shall be identified in the actual location of the condition or restriction on the subdivision drawing.~~
565 ~~A notice of the unusual site specific condition or restriction, and shall be recorded as a protective~~
566 ~~covenant attached to run with the lot or lots affected.~~

Comment [c9]: This subsection of the Subdivision code is being modified to remove the requirement for a "covenant." It is also being modified for general clarity.

567 ...

568 **Title 108 - STANDARDS**

569 ...

570 **CHAPTER 7. - SUPPLEMENTARY AND QUALIFYING REGULATIONS**

571 ...

572 **Sec. 108-7-33. - Building parcel designation**

Comment [c10]: Here is the new statute for a building parcel designation.

573 (a) Separate adjoining lots within an approved subdivision plat may be combined for building purposes
574 without filing a formal subdivision plat amendment. The original lot lines, as recorded, do not change.

575 (b) A building parcel designation shall be approved provided that:

576 (1) An application shall be submitted on a form approved by the Planning Director;

577 (2) The application shall include a copy of the subdivision plat;

578 (3) All lots proposed to be combined shall be under the same ownership;

579 (4) No additional lot shall be created; and

580 [\(5\) The existing lots shall conform to the current zoning or be part of a platted cluster subdivision or](#)
581 [PRUD. Existing lots that do not conform to current zoning shall require an amended subdivision](#)
582 [plat.](#)

583 ...

584 **CHAPTER 14. - HILLSIDE DEVELOPMENT REVIEW PROCEDURES AND STANDARDS**

585 **Sec. 108-14-1. - Purpose and intent.**

586 (a) It is recognized that the general provisions, definitions, procedures, improvements and design
587 requirements, standards and principles set out in the Land Use Code of Weber County require
588 supplementation to protect and preserve the public health, safety, and welfare in regard to hillside
589 terrain and environmentally sensitive areas. When areas are subdivided or developed on sensitive
590 areas, such features as special soil ~~and geologic~~ conditions, steep terrain, highly combustible native
591 vegetation, and other conditions may pose serious potential consequences such as increased fire,
592 flood or erosion hazards, traffic circulation problems, sewage disposal problems, property damage
593 from extensive soils slippage and subsidence, and adverse effects from destruction of natural scenic
594 beauty and unsightly developments. Such consequences may be avoided if special consideration is
595 given to areas where one or more such conditions exist.

596 (b) In the administration of the provisions of this chapter, the hillside development review board shall
597 strive to achieve the objective of preserving the natural contours of the hillside areas by encouraging
598 and requiring, where necessary, the following:

- 599 (1) A minimum amount of grading which preserves the natural contours of the land.
600 (2) Retention of trees and other native vegetation (except in those cases where a high fire hazard
601 results) which stabilizes steep hillsides, retains moisture, prevents erosion and enhances the
602 natural scenic beauty.
603 (3) Construction of roads on steep hillsides in such a way as to minimize scars from cuts and fills
604 and avoid permanent scarring of hillsides.
605 (4) Placement of building sites in such a manner as to permit ample room for adequate defensible
606 area as defined by the fire code, landscaping and drainage between and around the buildings.
607 (5) Grading which will eliminate the sharp angles at the top and toe of cut and fill slopes, both with
608 respect to building sites and to road cross-sections.
609 (6) Lot and structure designs and location which will be appropriate in order to reduce ~~geologic and~~
610 ~~environmental hazards, as required in of title 104, chapter 27, Natural Hazards Overlay District,~~
611 ~~as well as~~ grading and natural topographic disturbance.
612 (7) Cluster type development or other new concepts and techniques, where appropriate, in order to
613 eliminate, as far as possible, construction on steep, sensitive or dangerous terrain.
614 (8) Early temporary or permanent planting, or other materials, wherever appropriate to maintain
615 necessary cut and fill slopes in order to stabilize them with plant roots or other materials,
616 thereby preventing erosion and to conceal the raw soil from view.

617 ...

618 **Sec. 108-14-3. - Applicability.**

619 (a) All parcels, subdivision lots, roads and accesses, where the natural terrain has average slopes at or
620 exceeding 25 percent shall be reviewed by the Hillside Development Review Board as part of an
621 application request for land use and building permits. Hillside Review is required as part of the
622 preliminary subdivision review. This requirement may be waived by the ~~P~~lanning ~~D~~irector and the
623 ~~C~~ounty ~~E~~ngineer on a case-by-case basis.

Comment [c11]: Changes to this whole chapter are intended to separate hillside review process from the natural hazards review process. More changes to this chapter can be anticipated in the future.

624 (b) The planning division shall not issue any land use permits, and the building official shall not issue
625 any building permits until detailed plans and engineered drawings have been submitted to, and
626 approved by the hillside development review board. Any condition attached to such approval by said
627 board shall be a condition required with the issuance of land use permit. All parcels, subdivisions,
628 lots, roads and accesses may come under consideration of the review board if requested by the
629 owner, developer, or review agency. Other circumstances may warrant a review as found in the [Title](#)
630 [108 Chapter 22 – Natural Hazard Areas](#). ~~"Natural Hazards Overlay Districts" of title 104, chapter 27.~~

631

632 **Sec. 108-14-4. - Procedure.**

633 Application plans and applications of the proposed development and any relevant information
634 regarding building and excavation of the site are to be submitted to the planning division. Information shall
635 include, but not be limited to the following:

- 636 (1) Detailed engineering plans and profiles for retaining wall, cuts, filling and/or excavating of land.
637 (2) Site plan with contours.
638 (3) Cross sections of improvements.
639 (4) Retaining wall designs with engineers stamp (if applicable).
640 (5) Geotechnical report (site specific for structures) and ~~_if applicable, an outside review of the~~
641 ~~geological report if deemed necessary.~~ [verification of compliance with the requirements of Title](#)
642 [108, Chapter 22 - Natural Hazard Areas](#).
643 (6) Other studies and/or information deemed necessary by the members of the board.
644 (7) Utah pollution discharge elimination system (UPDES) permit with stormwater pollution
645 prevention plan (SWPPP) shall be required at the time of application. Erosion control
646 landscaping on cuts, fills and other locations, considered necessary by the review board, shall
647 be provided in order to prevent erosion.
648 (8) A landscape plan as per ~~section~~[Section](#) 108-14-10.

649 ...

650 **Sec. 108-14-9. -- ~~Reserved. Geologic and other environmental considerations.~~**

651 ~~(a) Geologic and other environmental constraints shall be considered by the review board when~~
652 ~~reviewing any developments on restricted lots or parcels of land. Mitigation measures shall be~~
653 ~~required as stated in title 104, chapter 27 the Natural Hazards Overlay District of the Weber County~~
654 ~~Land Use Code.~~

655 ~~(b) An outside review of the geological report may be done by an independent firm, at the discretion of~~
656 ~~the county engineer if he deems it necessary; the independent firm will be selected from a list,~~
657 ~~provided by the county, with all costs associated with the review paid by the applicant. The hillside~~
658 ~~development review board shall consider the findings, recommendations, and requirements of the~~
659 ~~report. If the applicant disagrees with the finding and reconditions and requirements of the~~
660 ~~independent firm, they may appeal to the board of adjustment.~~

661

662 ...

663 **Sec. 108-14-11. - Appeals.**

664 [\(a\) Except as allowed in subsection \(b\) of this section, an appeal of any written decision in the](#)
665 [application of this chapter shall be appealed in accordance with Title 102, Chapter 3 – Board of](#)
666 [Adjustment, of this Land Use Code.](#)

Comment [c12]: This whole section is intended to clarify the appeal process, and bring the ordinance into compliance with state statute.

667 (b) When a written decision provided under this chapter contains technical aspects, an applicant may
668 request the County to assemble a panel of qualified professionals to serve as the appeal authority for
669 the sole purpose of determining those technical aspects¹.

670 (1) The technical aspects of the administration and interpretation of this chapter are decisions
671 related to:

672 a. the acceptance or rejection of scope, techniques, methodology, conclusions or specific
673 types of information presented in a study or report;

674 b. the review and recommendation of an acceptable study or report for the Land Use
675 Authority's consideration; or

676 c. the interpretation or application of any technical provisions of a study or report that is
677 required by this chapter.

678 (2) Unless otherwise agreed by the applicant and County, if an applicant makes a request under
679 this subsection, the County shall assemble the panel consisting of:

680 a. one qualified professional designated by the County;

681 b. one qualified professional designated by the applicant; and

682 c. one qualified professional chosen jointly by the County's designated qualified professional
683 and the applicant's designated qualified professional.

684 (3) A member of the panel may not be associated with the application that is the subject of the
685 appeal.

686 (4) The applicant shall pay for one half the cost of the panel in addition to the County's appeal fee.

687 (5) The panel shall be governed by the same appeal provisions of the Board of Adjustment
688 provided in Title 102, Chapter 3 - Board of Adjustment, of this Land Use Code.

689 ~~An appeal of the Hillside Development Review Board's decision shall be submitted to the county~~
690 ~~planning division:~~

691 ~~(1) The applicant, a board or officer of the county, or any person adversely affected by the Hillside~~
692 ~~Development Review Board's decision administering or interpreting Hillside Development~~
693 ~~Review procedures and standards ordinance may, within the time period provided by ordinance,~~
694 ~~appeal that decision to the appeal authority by alleging that there is error in any order,~~
695 ~~requirement, decision, or determination made by the Hillside Development Review Board in the~~
696 ~~administration or interpretation of the hillside development review procedures and standards~~
697 ~~ordinance.~~

698 ~~(2) An applicant who has appealed a decision of the land use authority administering or interpreting~~
699 ~~the county's geologic hazard ordinance may request the county to assemble a panel of qualified~~
700 ~~experts to serve as the appeal authority for purposes of determining the technical aspects of the~~
701 ~~appeal.~~

702 ~~(3) If an applicant makes a request under subsection (1) of this section, the county shall~~
703 ~~assemble the panel described in subsection (4) of this section consisting of, unless~~
704 ~~otherwise agreed by the applicant and county:~~

705 ~~a. One expert designated by the county;~~

706 ~~b. One expert designated by the applicant; and~~

707 ~~c. One expert chosen jointly by the county's designated expert and the applicant's~~
708 ~~designated expert from a pre-approved list that the engineering division has~~
709 ~~assembled.~~

¹ Note to codifiers: provide reference to UCA §17-27a-703(2)

~~(4) A member of the panel assembled by the county under subsection (3) of this section may not be associated with the application that is the subject of the appeal.~~

~~(5) The applicant shall pay one-half of the cost of the panel and the county's published appeal fee.~~

...

CHAPTER 22. – NATURAL HAZARD AREAS

Sec. 108-22-1. - Purpose and intent.

(a) The purpose and intent of this chapter is to coordinate the application of natural hazards guidelines and standards, in order to protect the health, welfare and safety of the citizens of the County, and to minimize potential effects of natural and manmade hazards by identifying known hazardous areas. This portion of the chapter specifies the areas for which an environmental analysis shall be performed prior to development, the content of the analysis and the procedure by which development applications requiring the analysis are reviewed and processed.

(b) The County recognizes individual property rights and shall make every effort to balance the right of the individual property owner with the health, welfare, safety and the common good of the general public.

Sec. 108-22-2. - Potential hazards.

The following potential hazards have been identified:

(1) Surface-fault ruptures.

a. Surface faulting has been identified as a potential hazard in the County. Maps have been produced delineating the known area where a hazard may exist from surface fault ruptures. Broad subsidence of the valleys accompanying surface faulting may affect areas several miles away from the fault. These effects are not considered here, but are covered in subsection 3 of this section.

b. Studies along the Wasatch fault have indicated that during a "characteristic" earthquake which produces surface faulting, offsets of six feet or more may occur on the main trace of the fault zone. This offset will result in formation of a near-vertical scarp, generally in unconsolidated surficial deposits, that begin to ravel and erode back to the material's angle of repose (33-35 degrees) soon after formation. Antithetic faults west of the main trace may also form, generally exhibiting a lesser amount of offset, but sometimes as much as several feet. The zone between these two faults may be complexly faulted and tilted with offset along minor faults of several inches or more.

c. Based upon this data, it is difficult, both technically and economically, to design a structure to withstand six feet or more of offset through its foundation. Thus, avoidance of the main traces of the fault is the principal risk reduction technique that can be reasonably taken.

d. No critical facility (excluding transportation lines or utilities which by their nature may cross active faults) or structure designed for human occupancy shall be built astride an active fault. If a fault is discovered in the excavation for such a structure, a geologic hazard study and report, as provided in Section 108-22-3 of this Land Use Code, is required. In some areas adjacent to the main trace but still within the zone of deformation, avoidance may not be necessary. Less damaging (smaller) offsets of less than four inches, and tilting may occur and structural measures may be taken to reduce casualties and damage. However, structural damage may still be great, and buildings in the zone of deformation may not be safe for occupants following a large earthquake.

e. Due to the scale used to map these zones, there is not enough detail to delineate all fault traces and zones of deformation at a particular location, therefore, site specific plans,

Comment [c13]: All of the changes from Section 104-27 have been moved here in their modified form. See the comparison in Exhibit D to review the changes between them.

756 studies, and reports shall be required, as provided in Section 108-22-3 of this Land Use
757 Code, for development in or adjacent to the delineated areas.

758 f. Building setbacks shall be a minimum of 50 feet from an active fault trace. A reduction in
759 the setback may be considered if the report presents evidence to justify a reduction
760 acceptable to the Land Use Authority, after recommendation from the County Engineer.

761 (2) Landslide.

762 a. Landslides, historically, have been one of the most damaging geologic processes occurring
763 in Weber County. Most active landslides, and most older slides, have been mapped. The
764 maps identify areas of landslides and slopes which are potentially unstable under static
765 (non-earthquake) conditions, and are especially vulnerable under conditions of high to
766 abnormally high precipitation, heavy snowmelt, or excessive water application due to
767 irrigation or septic system discharge. Landslides can damage structures, roads, railroads
768 and power lines. Furthermore, landslides may rupture canals, aqueducts, sewers and
769 water mains, all of which can add water to the slide plane and promote further movement.
770 Flooding may also be caused.

771 b. Many methods have been developed for reducing a landslide hazard. Proper planning and
772 avoidance is the least expensive measure, if landslide-prone areas are identified early in
773 the planning and development process. Care in site grading with proper compaction of fills
774 and engineering of cut slopes is a necessary follow-up to good land use planning. Where
775 avoidance is not feasible, various engineering techniques are available to stabilize slopes,
776 including de-watering (draining), retaining structures, piles, bridging, weighting or
777 buttressing slopes with compacted earth fills and drainage diversion. Since every landslide
778 and unstable slope has differing characteristics, any development proposed within an
779 identified landslide hazard area shall require the submittal and review of a study and
780 report, as provided in Section 108-22-3. The study and report shall address slope stability
781 (including natural or proposed cut slopes), evaluate slope-failure potential, effects of
782 development and recommendations for mitigative measures. Slope stability analysis shall
783 include potential for movement under static, development-induced and earthquake-induced
784 conditions as well as likely groundwater conditions.

785 (3) Tectonic subsidence.

786 a. Tectonic subsidence, also called seismic tilting, is the warping, lowering and tilting of a
787 valley floor that accompanies surface-faulting earthquakes on normal (dip slip) faults such
788 as the Wasatch fault zone. Inundation along the shores of lakes and reservoirs and the
789 ponding of water in areas with a shallow water table may be caused by tectonic
790 subsidence. Certain structures which require gentle gradients or horizontal floors,
791 particularly wastewater treatment facilities and sewer lines may be adversely affected.

792 b. Because subsidence may occur over large areas (tens of square miles), it is generally not
793 practical to avoid the use of potentially affected land except in narrow areas of hazard due
794 to lake shoreline flooding. For gravity-flow structures such as wastewater treatment
795 facilities that are within areas of possible subsidence, it is advisable to consider the
796 tolerance of such structures to slight changes in gradient. Some structures may have to be
797 releveled after a large-magnitude earthquake. Critical facilities which contain dangerous
798 substances should have safety features to protect the structure, its occupants and the
799 environment from both tilting and flooding.

800 c. Flooding problems along lakes from tectonic subsidence shall be reduced using standard
801 techniques such as raising structures above expected flood levels and dikes can be built.
802 Development adjacent to lakes or reservoirs shall be prohibited within three feet of
803 elevation above projected lake levels to protect against natural rises from wet periods,
804 storm waves and earthquake induced seiching, as well as hazards associated with tectonic
805 subsidence.

806 d. Rises in the water table accompanying tectonic subsidence may cause water to pond,
807 flood basements and disrupt buried facilities in areas of shallow groundwater adjacent to
808 the fault on the down dropped side.

809 e. The principal application of the identified tectonic subsidence areas is to make the public
810 aware of the hazard and to indicate those areas where further study may be necessary.
811 Site specific tectonic subsidence reports and studies are recommended only for critical
812 facilities in areas of potential lake-margin and ponded shallow groundwater flooding.
813 However, certain vulnerable facilities such as high cost wastewater treatment plants and
814 hazardous waste facilities should also consider potential tilting.

815 (4) Rock fall.

816 a. Rock falls are a naturally occurring erosional process in mountain areas in Weber County.
817 As development advances higher onto the bench areas and into the canyons the risk from
818 falling rocks becomes greater. A primary mechanism responsible for triggering rock falls is
819 water in outcrop discontinuities. Rock falls present a hazard because of the potential
820 damage a large rock mass, traveling at a relatively high velocity, could cause to structures
821 and personal safety. When new developments cannot be designed around a rock fall path,
822 and hazard reduction measures must be considered, a study and report as provided in
823 Section 108-22-3, is required. Mitigation shall require design by a Utah licensed
824 geotechnical engineer, and may include rock stabilization techniques such as bolting, cable
825 lashing, burying, and grouting discontinuities, removal or break-up of potential rock clasts,
826 as well as deflection berms, slope benches, and rock catch fences to stop or at least slow
827 down falling rocks. Strengthening a structure to withstand impact is an example of
828 modifying what is at risk. Mitigation problems can arise when rock source areas are located
829 on land not owned by the developer.

830 b. In areas where the rock fall hazard is present but very low, disclosure of a potential hazard
831 to land owners and residents with an acknowledgment of risk and willingness to accept
832 liability may be an acceptable alternative to avoidance or mitigation for single-family
833 residences.

834 (5) Debris flows.

835 a. Debris flows are mixtures of water, rock, soil and organic material (70-90 percent solids by
836 weight) that form a muddy slurry much like wet concrete and flow down slope, commonly in
837 surges or pulses, due to gravity. They generally remain confined to stream channels in
838 mountainous areas, but may reach and deposit debris over large areas on alluvial fans at
839 and beyond canyon mouths.

840 b. The County debris flow hazard maps were constructed from the boundaries of active
841 alluvial fans and areas with slopes steeper than 30 percent. Any proposed development in
842 areas identified as debris flow hazard areas shall be evaluated prior to approval of the
843 proposed development. A study and report, as provided in Section 108-22-3, shall be
844 prepared by an engineering geologist for any development proposed in or adjacent to a
845 debris flow hazard area and shall include:

846 1. An analysis of the history of debris flow at the site based on subsurface exploration to
847 determine the nature and thickness of debris flow and related alluvial fan deposits. If,
848 in the engineering geologist's professional opinion, geologic conditions have changed
849 enough to render a debris flow inactive, the analysis may estimate the nature and
850 approximate thickness of the debris flow and related alluvial fan deposits in lieu of
851 subsurface exploration.

852 2. An analysis of the drainage basin's potential to produce debris flows based on the
853 presence of debris slides and colluvium-filled slope concavities, and an estimate of
854 the largest probable volumes likely to be produced during a single event.

- 855 3. An analysis of the stream channel to determine if the channel will supply additional
856 debris, impede flow, or contain debris flows in the area of the proposed development.
- 857 4. An analysis of manmade structures upstream that may divert or deflect debris flows.
- 858 5. Recommendations concerning any channel improvements, flow modifications and
859 catchment structures, direct protection structures or floodproofing measures, if
860 necessary, in order to protect the development.

861 (6) Liquefaction areas.

- 862 a. Earthquake ground shaking causes a variety of phenomena which can damage structures
863 and threaten lives. One of these is termed soil liquefaction. Ground shaking tends to
864 increase the pressure in the pore water between soil grains, which decreases the stresses
865 between the grains. The loss of intergranular stress can cause the strength of some soils
866 to decrease nearly to zero. When this occurs, the soil behaves like a liquid. When
867 liquefaction occurs, foundations may crack, buildings may tip, buoyant buried structures
868 such as septic tanks and storage tanks may rise, and even gentle slopes may fail as
869 liquefied soils and overlying materials move down slope.
- 870 b. Areas of potential liquefaction have been delineated and the following regulations and
871 mitigation measures have been adopted in order to reduce the hazard and consequences.
872 Areas of moderate to high liquefaction potential need not be avoided. Structural measures
873 and site modification techniques are available to reduce a hazard. A site specific
874 liquefaction study and report shall be required pursuant to Section 108-22-3, and shall be
875 prepared by an engineering geologist and/or a state licensed geotechnical engineer and
876 shall comply with the following:
- 877 1. Standard soil foundation study, for the proposed development, shall include
878 liquefaction potential evaluation based upon depth to groundwater, soil types and
879 ground failure hazard.
- 880 2. If liquefiable soils are present, standard penetration tests and/or cone penetration
881 tests shall be required to determine critical accelerations needed to induce
882 liquefaction.
- 883 3. The study and report shall include an accurate map of the area showing any proposed
884 development, the location of bore holes and/or test pits, the site geology, and location
885 and depths of any liquefiable soils noted, along with the probability of critical
886 accelerations needed to induce liquefaction in these soils being exceeded for
887 appropriate time periods.
- 888 4. The report shall include recommendations for hazard reduction techniques.

889 (7) Flood.

- 890 a. The floodplain standards are written to minimize the loss of life and property when floods
891 do occur, not to ban development outright from the floodplain. In the event the following
892 provisions conflict with those in Title 22 of the Weber County Code, the most restrictive
893 shall apply. The Federal Emergency Management Agency (FEMA) has produced official
894 floodplain maps, depicting areas of potential stream flooding for major drainages in Weber
895 County.
- 896 b. FEMA recommends that no new development be permitted in the 100-year floodplain
897 unless:
- 898 1. Detailed engineering study and reports, as required by Section 108-22-3, prepared by
899 a state-licensed engineer, show that the proposed development will not increase the
900 flood hazard to other property in the area. Recommendations shall be made for
901 floodproofing or other mitigation techniques for development within flood hazard
902 areas. (Site investigations for proposed development in lake-flooding areas near
903 Great Salt Lake need only indicate the site elevation. Development proposals in areas

904 with elevations less than 4,218 feet will be reviewed with respect to lake-flooding
905 potential and compatibility of proposed use.)

906 2. The proposed development is elevated above the 100-year flood base elevation.

907 3. For federally-insured loans, flood insurance is purchased from a company
908 participating with the Federal Insurance Administration or a like private carrier.

909 c.. The study and report, as may be required by Section 108-22-3, shall consider the
910 following:

911 (i) Alluvial fan flooding, which is not mapped under the FEMA program, may be a
912 hazard on all active alluvial fans identified on debris flow hazard maps. The
913 hazard from such flooding shall be addressed and appropriate hazard reduction
914 measures taken.

915 (ii) Sheet flow. Certain areas of the Ogden Valley have been identified and mapped
916 as areas of sheet flow flooding. The hazard from such flooding shall be addressed
917 and appropriate hazard reduction measures taken.

918 (8) Other hazards.

919 a. As in many counties in the Western United States, development in the County is
920 constrained by the presence of natural and manmade hazards. These hazards include, but
921 are not limited to, avalanche, slope movement, soils categorized as having severe building
922 limitations and slopes exceeding 30 percent.

923 b. Not all hazardous sites and conditions have been identified in the County. As a hazard or
924 potential hazard becomes known, the County has discretion to require any study and
925 report that is necessary to understand how the hazard or potential hazard may impact
926 development. The study or report shall provide appropriate hazard mitigation measures.

927 **Sec. 108-22-3. - Studies and reports required.**

928 (a) Requirement for a study and report. Unless otherwise exempted in Section 108-22-5, any
929 application for development on a parcel of land within a natural hazard study area shall be
930 submitted to the planning division with two hard copies and one electronic (pdf) copy of a site-
931 specific natural hazard study and report, where required for such development according to the
932 following chart:

933

<u>Land Use (Type of Facility)</u>	<u>Liquefaction Potential High/Moderate</u>	<u>Landslide/Rock Fall/Debris Flow Study Area</u>	<u>Surface Fault Rupture Study Area</u>	<u>Tectonic Subsidence Study Area</u>	<u>Flood Study Area</u>	<u>Other Hazardous Areas</u>
<u>Critical facilities</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Recommended</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Industrial, commercial, or multifamily (4 or more units)</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Residential subdivisions</u>	<u>No**</u>	<u>Yes, unless otherwise provided by Section 108-22- 2(4)b.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Residential, single lots/multifamily (less than 4 units)</u>	<u>No**</u>	<u>Yes, unless otherwise provided by Section 108-22- 2(4)b.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>**Although no study and report is required, disclosure is required as described in Section 108-22-4.</u>						

- 934 (1) Each natural hazard study and report shall be prepared by an engineering geologist. In the case
 935 of a snow avalanche hazard, the study and report shall be prepared by an experienced
 936 avalanche expert. The study and report shall be signed by the preparer and shall also include
 937 the qualifications of the preparer.
- 938 (2) Each natural hazard study and report shall be site-specific and identify, to the extent
 939 practicable, all known or suspected potential natural hazard(s) originating on-site or off-site
 940 which present a reasonable likelihood of adversely affecting the particular property.
- 941 (3) Each natural hazard study and report shall include a detailed site map (scale: one inch equals
 942 200 feet or larger), showing the location and type of hazard with delineation of the
 943 recommended setback distances from the hazard and the recommended location for structures.
- 944 (4) Each natural hazard study and report shall address the potential adverse effects of the hazard
 945 on the proposed development and occupants thereof in terms of the reasonable likelihood of
 946 potential damage.
- 947 (5) Each natural hazard study and report shall contain recommendations for avoidance or
 948 mitigation of the identified adverse effects of the hazard consistent with the purposes set forth in

949 Section 108-22-1 of this chapter. The evidence on which recommendations and conclusions are
950 based shall be clearly stated in the report.

951 (6) Trench logs (scale: one inch equals five feet or larger), trench photos, aerial photographs,
952 references with citations, and other supporting information, as applicable, shall also be included
953 in each natural hazard study and report.

954 (b) Review of the study and report. In order to fulfill the purposes of this chapter, the Land Use Authority
955 shall review any proposed development which requires preparation of a natural hazard study and
956 report under this chapter to determine the possible risks to the safety of persons or property from a
957 natural hazard.

958 (1) Prior to consideration by the Land Use Authority of any such development, the County Engineer
959 may submit the study and report, and, if applicable, site specific plan, to outsourced qualified
960 professionals for review and recommendation. Any cost for the review shall be paid by the
961 applicant prior to any Land Use Authority action.

962 (2) The County Engineer has discretion to reject the scope, techniques, methodology, conclusions,
963 or specific types of information presented in the study and report if industry standards of care
964 were not used. All conclusions of the study and report shall be supported by adequate data.

965 (3) The County Engineer shall prepare a final review and recommendation of an acceptable study
966 and report, and, if applicable, site specific plans, for the Land Use Authority's consideration.

967 (4) Whenever the Land Use Authority determines that an area is subject to a natural hazard which
968 present an unreasonable risk to the safety of persons or property, including public streets, such
969 area shall not be approved for development unless the applicant can demonstrate that such a
970 risk can be reduced to a reasonable and acceptable level in a manner which has a minimum
971 effect on the natural environment.

972 (5) The Land Use Authority may set requirements or conditions necessary to reduce the risks from
973 a natural hazard as a condition to the approval of any development which requires preparation
974 of a natural hazard study and report.

975 (c) Study and report verification. The project engineering geologist shall submit with the study a signed
976 and sealed verification letter stating that the study was conducted in accordance with industry
977 standards of care, and that it complies with this Land Use Code and all other applicable laws. Written
978 verification shall be provided from the issuer of professional errors and omissions liability insurance,
979 in the amount of one million dollars (\$1,000,000.00), which covers the engineering geologist, and
980 which is in effect on the date of preparation of all required studies and reports.

981 (d) Development design verification. Whenever possible, avoidance of development in an area with an
982 identified natural hazard is strongly encouraged. However, pursuant to requirements of this chapter,
983 development in an area with an identified natural hazard shall be permitted when it is designed to
984 mitigate, and is reasonably safe from, the identified hazard. Final design of the development shall not
985 be accepted by the County unless:

986 (1) The development's state licensed engineer, or if applicable, engineers, provide(s) the County
987 with a signed and sealed verification letter stating that, pursuant to the considerations, findings,
988 recommendations, and conclusions of the development's engineering geologist's study and
989 report, the development has been designed to mitigate, and is reasonably safe from, the
990 identified hazard.

991 (2) The development's engineering geologist submits a signed and sealed verification letter stating
992 that the final design of the development adequately provides for the considerations, findings,
993 recommendations, and conclusions of the study and report, and is reasonably safe from the
994 identified hazard.

995 (3) Written verification is provided from the issuer(s) of professional errors and omissions liability
996 insurance, in the amount of one million dollars (\$1,000,000.00), which covers the engineering

Comment [c14]: This section is identified as potentially producing a decision of "technical aspects" for which an appeal may merit a special panel for review. See the new section 108-22-9(b) for more details.

Comment [c15]: This section is identified as potentially producing a decision of "technical aspects" for which an appeal may merit a special panel for review. See the new section 108-22-9(b) for more details.

Comment [c16]: This word, and its use in throughout this subsection, has been changed from previous versions.

997 geologist and state licensed engineer(s), and which is in effect on the date of preparation of all
998 required reports and certifications.

999 **Sec. 108-22-4. - Disclosure required.**

1000 (a) When a natural hazard report shows that a hazard exists which affects a particular parcel:

1001 (1) a copy of the report shall be kept for public inspection in the County Planning Division Office.

1002 (2) A notice that runs with the land shall be recorded, and, if applicable, a note on the subdivision
1003 plat shall be required, which provide:

1004 a. Notice that the parcel is located within a natural hazard study area;

1005 b. Notice that a natural hazard study and report is available for public inspection in the
1006 County Planning Division Office;

1007 c. Notice that a hazard has been identified on the parcel and the type and severity of the
1008 hazard;

1009 d. The professional who prepared the report, with his or her contact information; and

1010 e. Any restrictions on the use of the parcel required within the natural hazard report, or by the
1011 Land Use Authority.

1012 (b) When a natural hazard report is not required, but where the parcel is located within a natural hazard
1013 study area, notice that the parcel is located within such an area shall be recorded running with the
1014 land and noted on the subdivision plat (if applicable), and shall be written in a form satisfactory to the
1015 County Engineer and County Attorney.

1016 (c) The natural hazard ordinance codified in this chapter and natural hazard map represent only those
1017 potentially hazardous areas known to the County, and shall not be construed to include all possible
1018 potential hazard areas. The natural hazards listed in this chapter may be amended as new
1019 information becomes available. The provisions of this chapter do not in any way assure or imply that
1020 areas outside its boundaries will be free from the possible adverse effects of a natural hazard. This
1021 chapter shall not create liability on the part of the County, any officer or employee thereof for any
1022 damages from a natural hazard that result from reliance on this chapter or any administrative
1023 requirement or decision lawfully made thereunder.

1024 **Sec. 108-22-5. - Exemptions from natural hazard study and report.**

1025 A proposed structure that is not a structure designed for human occupancy shall not be required to
1026 provide a natural hazard report, except a report shall be provided for a critical facility if required by
1027 Section 108-22-3.

1028 **Sec. 108-22-6. - Costs to be the responsibility of the developer/applicant.**

1029 Any of the above described technical reports and/or studies shall be performed by qualified
1030 professionals on behalf of the applicant. The cost of outsourced qualified professionals used by the
1031 County to aid in the review required in Section 108-22-3 is the responsibility of the applicant. Any other
1032 costs incurred in providing technical reports or testimony by qualified professionals or expert witnesses
1033 shall be solely the responsibility of the applicant and not the County.

1034 **Sec. 108-22-7. - Change of use.**

1035 No change in use which results in the conversion of a building or structure not designed for human
1036 occupancy to one designed for human occupancy shall be permitted unless the building or structure
1037 complies with the provisions of this chapter.

1038 **Sec. 108-22-8. - Conflict between boundaries of study area or identified hazard.**

Comment [c17]: This section is being changed to remove the word "covenant." A covenant has a very specific legal meaning. The point of this section is to provide notice, not a covenant. On a related amendment herein, see §106-1-8(g).

Comment [c18]: This section is identified as potentially producing a decision of "technical aspects" for which an appeal may merit a special panel for review. See the new section 108-22-9(b) for more details.

1039 Where there is a conflict between the boundaries of an identified natural hazard study area and
1040 actual field conditions, or where detailed investigations show that the identified hazard is not present
1041 within a particular area, the conflict shall be settled as follows:

1042 (1) The person disputing the natural hazard study area boundary shall submit technical and
1043 geologic evidence to support such claim to the County Engineer in the form of a site-specific
1044 natural hazard report.

1045 (2) The County Engineer may request outsourced qualified professionals to review the evidence
1046 and make a recommendation prior to making a final written decision concerning the dispute.
1047 The cost of the outsourced qualified professional's review shall be paid by the person disputing
1048 the boundary.

1049 (3) The County Engineer may allow modifications to the boundary only if the evidence clearly and
1050 conclusively establishes that the natural hazard study area boundary location is incorrect, or
1051 that the identified hazard is not present within a particular area.

1052 .

1053 **Sec. 108-22-9. - Appeals.**

1054 (a) Except as allowed in subsection (b) of this Section, an appeal of any written decision in the
1055 application of this chapter shall be appealed in accordance with Title 102, Chapter 3 – Board of
1056 Adjustment, of this Land Use Code.

1057 (b) When a written decision provided under this chapter contains technical aspects, an applicant may
1058 request the County to assemble a panel of qualified professionals to serve as the appeal authority for
1059 the sole purpose of determining those technical aspects².

1060 (1) The technical aspects of the administration and interpretation of this chapter are decisions
1061 related to:

1062 a. the acceptance or rejection of scope, techniques, methodology, conclusions or specific
1063 types of information presented in a study or report;

1064 b. the review and recommendation of an acceptable study or report for the Land Use
1065 Authority's consideration;

1066 c. the interpretation or application of any technical provisions of a study or report that is
1067 required by this chapter; or

1068 d. the modification of a natural hazard study area boundary.

1069 (2) Unless otherwise agreed by the applicant and County, if an applicant makes a request under
1070 this subsection, the County shall assemble the panel consisting of:

1071 a. one qualified professional designated by the County;

1072 b. one qualified professional designated by the applicant; and

1073 c. one qualified professional chosen jointly by the County's designated qualified professional
1074 and the applicant's designated qualified professional.

1075 (3) A member of the panel may not be associated with the application that is the subject of the
1076 appeal.

1077 (4) The applicant shall pay for one half the cost of the panel in addition to the County's appeal fee.

1078 (5) The panel shall be governed by the same appeal provisions of the Board of Adjustment
1079 provided in Title 102, Chapter 3 - Board of Adjustment, of this Land Use Code.

² Note to codifiers: provide reference to UCA §17-27a-703(2)

1 **Title 101 - GENERAL PROVISIONS**

2 ...

3 **Sec. 101-1-7. - Definitions.**

4 ...

5 Building parcel designation. The term "building parcel designation" means two or more lots within an
6 approved subdivision are recognized as one lot for building purposes.

7 ...

8 Geologic and Geotechnical terms.

9 Active fault. The term "active fault" means a seismic (earthquake) fault displaying evidence of
10 greater than four inches of surface displacement along one or more of its traces during Holocene
11 time (approximately 10,000 years ago to the present).

12 Active landslide. The term "active landslide" means a landslide which is known to have moved
13 or deformed and which has not been proven to be stable by a geotechnical investigation.

14 Aquifer. The term "aquifer" means a geological unit in which porous and permeable conditions
15 exist or a geologic unit of stratified drift, and thus are capable of yielding usable amounts of water.

16 Aquifer recharge. The term "aquifer recharge" area means an area that has soils and geological
17 features that are conducive to allowing significant amounts of surface water to percolate into
18 groundwater.

19 Area of deformation. See "zone of deformation."

20 Critical acceleration. The term "critical acceleration" means the minimum amount of ground
21 acceleration during seismically induced ground movement required to induce liquefaction or other
22 forms of ground disruption.

23 Critical facilities. The term "critical facilities" means:

24 (1) Lifelines such as major communication, utility and transportation facilities and their
25 connection to emergency facilities;

26 (2) Essential facilities, such as:

27 a. Hospitals and other medical facilities having surgery and emergency treatment areas;

28 b. Fire and police stations;

29 c. Tanks or other structures containing, housing, or supporting water or other fire-
30 suppression materials or equipment required for the protection of essential or
31 hazardous facilities, or special occupancy structures;

32 d. Emergency vehicle shelters and garages;

33 e. Structures and equipment in emergency-preparedness centers;

34 f. Standby power generating equipment for essential facilities;

35 g. Structures and equipment in government communication centers and other facilities
36 required for emergency response;

37 (3) Hazardous facilities such as structures housing, supporting or containing sufficient
38 quantities of toxic or explosive substances to be dangerous to the safety of the general
39 public if released; or

- 40 (4) Special occupancy structures, such as:
- 41 a. Covered structures whose primary occupancy is public assembly (capacity greater
- 42 than 300 persons);
- 43 b. Buildings for schools through secondary or day care centers (capacity greater than 50
- 44 students);
- 45 c. Buildings for colleges or adult education schools (capacity greater than 50 students);
- 46 d. Medical facilities with 50 or more resident incapacitated patients, but not included
- 47 above;
- 48 e. Jails and detention facilities;
- 49 f. All structures with occupancy greater than 5,000 persons;
- 50 g. Structures and equipment in power-generating stations and other public utility facilities
- 51 not included above, and required for continued operation;
- 52 h. Unique or large structures whose failure might be catastrophic, such as dams holding
- 53 over ten acre feet of water.

54 Debris flow. The term “debris flow” means a mass of rock fragments, soil, and mud which, when

55 wet, moves in a flow-like fashion. Debris flows will follow a confined channel, but may alter course if

56 present on an alluvial/debris fan surface.

57 Engineering geologist. The term “engineering geologist” means a geologist who, through

58 education, training and experience, is able to assure that geologic factors affecting engineering

59 works are recognized, adequately interpreted and presented for use in engineering practice and for

60 the protection of the public. This person shall have:

- 61 (1) At least a four-year degree in geology, engineering geology, or a related field from an
- 62 accredited university; and
- 63 (2) At least three full years of experience in a responsible position in the field of engineering
- 64 geology.
- 65 (3) A Utah State Professional Geologist’s license.

66 Engineering geology. The term “engineering geology” means the application of geological data

67 and principles to engineering problems dealing with naturally occurring rock and soil for the purposes

68 of assuring that geological factors are recognized and adequately interpreted in engineering practice.

69 Fault. The term “fault” means a fracture in the earth’s crust forming a boundary between rock or

70 soil masses that have moved relative to each other (also see “active fault”).

71 Fault scarp. The term “fault scarp” means a steep slope or cliff formed directly by movement

72 along a fault.

73 Fault trace. The term “fault trace” means the intersection of the fault plane with the ground

74 surface.

75 Fault zone. The term “fault zone” means a corridor of variable width along one or more fault

76 traces.

77 Geotechnical report. The term “geotechnical report” means a technical report or study prepared

78 by a geotechnical professional who is qualified in the field of expertise examined and analyzed in

79 such a report. A person shall be considered “qualified” upon presentation of credentials providing

80 recognition in the professional field, an academic degree from an accredited college or university in

81 geology, geotechnics and/or geotechnical engineering.

82 Landslide. The term “landslide” means a general term for the down slope movement of a mass

83 of soil, surficial deposits or bedrock.

84 Liquefaction. The term "liquefaction" means a process by which certain water saturated soils
85 lose bearing strength because of ground shaking and increase of groundwater pore pressure.
86 Liquefaction potential categories depend on the probability of having an earthquake within a 100-
87 year period that will be strong enough to cause liquefaction in those zones. High liquefaction
88 potential means that there is a 50% probability of having an earthquake within a 100-year period that
89 will be strong enough to cause liquefaction. Moderate means that the probability is between 10% and
90 50%, low means that the probability is between 5% and 10%, and very low means less than 5%.

91 Natural hazard. The term "natural hazard" means any hazard listed in Section 108-22-2,
92 including, but not limited to, liquefaction, surface fault rupture, rock fall, debris flow, flood, tectonic
93 subsidence, landslide and other hazards.

94 Natural hazard map. The term "natural hazard map" means any map that has been published
95 by a qualified professional or applicable governmental agency, which contains the best available
96 information, as determined by the County Engineer, and which delineates a potential natural hazard.

97 Natural hazard study area. The term "natural hazard study area" means any area identified on
98 any natural hazard map or within any natural hazard studies or reports as having potential for being
99 a natural hazard. In addition, the County Engineer has discretion to identify a natural hazard study
100 area as a new hazard or potential hazard becomes known.

101 Rock fall. The term "rock fall" means the gravity-induced drop of a newly detached segment of
102 bedrock or perched rock of any size from a cliff or steep slope.

103 Structure designed for human occupancy. The term "structure designed for human occupancy"
104 means any residential dwelling or any other structure used or intended for supporting or sheltering
105 any use or occupancy which is expected to have occupancy rate of more than 2,000 person-hours
106 per year.

107 Zone of deformation. The term "zone of deformation" means the zone along a fault in which
108 natural soil and rock materials are disturbed as a result of movement along the fault.

109 ...

110 **Title 102 - ADMINISTRATION**

111 **CHAPTER 1. - GENERAL PROVISIONS**

112 **Sec. 102-1-1. - Purpose and intent.**

113 The purpose of this section is to establish regulations and procedures for the processing and
114 consideration of applications allowed by this Land Use Code.

115 **Sec. 102-1-2. - Planning director authority.**

116 (a) The planning director, or his designee, is authorized to deny, approve, or approve with conditions an
117 application for an administrative approval. Administrative approval can be given for the following
118 applications:

119 (1) Site plan approval, when required by this Land Use Code, for which the Land Use Authority is not
120 otherwise specified by this Land Use Code;

121 (2) Design review for buildings under 10,000 square feet and which impact an area of less than one
122 acre, as provided in Section 108-1-2;

123 (3) Home occupation, as provided in Section 108-13-2;

124 (4) Building parcel designation, as provided in Section 108-7-33;

125 (5) Small subdivisions, as provided in Section 106-1-8(f) of this Land Use Code; and

126 (6) Flag lots, access to a lot/parcel using a private right-of-way or access easement, and access to a
127 lot/parcel at a location other than across the front lot line, as provided in Title 108, Chapter 7 of this
128 Land Use Code.

129 (b) The planning director may deny an application for an administrative approval if the use fails to
130 comply with specific standards set forth in this Land Use Code or if any of the required findings are
131 not supported by evidence in the record as determined by the director. At the discretion of the
132 planning director, the planning commission can hear the request for an administrative approval.

133 (c) The planning director approval process includes public notice and comment from adjacent property
134 owners, when required by this Land Use Code or state code.

135 ...

136 **Sec. 102-1-4. - Notice of decision.**

137 After reviewing the evidence and considering the application, the Land Use Authority, as designated
138 by this Land Use Code, shall make its findings and decision. It shall then send a notice of decision to the
139 applicant at the address or e-mail address given in the application. A notice of decision can be a written
140 notice of decision, a copy of the written administrative approval signed by the planning director or
141 designee, or a copy of the approved minutes. A decision by the Land Use Authority is final at the time the
142 notice of decision is sent. If a notice of decision is not sent, and the decision was made in a meeting
143 where minutes are kept, the decision shall be final on the date the minutes from the meeting are
144 approved by the Land Use Authority. The planning division shall also mail notice of any decisions to any
145 person or agency who, in writing, requested such notification before the decision was rendered. Unless
146 the Land Use Authority's final decision specifies otherwise, the Land Use Authority's decision is subject to
147 requirements and conditions stated in the staff report and, if applicable, listed in the meeting minutes.

148 ...

149 **Title 104 - ZONES**

150 ...

151 **CHAPTER 27. RESERVED**
152 ...

153 **Title 106 - SUBDIVISIONS**

154 ...

155 **CHAPTER 1. - GENERAL PROVISIONS**

156 ...

157 **Sec. 106-1-8. - Final plat requirements and approval procedure.**

158 ...(g) *Additional provisions.* The Land Use Authority may impose conditions of approval as may be
159 necessary to assure compliance with this Land Use Code. Unusual site specific conditions or
160 restrictions applied to the development of a lot or lots attributed to topography, geologic or
161 environmental conditions or potential hazards, location, or other site specific conditions or restrictions
162 authorized by this Land Use Code shall be identified in the actual location of the condition or
163 restriction on the subdivision drawing. A notice of the unusual site specific condition or restriction
164 shall be recorded to run with the lot or lots affected.

165 ...

166 **Title 108 - STANDARDS**

167 ...

168 **CHAPTER 7. - SUPPLEMENTARY AND QUALIFYING REGULATIONS**

169 ...

170 **Sec. 108-7-33. - Building parcel designation**

171 (a) Separate adjoining lots within an approved subdivision plat may be combined for building purposes
172 without filing a formal subdivision plat amendment. The original lot lines, as recorded, do not change.

173 (b) A building parcel designation shall be approved provided that:

174 (1) An application shall be submitted on a form approved by the Planning Director;

175 (2) The application shall include a copy of the subdivision plat;

176 (3) All lots proposed to be combined shall be under the same ownership;

177 (4) No additional lot shall be created; and

178 (5) The existing lots shall conform to the current zoning or be part of a platted cluster subdivision or
179 PRUD. Existing lots that do not conform to current zoning shall require an amended subdivision
180 plat.

181 ...

182 **CHAPTER 14. - HILLSIDE DEVELOPMENT REVIEW PROCEDURES AND STANDARDS**

183 **Sec. 108-14-1. - Purpose and intent.**

184 (a) It is recognized that the general provisions, definitions, procedures, improvements and design
185 requirements, standards and principles set out in the Land Use Code of Weber County require
186 supplementation to protect and preserve the public health, safety, and welfare in regard to hillside
187 terrain and environmentally sensitive areas. When areas are subdivided or developed on sensitive
188 areas, such features as special soil conditions, steep terrain, highly combustible native vegetation,
189 and other conditions may pose serious potential consequences such as increased fire, flood or
190 erosion hazards, traffic circulation problems, sewage disposal problems, property damage from
191 extensive soils slippage and subsidence, and adverse effects from destruction of natural scenic
192 beauty and unsightly developments. Such consequences may be avoided if special consideration is
193 given to areas where one or more such conditions exist.

194 (b) In the administration of the provisions of this chapter, the hillside development review board shall
195 strive to achieve the objective of preserving the natural contours of the hillside areas by encouraging
196 and requiring, where necessary, the following:

197 (1) A minimum amount of grading which preserves the natural contours of the land.

198 (2) Retention of trees and other native vegetation (except in those cases where a high fire hazard
199 results) which stabilizes steep hillsides, retains moisture, prevents erosion and enhances the
200 natural scenic beauty.

201 (3) Construction of roads on steep hillsides in such a way as to minimize scars from cuts and fills
202 and avoid permanent scarring of hillsides.

203 (4) Placement of building sites in such a manner as to permit ample room for adequate defensible
204 area as defined by the fire code, landscaping and drainage between and around the buildings.

- 205 (5) Grading which will eliminate the sharp angles at the top and toe of cut and fill slopes, both with
206 respect to building sites and to road cross-sections.
- 207 (6) Lot and structure designs and location which will be appropriate in order to reduce grading and
208 natural topographic disturbance.
- 209 (7) Cluster type development or other new concepts and techniques, where appropriate, in order to
210 eliminate, as far as possible, construction on steep, sensitive or dangerous terrain.
- 211 (8) Early temporary or permanent planting, or other materials, wherever appropriate to maintain
212 necessary cut and fill slopes in order to stabilize them with plant roots or other materials,
213 thereby preventing erosion and to conceal the raw soil from view.

214 ...

215 **Sec. 108-14-3. - Applicability.**

- 216 (a) All parcels, subdivision lots, roads and accesses, where the natural terrain has average slopes at or
217 exceeding 25 percent shall be reviewed by the Hillside Development Review Board as part of an
218 application request for land use and building permits. Hillside Review is required as part of the
219 preliminary subdivision review. This requirement may be waived by the Planning Director and the
220 County Engineer on a case-by-case basis.
- 221 (b) The planning division shall not issue any land use permits, and the building official shall not issue
222 any building permits until detailed plans and engineered drawings have been submitted to, and
223 approved by the hillside development review board. Any condition attached to such approval by said
224 board shall be a condition required with the issuance of land use permit. All parcels, subdivisions,
225 lots, roads and accesses may come under consideration of the review board if requested by the
226 owner, developer, or review agency. Other circumstances may warrant a review as found in the Title
227 108 Chapter 22 – Natural Hazard Areas.

228 **Sec. 108-14-4. - Procedure.**

229 Application plans and applications of the proposed development and any relevant information
230 regarding building and excavation of the site are to be submitted to the planning division. Information shall
231 include, but not be limited to the following:

- 232 (1) Detailed engineering plans and profiles for retaining wall, cuts, filling and/or excavating of land.
- 233 (2) Site plan with contours.
- 234 (3) Cross sections of improvements.
- 235 (4) Retaining wall designs with engineers stamp (if applicable).
- 236 (5) Geotechnical report (site specific for structures) and, if applicable, verification of compliance
237 with the requirements of Title 108, Chapter 22 - Natural Hazard Areas.
- 238 (6) Other studies and/or information deemed necessary by the members of the board.
- 239 (7) Utah pollution discharge elimination system (UPDES) permit with stormwater pollution
240 prevention plan (SWPPP) shall be required at the time of application. Erosion control
241 landscaping on cuts, fills and other locations, considered necessary by the review board, shall
242 be provided in order to prevent erosion.
- 243 (8) A landscape plan as per Section 108-14-10.

244 ...

245 **Sec. 108-14-9. – Reserved.**

246 ...

247 **Sec. 108-14-11. - Appeals.**

- 248 (a) Except as allowed in subsection (b) of this section, an appeal of any written decision in the
249 application of this chapter shall be appealed in accordance with Title 102, Chapter 3 – Board of
250 Adjustment, of this Land Use Code.
- 251 (b) When a written decision provided under this chapter contains technical aspects, an applicant may
252 request the County to assemble a panel of qualified professionals to serve as the appeal authority for
253 the sole purpose of determining those technical aspects¹.
- 254 (1) The technical aspects of the administration and interpretation of this chapter are decisions
255 related to:
- 256 a. the acceptance or rejection of scope, techniques, methodology, conclusions or specific
257 types of information presented in a study or report;
 - 258 b. the review and recommendation of an acceptable study or report for the Land Use
259 Authority's consideration; or
 - 260 c. the interpretation or application of any technical provisions of a study or report that is
261 required by this chapter.
- 262 (2) Unless otherwise agreed by the applicant and County, if an applicant makes a request under
263 this subsection, the County shall assemble the panel consisting of:
- 264 a. one qualified professional designated by the County;
 - 265 b. one qualified professional designated by the applicant; and
 - 266 c. one qualified professional chosen jointly by the County's designated qualified professional
267 and the applicant's designated qualified professional.
- 268 (3) A member of the panel may not be associated with the application that is the subject of the
269 appeal.
- 270 (4) The applicant shall pay for one half the cost of the panel in addition to the County's appeal fee.
- 271 (5) The panel shall be governed by the same appeal provisions of the Board of Adjustment
272 provided in Title 102, Chapter 3 - Board of Adjustment, of this Land Use Code.

273 ...

274 **CHAPTER 22. – NATURAL HAZARD AREAS**

275 **Sec. 108-22-1. - Purpose and intent.**

- 276 (a) The purpose and intent of this chapter is to coordinate the application of natural hazards guidelines
277 and standards, in order to protect the health, welfare and safety of the citizens of the County, and to
278 minimize potential effects of natural and manmade hazards by identifying known hazardous areas.
279 This portion of the chapter specifies the areas for which an environmental analysis shall be
280 performed prior to development, the content of the analysis and the procedure by which
281 development applications requiring the analysis are reviewed and processed.
- 282 (b) The County recognizes individual property rights and shall make every effort to balance the right of
283 the individual property owner with the health, welfare, safety and the common good of the general
284 public.

285 **Sec. 108-22-2. - Potential hazards.**

286 The following potential hazards have been identified:

¹ Note to codifiers: provide reference to UCA §17-27a-703(2)

- 287 (1) Surface-fault ruptures.
- 288 a. Surface faulting has been identified as a potential hazard in the County. Maps have been
289 produced delineating the known area where a hazard may exist from surface fault ruptures.
290 Broad subsidence of the valleys accompanying surface faulting may affect areas several
291 miles away from the fault. These effects are not considered here, but are covered in
292 subsection 3 of this section.
- 293 b. Studies along the Wasatch fault have indicated that during a "characteristic" earthquake
294 which produces surface faulting, offsets of six feet or more may occur on the main trace of
295 the fault zone. This offset will result in formation of a near-vertical scarp, generally in
296 unconsolidated surficial deposits, that begin to ravel and erode back to the material's angle
297 of repose (33-35 degrees) soon after formation. Antithetic faults west of the main trace may
298 also form, generally exhibiting a lesser amount of offset, but sometimes as much as
299 several feet. The zone between these two faults may be complexly faulted and tilted with
300 offset along minor faults of several inches or more.
- 301 c. Based upon this data, it is difficult, both technically and economically, to design a structure
302 to withstand six feet or more of offset through its foundation. Thus, avoidance of the main
303 traces of the fault is the principal risk reduction technique that can be reasonably taken.
- 304 d. No critical facility (excluding transportation lines or utilities which by their nature may cross
305 active faults) or structure designed for human occupancy shall be built astride an active
306 fault. If a fault is discovered in the excavation for such a structure, a geologic hazard study
307 and report, as provided in Section 108-22-3 of this Land Use Code, is required. In some
308 areas adjacent to the main trace but still within the zone of deformation, avoidance may not
309 be necessary. Less damaging (smaller) offsets of less than four inches, and tilting may
310 occur and structural measures may be taken to reduce casualties and damage. However,
311 structural damage may still be great, and buildings in the zone of deformation may not be
312 safe for occupants following a large earthquake.
- 313 e. Due to the scale used to map these zones, there is not enough detail to delineate all fault
314 traces and zones of deformation at a particular location, therefore, site specific plans,
315 studies, and reports shall be required, as provided in Section 108-22-3 of this Land Use
316 Code, for development in or adjacent to the delineated areas.
- 317 f. Building setbacks shall be a minimum of 50 feet from an active fault trace. A reduction in
318 the setback may be considered if the report presents evidence to justify a reduction
319 acceptable to the Land Use Authority, after recommendation from the County Engineer.
- 320 (2) Landslide.
- 321 a. Landslides, historically, have been one of the most damaging geologic processes occurring
322 in Weber County. Most active landslides, and most older slides, have been mapped. The
323 maps identify areas of landslides and slopes which are potentially unstable under static
324 (non-earthquake) conditions, and are especially vulnerable under conditions of high to
325 abnormally high precipitation, heavy snowmelt, or excessive water application due to
326 irrigation or septic system discharge. Landslides can damage structures, roads, railroads
327 and power lines. Furthermore, landslides may rupture canals, aqueducts, sewers and
328 water mains, all of which can add water to the slide plane and promote further movement.
329 Flooding may also be caused.
- 330 b. Many methods have been developed for reducing a landslide hazard. Proper planning and
331 avoidance is the least expensive measure, if landslide-prone areas are identified early in
332 the planning and development process. Care in site grading with proper compaction of fills
333 and engineering of cut slopes is a necessary follow-up to good land use planning. Where
334 avoidance is not feasible, various engineering techniques are available to stabilize slopes,
335 including de-watering (draining), retaining structures, piles, bridging, weighting or
336 buttressing slopes with compacted earth fills and drainage diversion. Since every landslide
337 and unstable slope has differing characteristics, any development proposed within an

338 identified landslide hazard area shall require the submittal and review of a study and
339 report, as provided in Section 108-22-3. The study and report shall address slope stability
340 (including natural or proposed cut slopes), evaluate slope-failure potential, effects of
341 development and recommendations for mitigative measures. Slope stability analysis shall
342 include potential for movement under static, development-induced and earthquake-induced
343 conditions as well as likely groundwater conditions.

344 (3) Tectonic subsidence.

345 a. Tectonic subsidence, also called seismic tilting, is the warping, lowering and tilting of a
346 valley floor that accompanies surface-faulting earthquakes on normal (dip slip) faults such
347 as the Wasatch fault zone. Inundation along the shores of lakes and reservoirs and the
348 ponding of water in areas with a shallow water table may be caused by tectonic
349 subsidence. Certain structures which require gentle gradients or horizontal floors,
350 particularly wastewater treatment facilities and sewer lines may be adversely affected.

351 b. Because subsidence may occur over large areas (tens of square miles), it is generally not
352 practical to avoid the use of potentially affected land except in narrow areas of hazard due
353 to lake shoreline flooding. For gravity-flow structures such as wastewater treatment
354 facilities that are within areas of possible subsidence, it is advisable to consider the
355 tolerance of such structures to slight changes in gradient. Some structures may have to be
356 releveled after a large-magnitude earthquake. Critical facilities which contain dangerous
357 substances should have safety features to protect the structure, its occupants and the
358 environment from both tilting and flooding.

359 c. Flooding problems along lakes from tectonic subsidence shall be reduced using standard
360 techniques such as raising structures above expected flood levels and dikes can be built.
361 Development adjacent to lakes or reservoirs shall be prohibited within three feet of
362 elevation above projected lake levels to protect against natural rises from wet periods,
363 storm waves and earthquake induced seiching, as well as hazards associated with tectonic
364 subsidence.

365 d. Rises in the water table accompanying tectonic subsidence may cause water to pond,
366 flood basements and disrupt buried facilities in areas of shallow groundwater adjacent to
367 the fault on the down dropped side.

368 e. The principal application of the identified tectonic subsidence areas is to make the public
369 aware of the hazard and to indicate those areas where further study may be necessary.
370 Site specific tectonic subsidence reports and studies are recommended only for critical
371 facilities in areas of potential lake-margin and ponded shallow groundwater flooding.
372 However, certain vulnerable facilities such as high cost wastewater treatment plants and
373 hazardous waste facilities should also consider potential tilting.

374 (4) Rock fall.

375 a. Rock falls are a naturally occurring erosional process in mountain areas in Weber County.
376 As development advances higher onto the bench areas and into the canyons the risk from
377 falling rocks becomes greater. A primary mechanism responsible for triggering rock falls is
378 water in outcrop discontinuities. Rock falls present a hazard because of the potential
379 damage a large rock mass, traveling at a relatively high velocity, could cause to structures
380 and personal safety. When new developments cannot be designed around a rock fall path,
381 and hazard reduction measures must be considered, a study and report as provided in
382 Section 108-22-3, is required. Mitigation shall require design by a Utah licensed
383 geotechnical engineer, and may include rock stabilization techniques such as bolting, cable
384 lashing, burying, and grouting discontinuities, removal or break-up of potential rock clasts,
385 as well as deflection berms, slope benches, and rock catch fences to stop or at least slow
386 down falling rocks. Strengthening a structure to withstand impact is an example of
387 modifying what is at risk. Mitigation problems can arise when rock source areas are located
388 on land not owned by the developer.

389 b. In areas where the rock fall hazard is present but very low, disclosure of a potential hazard
390 to land owners and residents with an acknowledgment of risk and willingness to accept
391 liability may be an acceptable alternative to avoidance or mitigation for single-family
392 residences.

393 (5) Debris flows.

394 a. Debris flows are mixtures of water, rock, soil and organic material (70-90 percent solids by
395 weight) that form a muddy slurry much like wet concrete and flow down slope, commonly in
396 surges or pulses, due to gravity. They generally remain confined to stream channels in
397 mountainous areas, but may reach and deposit debris over large areas on alluvial fans at
398 and beyond canyon mouths.

399 b. The County debris flow hazard maps were constructed from the boundaries of active
400 alluvial fans and areas with slopes steeper than 30 percent. Any proposed development in
401 areas identified as debris flow hazard areas shall be evaluated prior to approval of the
402 proposed development. A study and report, as provided in Section 108-22-3, shall be
403 prepared by an engineering geologist for any development proposed in or adjacent to a
404 debris flow hazard area and shall include:

405 1. An analysis of the history of debris flow at the site based on subsurface exploration to
406 determine the nature and thickness of debris flow and related alluvial fan deposits. If,
407 in the engineering geologist's professional opinion, geologic conditions have changed
408 enough to render a debris flow inactive, the analysis may estimate the nature and
409 approximate thickness of the debris flow and related alluvial fan deposits in lieu of
410 subsurface exploration.

411 2. An analysis of the drainage basin's potential to produce debris flows based on the
412 presence of debris slides and colluvium-filled slope concavities, and an estimate of
413 the largest probable volumes likely to be produced during a single event.

414 3. An analysis of the stream channel to determine if the channel will supply additional
415 debris, impede flow, or contain debris flows in the area of the proposed development.

416 4. An analysis of manmade structures upstream that may divert or deflect debris flows.

417 5. Recommendations concerning any channel improvements, flow modifications and
418 catchment structures, direct protection structures or floodproofing measures, if
419 necessary, in order to protect the development.

420 (6) Liquefaction areas.

421 a. Earthquake ground shaking causes a variety of phenomena which can damage structures
422 and threaten lives. One of these is termed soil liquefaction. Ground shaking tends to
423 increase the pressure in the pore water between soil grains, which decreases the stresses
424 between the grains. The loss of intergranular stress can cause the strength of some soils
425 to decrease nearly to zero. When this occurs, the soil behaves like a liquid. When
426 liquefaction occurs, foundations may crack, buildings may tip, buoyant buried structures
427 such as septic tanks and storage tanks may rise, and even gentle slopes may fail as
428 liquefied soils and overlying materials move down slope.

429 b. Areas of potential liquefaction have been delineated and the following regulations and
430 mitigation measures have been adopted in order to reduce the hazard and consequences.
431 Areas of moderate to high liquefaction potential need not be avoided. Structural measures
432 and site modification techniques are available to reduce a hazard. A site specific
433 liquefaction study and report shall be required pursuant to Section 108-22-3, and shall be
434 prepared by an engineering geologist and/or a state licensed geotechnical engineer and
435 shall comply with the following:

- 436 1. Standard soil foundation study, for the proposed development, shall include
437 liquefaction potential evaluation based upon depth to groundwater, soil types and
438 ground failure hazard.
- 439 2. If liquefiable soils are present, standard penetration tests and/or cone penetration
440 tests shall be required to determine critical accelerations needed to induce
441 liquefaction.
- 442 3. The study and report shall include an accurate map of the area showing any proposed
443 development, the location of bore holes and/or test pits, the site geology, and location
444 and depths of any liquefiable soils noted, along with the probability of critical
445 accelerations needed to induce liquefaction in these soils being exceeded for
446 appropriate time periods.
- 447 4. The report shall include recommendations for hazard reduction techniques.

448 (7) Flood.

- 449 a. The floodplain standards are written to minimize the loss of life and property when floods
450 do occur, not to ban development outright from the floodplain. In the event the following
451 provisions conflict with those in Title 22 of the Weber County Code, the most restrictive
452 shall apply. The Federal Emergency Management Agency (FEMA) has produced official
453 floodplain maps, depicting areas of potential stream flooding for major drainages in Weber
454 County.
- 455 b. FEMA recommends that no new development be permitted in the 100-year floodplain
456 unless:
 - 457 1. Detailed engineering study and reports, as required by Section 108-22-3, prepared by
458 a state-licensed engineer, show that the proposed development will not increase the
459 flood hazard to other property in the area. Recommendations shall be made for
460 floodproofing or other mitigation techniques for development within flood hazard
461 areas. (Site investigations for proposed development in lake-flooding areas near
462 Great Salt Lake need only indicate the site elevation. Development proposals in areas
463 with elevations less than 4,218 feet will be reviewed with respect to lake-flooding
464 potential and compatibility of proposed use.)
 - 465 2. The proposed development is elevated above the 100-year flood base elevation.
 - 466 3. For federally-insured loans, flood insurance is purchased from a company
467 participating with the Federal Insurance Administration or a like private carrier.
- 468 c.. The study and report, as may be required by Section 108-22-3, shall consider the
469 following:
 - 470 (i) Alluvial fan flooding, which is not mapped under the FEMA program, may be a
471 hazard on all active alluvial fans identified on debris flow hazard maps. The
472 hazard from such flooding shall be addressed and appropriate hazard reduction
473 measures taken.
 - 474 (ii) Sheet flow. Certain areas of the Ogden Valley have been identified and mapped
475 as areas of sheet flow flooding. The hazard from such flooding shall be addressed
476 and appropriate hazard reduction measures taken.

477 (8) Other hazards.

- 478 a. As in many counties in the Western United States, development in the County is
479 constrained by the presence of natural and manmade hazards. These hazards include, but
480 are not limited to, avalanche, slope movement, soils categorized as having severe building
481 limitations and slopes exceeding 30 percent.
- 482 b. Not all hazardous sites and conditions have been identified in the County. As a hazard or
483 potential hazard becomes known, the County has discretion to require any study and

484 report that is necessary to understand how the hazard or potential hazard may impact
485 development. The study or report shall provide appropriate hazard mitigation measures.

486 **Sec. 108-22-3. - Studies and reports required.**

487 (a) *Requirement for a study and report.* Unless otherwise exempted in Section 108-22-5, any
488 application for development on a parcel of land within a natural hazard study area shall be
489 submitted to the planning division with two hard copies and one electronic (pdf) copy of a site-
490 specific natural hazard study and report, where required for such development according to the
491 following chart:

492

Land Use (Type of Facility)	Liquefaction Potential High/Moderate	Landslide/Rock Fall/Debris Flow Study Area	Surface Fault Rupture Study Area	Tectonic Subsidence Study Area	Flood Study Area	Other Hazardous Areas
Critical facilities	Yes	Yes	Yes	Recommended	Yes	As determined by the County Engineer
Industrial, commercial, or multifamily (4 or more units)	Yes	Yes	Yes	No	Yes	As determined by the County Engineer
Residential subdivisions	No**	Yes, unless otherwise provided by Section 108-22- 2(4)b.	Yes	No	Yes	As determined by the County Engineer
Residential, single lots/multifamily (less than 4 units)	No**	Yes, unless otherwise provided by Section 108-22- 2(4)b.	Yes	No	Yes	As determined by the County Engineer
**Although no study and report is required, disclosure is required as described in Section 108-22-4.						

- 493 (1) Each natural hazard study and report shall be prepared by an engineering geologist. In the case
 494 of a snow avalanche hazard, the study and report shall be prepared by an experienced
 495 avalanche expert. The study and report shall be signed by the preparer and shall also include
 496 the qualifications of the preparer.
- 497 (2) Each natural hazard study and report shall be site-specific and identify, to the extent
 498 practicable, all known or suspected potential natural hazard(s) originating on-site or off-site
 499 which present a reasonable likelihood of adversely affecting the particular property.
- 500 (3) Each natural hazard study and report shall include a detailed site map (scale: one inch equals
 501 200 feet or larger), showing the location and type of hazard with delineation of the
 502 recommended setback distances from the hazard and the recommended location for structures.
- 503 (4) Each natural hazard study and report shall address the potential adverse effects of the hazard
 504 on the proposed development and occupants thereof in terms of the reasonable likelihood of
 505 potential damage.
- 506 (5) Each natural hazard study and report shall contain recommendations for avoidance or
 507 mitigation of the identified adverse effects of the hazard consistent with the purposes set forth in

508 Section 108-22-1 of this chapter. The evidence on which recommendations and conclusions are
509 based shall be clearly stated in the report.

510 (6) Trench logs (scale: one inch equals five feet or larger), trench photos, aerial photographs,
511 references with citations, and other supporting information, as applicable, shall also be included
512 in each natural hazard study and report.

513 (b) *Review of the study and report.* In order to fulfill the purposes of this chapter, the Land Use Authority
514 shall review any proposed development which requires preparation of a natural hazard study and
515 report under this chapter to determine the possible risks to the safety of persons or property from a
516 natural hazard.

517 (1) Prior to consideration by the Land Use Authority of any such development, the County Engineer
518 may submit the study and report, and, if applicable, site specific plan, to outsourced qualified
519 professionals for review and recommendation. Any cost for the review shall be paid by the
520 applicant prior to any Land Use Authority action.

521 (2) The County Engineer has discretion to reject the scope, techniques, methodology, conclusions,
522 or specific types of information presented in the study and report if industry standards of care
523 were not used. All conclusions of the study and report shall be supported by adequate data.

524 (3) The County Engineer shall prepare a final review and recommendation of an acceptable study
525 and report, and, if applicable, site specific plans, for the Land Use Authority's consideration.

526 (4) Whenever the Land Use Authority determines that an area is subject to a natural hazard which
527 present an unreasonable risk to the safety of persons or property, including public streets, such
528 area shall not be approved for development unless the applicant can demonstrate that such a
529 risk can be reduced to a reasonable and acceptable level in a manner which has a minimum
530 effect on the natural environment.

531 (5) The Land Use Authority may set requirements or conditions necessary to reduce the risks from
532 a natural hazard as a condition to the approval of any development which requires preparation
533 of a natural hazard study and report.

534 (c) *Study and report verification.* The project engineering geologist shall submit with the study a signed
535 and sealed verification letter stating that the study was conducted in accordance with industry
536 standards of care, and that it complies with this Land Use Code and all other applicable laws. Written
537 verification shall be provided from the issuer of professional errors and omissions liability insurance,
538 in the amount of one million dollars (\$1,000,000.00), which covers the engineering geologist, and
539 which is in effect on the date of preparation of all required studies and reports.

540 (d) *Development design verification.* Whenever possible, avoidance of development in an area with an
541 identified natural hazard is strongly encouraged. However, pursuant to requirements of this chapter,
542 development in an area with an identified natural hazard shall be permitted when it is designed to
543 mitigate, and is reasonably safe from, the identified hazard. Final design of the development shall not
544 be accepted by the County unless:

545 (1) The development's state licensed engineer, or if applicable, engineers, provide(s) the County
546 with a signed and sealed verification letter stating that, pursuant to the considerations, findings,
547 recommendations, and conclusions of the development's engineering geologist's study and
548 report, the development has been designed to mitigate, and is reasonably safe from, the
549 identified hazard.

550 (2) The development's engineering geologist submits a signed and sealed verification letter stating
551 that the final design of the development adequately provides for the considerations, findings,
552 recommendations, and conclusions of the study and report, and is reasonably safe from the
553 identified hazard.

554 (3) Written verification is provided from the issuer(s) of professional errors and omissions liability
555 insurance, in the amount of one million dollars (\$1,000,000.00), which covers the engineering

556 geologist and state licensed engineer(s), and which is in effect on the date of preparation of all
557 required reports and certifications.

558 **Sec. 108-22-4. - Disclosure required.**

559 (a) When a natural hazard report shows that a hazard exists which affects a particular parcel:

560 (1) a copy of the report shall be kept for public inspection in the County Planning Division Office.

561 (2) A notice that runs with the land shall be recorded, and, if applicable, a note on the subdivision
562 plat shall be required, which provide:

563 a. Notice that the parcel is located within a natural hazard study area;

564 b. Notice that a natural hazard study and report is available for public inspection in the
565 County Planning Division Office;

566 c. Notice that a hazard has been identified on the parcel and the type and severity of the
567 hazard;

568 d. The professional who prepared the report, with his or her contact information; and

569 e. Any restrictions on the use of the parcel required within the natural hazard report, or by the
570 Land Use Authority.

571 (b) When a natural hazard report is not required, but where the parcel is located within a natural hazard
572 study area, notice that the parcel is located within such an area shall be recorded running with the
573 land and noted on the subdivision plat (if applicable), and shall be written in a form satisfactory to the
574 County Engineer and County Attorney.

575 (c) The natural hazard ordinance codified in this chapter and natural hazard map represent only those
576 potentially hazardous areas known to the County, and shall not be construed to include all possible
577 potential hazard areas. The natural hazards listed in this chapter may be amended as new
578 information becomes available. The provisions of this chapter do not in any way assure or imply that
579 areas outside its boundaries will be free from the possible adverse effects of a natural hazard. This
580 chapter shall not create liability on the part of the County, any officer or employee thereof for any
581 damages from a natural hazard that result from reliance on this chapter or any administrative
582 requirement or decision lawfully made thereunder.

583 **Sec. 108-22-5. - Exemptions from natural hazard study and report.**

584 A proposed structure that is not a structure designed for human occupancy shall not be required to
585 provide a natural hazard report, except a report shall be provided for a critical facility if required by
586 Section 108-22-3.

587 **Sec. 108-22-6. - Costs to be the responsibility of the developer/applicant.**

588 Any of the above described technical reports and/or studies shall be performed by qualified
589 professionals on behalf of the applicant. The cost of outsourced qualified professionals used by the
590 County to aid in the review required in Section 108-22-3 is the responsibility of the applicant. Any other
591 costs incurred in providing technical reports or testimony by qualified professionals or expert witnesses
592 shall be solely the responsibility of the applicant and not the County.

593 **Sec. 108-22-7. - Change of use.**

594 No change in use which results in the conversion of a building or structure not designed for human
595 occupancy to one designed for human occupancy shall be permitted unless the building or structure
596 complies with the provisions of this chapter.

597 **Sec. 108-22-8. - Conflict between boundaries of study area or identified hazard.**

598 Where there is a conflict between the boundaries of an identified natural hazard study area and
599 actual field conditions, or where detailed investigations show that the identified hazard is not present
600 within a particular area, the conflict shall be settled as follows:

- 601 (1) The person disputing the natural hazard study area boundary shall submit technical and
602 geologic evidence to support such claim to the County Engineer in the form of a site-specific
603 natural hazard report.
- 604 (2) The County Engineer may request outsourced qualified professionals to review the evidence
605 and make a recommendation prior to making a final written decision concerning the dispute.
606 The cost of the outsourced qualified professional's review shall be paid by the person disputing
607 the boundary.
- 608 (3) The County Engineer may allow modifications to the boundary only if the evidence clearly and
609 conclusively establishes that the natural hazard study area boundary location is incorrect, or
610 that the identified hazard is not present within a particular area.

611 .

612 **Sec. 108-22-9. - Appeals.**

- 613 (a) Except as allowed in subsection (b) of this Section, an appeal of any written decision in the
614 application of this chapter shall be appealed in accordance with Title 102, Chapter 3 – Board of
615 Adjustment, of this Land Use Code.
- 616 (b) When a written decision provided under this chapter contains technical aspects, an applicant may
617 request the County to assemble a panel of qualified professionals to serve as the appeal authority for
618 the sole purpose of determining those technical aspects².
 - 619 (1) The technical aspects of the administration and interpretation of this chapter are decisions
620 related to:
 - 621 a. the acceptance or rejection of scope, techniques, methodology, conclusions or specific
622 types of information presented in a study or report;
 - 623 b. the review and recommendation of an acceptable study or report for the Land Use
624 Authority's consideration;
 - 625 c. the interpretation or application of any technical provisions of a study or report that is
626 required by this chapter; or
 - 627 d. the modification of a natural hazard study area boundary.
 - 628 (2) Unless otherwise agreed by the applicant and County, if an applicant makes a request under
629 this subsection, the County shall assemble the panel consisting of:
 - 630 a. one qualified professional designated by the County;
 - 631 b. one qualified professional designated by the applicant; and
 - 632 c. one qualified professional chosen jointly by the County's designated qualified professional
633 and the applicant's designated qualified professional.
 - 634 (3) A member of the panel may not be associated with the application that is the subject of the
635 appeal.
 - 636 (4) The applicant shall pay for one half the cost of the panel in addition to the County's appeal fee.
 - 637 (5) The panel shall be governed by the same appeal provisions of the Board of Adjustment
638 provided in Title 102, Chapter 3 - Board of Adjustment, of this Land Use Code.

² Note to codifiers: provide reference to UCA §17-27a-703(2)

1 | CHAPTER ~~27-22~~ - NATURAL HAZARDS OVERLAY DISTRICTS HAZARD AREAS

2 | Sec. ~~104-27~~108-22-1. - Purpose and intent.

3 | (a) The purpose and intent of this chapter is to coordinate the application of natural hazards guidelines
4 | and standards, in order to protect the health, welfare and safety of the citizens of the ~~county~~County,
5 | and to minimize potential effects of natural and manmade hazards by identifying known hazardous
6 | areas. This portion of the chapter specifies the areas for which an environmental analysis shall be
7 | performed prior to development, the content of the analysis and the procedure by which
8 | development applications requiring the analysis are reviewed and processed.

9 | (b) The ~~county~~County recognizes individual property rights and shall make every effort to balance the
10 | right of the individual property owner with the health, welfare, safety and the common good of the
11 | general public.

12 | Sec. ~~104-27~~108-22-2. - Potential hazards.

13 | The following potential hazards have been identified:

14 | (1) Surface-fault ruptures.

15 | a. Surface faulting has been identified as a potential hazard in the ~~county~~County. Maps have
16 | been produced delineating the known area where a hazard may exist from surface fault
17 | ruptures. Broad subsidence of the valleys accompanying surface faulting may affect areas
18 | several miles away from the fault. These effects are not considered here, but are covered
19 | in subsection ~~b~~3 of this section.

20 | b. Studies along the Wasatch fault have indicated that during a "characteristic" earthquake
21 | which produces surface faulting, offsets of six feet or more may occur on the main trace of
22 | the fault zone. This offset will result in formation of a near-vertical scarp, generally in
23 | unconsolidated surficial deposits, that begin to ravel and erode back to the material's angle
24 | of repose (33-35 degrees) soon after formation. Antithetic faults west of the main trace may
25 | also form, generally exhibiting a lesser amount of offset, but sometimes as much as
26 | several feet. The zone between these two faults may be complexly faulted and tilted with
27 | offset along minor faults of several inches or more.

28 | c. Based upon this data, it is difficult, both technically and economically, to design a structure
29 | to withstand six feet or more of offset through its foundation. Thus, avoidance of the main
30 | traces of the fault is the principal risk reduction technique that can be reasonably taken.

31 | d. No critical facility (~~excluding transportation lines or utilities which by their nature may cross~~
32 | ~~active faults~~) or structure ~~designed~~ for human occupancy shall be built astride an active
33 | fault. ~~If a fault is discovered in the excavation for such a structure, a geologic hazard study~~
34 | ~~and report, as provided in Section 108-22-3 of this Land Use Code, is required.~~ In some
35 | areas adjacent to the main trace but still within the zone of deformation, avoidance may not
36 | be necessary. Less damaging (smaller) offsets of less than four inches, and tilting may
37 | occur and structural measures may be taken to reduce casualties and damage. However,
38 | structural damage may still be great, and buildings in the zone of deformation may not be
39 | safe for occupants following a large earthquake.

40 | e. Due to the scale used to map these zones, there is not enough detail to delineate all fault
41 | traces and zones of deformation at a particular location, therefore, site specific plans ~~and~~
42 | studies, ~~and reports~~ shall be required, ~~as provided in Section 108-22-3 of this Land Use~~
43 | ~~Code,~~ for development in or adjacent to the delineated areas.

44 | ~~Upon submittal, review and planning commission approval of site specific plans and~~
45 | ~~studies with recommendations, produced by a qualified engineering geologist,~~ Building
46 | setbacks shall be a minimum of 50 feet from an active fault trace. A reduction in the
47 | setback ~~will~~may be considered if the report presents evidence to justify a reduction

Comment [c1]: All of the changes from Section 104-27 have been moved into this new section (108-22) in their modified form.

Comment [c2]: Current code is inconsistent about this. This corrects the inconsistency.

Comment [c3]: Of specific concern, this ordinance suggests that only the planning commission has control over development approvals where natural hazards are a concern. This amendment fixes that (you see these changes throughout).

48 acceptable to the ~~planning commission~~ Land Use Authority, after recommendation from the
49 County Engineer.

50 (2) ~~Landslide~~ tectonic subsidence.

51 a. ~~Landslide~~—Landslides, historically, have been one of the most damaging geologic
52 processes occurring in Weber County. Most active landslides, and most older slides, have
53 been mapped ~~and are shown on the Sensitive Lands Overlay District maps. These~~
54 ~~designations serve as an indication of unstable ground. The maps designate.~~ The maps
55 identify areas of landslides and slopes which are potentially unstable under static (non-
56 earthquake) conditions, and are especially vulnerable under conditions of high to
57 abnormally high precipitation, heavy snowmelt, or excessive water application due to
58 irrigation or septic system discharge. Landslides can damage structures, roads, railroads
59 and power lines. Furthermore, landslides may rupture canals, aqueducts, sewers and
60 water mains, all of which can add water to the slide plane and promote further movement.
61 Flooding may also be caused.

Comment [c4]: Added language to be clear that precipitation is not the only problem.

62 b. Many methods have been developed for reducing a landslide ~~hazards~~ hazard. Proper
63 planning and avoidance is the least expensive measure, if landslide-prone areas are
64 identified early in the planning and development process. Care in site grading with proper
65 compaction of fills and engineering of cut slopes is a necessary follow-up to good land use
66 planning. Where avoidance is not feasible, various engineering techniques are available to
67 stabilize slopes, including de-watering (draining), retaining structures, piles, bridging,
68 weighting or buttressing slopes with compacted earth fills and drainage diversion. Since
69 every landslide and unstable slope has differing characteristics, any development
70 proposed within ~~a designated~~ an identified landslide hazard area, ~~as delineated on the~~
71 ~~Sensitive Lands Overlay District maps,~~ shall require the submittal, and review and approval
72 by the planning commission, of specific site studies, including grading plans, cut/fill, a study
73 and plans produced by a qualified engineering geologist report, as provided in Section 108-
74 22-3. The study and a Utah licensed geotechnical engineer. The site specific study report
75 shall address slope stability (including natural or proposed cut slopes), evaluate slope-
76 failure potential, effects of development and recommendations for mitigative measures.
77 Slope stability analysis shall include potential for movement under static, development-
78 induced and earthquake-induced conditions as well as likely groundwater conditions.

79 e. (3) Tectonic subsidence.

80 a. Tectonic subsidence, also called seismic tilting, is the warping, lowering and tilting of a
81 valley floor that accompanies surface-faulting earthquakes on normal (dip slip) faults such
82 as the Wasatch fault zone. Inundation along the shores of lakes and reservoirs and the
83 ponding of water in areas with a shallow water table may be caused by tectonic
84 subsidence. Certain structures which require gentle gradients or horizontal floors,
85 particularly wastewater treatment facilities and sewer lines may be adversely affected.

86 b. Because subsidence may occur over large areas (tens of square miles), it is generally not
87 practical to avoid the use of potentially affected land except in narrow areas of hazard due
88 to lake shoreline flooding. For gravity-flow structures such as wastewater treatment
89 facilities that are within areas of possible subsidence, it is advisable to consider the
90 tolerance of such structures to slight changes in gradient. Some structures may have to be
91 releveled after a large-magnitude earthquake. Critical facilities which contain dangerous
92 substances should have safety features to protect the structure, its occupants and the
93 environment from both tilting and flooding.

94 c. Flooding problems along lakes from tectonic subsidence shall be reduced using standard
95 techniques such as raising structures above expected flood levels and dikes can be built.
96 Development adjacent to lakes or reservoirs shall be prohibited within three feet of
97 elevation above projected lake levels to protect against natural rises from wet periods,
98 storm waves and earthquake induced seiching, as well as hazards associated with tectonic
99 subsidence.

100 | fd. Rises in the water table accompanying tectonic subsidence may cause water to pond,
101 | flood basements and disrupt buried facilities in areas of shallow groundwater adjacent to
102 | the fault on the down dropped side.

103 | ge. The principal application of the identified tectonic subsidence areas is to make the public
104 | aware of the hazard and to indicate those areas where further study may be necessary.
105 | Site specific tectonic subsidence reports and studies are recommended only for critical
106 | facilities in areas of potential lake-margin and ponded shallow groundwater flooding.
107 | However, certain vulnerable facilities such as high cost wastewater treatment plants and
108 | hazardous waste facilities should also consider potential tilting.

109 | (34) Rock fall.

110 | a. Rock falls are a naturally occurring erosional process in mountain areas in Weber County.
111 | As development advances higher onto the bench areas and into the canyons the risk from
112 | falling rocks becomes greater. A primary mechanism responsible for triggering rock falls is
113 | water in outcrop discontinuities. Rock falls present a hazard because of the potential
114 | damage a large rock mass, traveling at a relatively high velocity, could cause to structures
115 | and personal safety. ~~Buildings shall be located so that structures are not positioned in an~~
116 | ~~area susceptible to rock falls.~~ When new developments cannot be designed around a rock
117 | fall path, and hazard reduction measures must be considered, a ~~site specific plan and~~
118 | ~~hazard study, with recommendations for mitigation, shall be produced by a qualified~~
119 | ~~engineering geologist, submitted for review and approval by the planning commission.~~
120 | ~~Mitigation may study and report as provided in Section 108-22-3, is required. Mitigation~~
121 | shall require design by a Utah licensed geotechnical engineer, and may include rock
122 | stabilization techniques such as bolting, cable lashing, burying, and grouting
123 | discontinuities, removal or break-up of potential rock clasts, as well as deflection berms,
124 | slope benches, and rock catch fences to stop or at least slow down falling rocks.
125 | Strengthening a structure to withstand impact is an example of modifying what is at risk.
126 | Mitigation problems can arise when rock source areas are located on land not owned by
127 | the developer.

128 | b. In areas where the rock fall hazard is present but very low, ~~disclosures~~disclosure of a
129 | potential ~~hazards~~hazard to land owners and residents with an acknowledgment of risk and
130 | willingness to accept liability may be an acceptable alternative to avoidance or mitigation
131 | for single-family residences.

132 | (45) Debris flows.

133 | a. Debris flows are mixtures of water, rock, soil and organic material (70-90 percent solids by
134 | weight) that form a muddy slurry much like wet concrete and flow down slope, commonly in
135 | surges or pulses, due to gravity. They generally remain confined to stream channels in
136 | mountainous areas, but may reach and deposit debris over large areas on alluvial fans at
137 | and beyond canyon mouths.

138 | b. The ~~county~~County debris flow hazard maps were constructed from the boundaries of active
139 | alluvial fans and areas with slopes steeper than 30 percent. Any proposed development in
140 | areas identified as debris flow hazard areas shall be evaluated prior to approval of the
141 | proposed development.

142 | ~~4.~~ A study and report, as provided in Section 108-22-3, shall be prepared by an engineering
143 | geologist for any development proposed in or adjacent to a debris flow hazard area and
144 | shall include:

145 | ~~(1)~~1. An analysis of the ~~past~~ history of debris flow at the site based on subsurface
146 | exploration to determine the nature and thickness of debris flow and related alluvial
147 | fan deposits. ~~— If, in the engineering geologist's professional opinion, geologic~~
148 | ~~conditions have changed enough to render a debris flow inactive, the analysis may~~
149 | ~~estimate the nature and approximate thickness of the debris flow and related alluvial~~
150 | ~~fan deposits in lieu of subsurface exploration.~~

Comment [c5]: Added language to facilitate common sense application of the law. This will help geologists still comply with the law while not conducting an expensive trench analysis when, in their opinion, it's obvious that subsurface exploration is not necessary.

- 151 | ~~(ii)2.~~ An analysis of the drainage basin's potential to produce debris flows based on the
152 | presence of debris slides and colluvium-filled slope concavities, and an estimate of
153 | the largest probable volumes likely to be produced during a single event.
- 154 | ~~(iii)3.~~ An analysis of the stream channel to determine if the channel will supply
155 | additional debris, impede flow, or contain debris flows in the area of the proposed
156 | development.
- 157 | ~~(iv)4.~~ An analysis of manmade structures upstream that may divert or deflect debris
158 | flows.
- 159 | ~~(v)5.~~ Recommendations concerning any channel improvements, flow modifications and
160 | catchment structures, direct protection structures or floodproofing measures, if
161 | necessary, in order to protect the development.
- 162 | ~~(vi) Upon approval of the county engineer, the report shall be presented to the~~
163 | ~~planning commission along with review comments for recommendation of~~
164 | ~~approval by the county commission.~~
- 165 | ~~(5) (6)~~ Liquefaction areas.
- 166 | a. Earthquake ground shaking causes a variety of phenomena which can damage structures
167 | and threaten lives. One of these is termed soil liquefaction. Ground shaking tends to
168 | increase the pressure in the pore water between soil grains, which decreases the stresses
169 | between the grains. The loss of intergranular stress can cause the strength of some soils
170 | to decrease nearly to zero. When this occurs, the soil behaves like a liquid. When
171 | liquefaction occurs, foundations may crack, buildings may tip, buoyant buried structures
172 | such as septic tanks and storage tanks may rise, and even gentle slopes may fail as
173 | liquefied soils and overlying materials move down slope.
- 174 | b. Areas of potential liquefaction have been delineated and the following regulations and
175 | mitigation measures have been adopted in order to reduce the hazard and consequences.
176 | Areas of moderate to high liquefaction potential need not be avoided. Structural measures
177 | and site modification techniques are available to reduce ~~hazards~~a hazard. A site specific
178 | liquefaction study and report shall be required pursuant to be preparedSection 108-22-3,
179 | and shall be prepared by an engineering geologist and/or a state licensed geotechnical
180 | engineer~~and shall comply with the following:~~
- 181 | ~~(i)1.~~ Standard soil foundation study, for the proposed development, shall include
182 | liquefaction potential evaluation based upon depth to groundwater, soil types and
183 | ground failure hazard.
- 184 | ~~(ii)2.~~ If liquefiable soils are present, standard penetration tests and/or cone penetration
185 | tests shall be required to determine critical accelerations needed to induce
186 | liquefaction.
- 187 | ~~(iii)3.~~ The study and report shall include an accurate ~~maps~~map of the area
188 | showing any proposed development, the location of bore holes and/or test pits, the
189 | site geology, and location and depths of any liquefiable soils noted, along with the
190 | probability of critical accelerations needed to induce liquefaction in these soils being
191 | exceeded for appropriate time periods.
- 192 | ~~(iv)4.~~ The report shall include recommendations for hazard reduction techniques.
- 193 | ~~(v) The county engineer shall concur with the scope of the report, techniques and~~
194 | ~~methodology to be used in the preparation of the report and shall have input as~~
195 | ~~to the specific types of information to be included in the report.~~
- 196 | ~~(vi) Upon approval of the county engineer, the report shall be presented to the~~
197 | ~~planning commission along with review comments for recommendation of~~
198 | ~~approval by the county commission.~~

Comment [c6]: This language is removed from these subsections throughout and better consolidated into 108-22-3.

- 199 | ~~(67)~~ Flood.
- 200 | a. The floodplain standards are written to minimize the loss of life and property when floods
201 | do occur, not to ban development outright from the floodplain. In the event the following
202 | provisions conflict with those in Title 22 of the Weber County Code, the most restrictive
203 | shall apply. The Federal Emergency Management Agency (FEMA) has produced official
204 | floodplain maps, depicting areas of potential stream flooding for major drainages in Weber
205 | County. ~~FEMA recommends that no new development be permitted in the 100-year~~
206 | ~~floodplain unless:~~
- 207 | ab. FEMA recommends that no new development be permitted in the 100-year floodplain
208 | unless:
- 209 | 1. Detailed engineering ~~studies~~study and reports, as required by Section 108-22-3,
210 | prepared by a state-licensed engineer, show that the proposed development will not
211 | increase the flood hazard to other property in the area. Recommendations shall be
212 | made for floodproofing or other mitigation techniques for development within flood
213 | hazard areas. (Site investigations for proposed development in lake-flooding areas
214 | near Great Salt Lake need only indicate the site elevation. Development proposals in
215 | areas with elevations less than 4,218 feet will be reviewed with respect to lake-
216 | flooding potential and compatibility of proposed use.)
- 217 | b2. The proposed development is elevated above the 100-year flood base elevation.
- 218 | c3. For federally-insured loans, flood insurance is purchased from a company
219 | participating with the Federal Insurance Administration or a like private carrier.
- 220 | ~~d. Upon approval of the county engineer, the report shall be presented to the planning~~
221 | ~~commission along with review comments for recommendation of approval by the county~~
222 | ~~commission.~~
- 223 | 4-c. The study and report, as may be required by Section 108-22-3, shall consider the
224 | following:
- 225 | (i) Alluvial fan flooding, which is not mapped under the FEMA program, may be a
226 | hazard on all active alluvial fans ~~designated~~identified on ~~the~~-debris flow hazard
227 | maps. The hazard from such flooding shall be addressed and appropriate hazard
228 | reduction measures taken.
- 229 | 2-(ii) Sheet flow. Certain areas of the Ogden Valley have been identified and mapped
230 | as areas of sheet flow flooding. The hazard from such flooding shall be addressed
231 | and appropriate hazard reduction measures taken.
- 232 | ~~(78)~~ Other ~~hazardous areas~~-hazards.
- 233 | a. As in many counties in the Western United States, development in the ~~county~~County is
234 | constrained by the presence of natural and manmade hazards. These hazards include but
235 | are not limited to, avalanche, slope movement, soils categorized as having severe building
236 | limitations and slopes exceeding 30 percent.
- 237 | b. Not all hazardous sites and conditions have been identified in the ~~county; however,~~
238 | ~~development on those identified sites shall be permitted when projects are studied and~~
239 | ~~designed by County. As~~ a ~~qualified engineering geologist and a state-licensed civil~~
240 | ~~engineer, architect and~~ hazard or an ~~engineering geologist and certified to withstand the~~
241 | potential hazard ~~for which it is designed, and~~ becomes known, the County has discretion to
242 | require any study and report that is necessary to understand how ~~the site is buildable and~~
243 | ~~that the site is safe. This allows development on hazardous sites with the full~~
244 | ~~acknowledgment of the property owner~~ hazard or potential hazard may impact
245 | development. ~~The use of hazardous sites for open space is encouraged.~~ study or report
246 | shall provide appropriate hazard mitigation measures.

247 ~~Sec. 104-27-3. Supplementary hazards definitions.~~

Comment [c7]: This section is being deleted and all definitions are being moved into 101-1-7 (definitions). See Exhibit B to review changes to them.

248 ~~The following words, terms and phrases, when used in this chapter, shall have the meanings~~
249 ~~ascribed to them in this section, except where the context clearly indicates a different meaning:~~

250 ~~Active fault means a fault displaying evidence of greater than four inches of displacement along one~~
251 ~~or more of its traces during Holocene time (about 11,000 years ago to the present).~~

252 ~~Area of deformation means the zone along a fault in which natural soil and rock materials are~~
253 ~~disturbed as a result of movement along the fault. (Also Zone of Deformation.)~~

254 ~~Critical acceleration means the minimum amount of ground acceleration during seismically induced~~
255 ~~ground movement required to induce liquefaction or other forms of ground disruption.~~

256 ~~Critical facilities means:~~

257 ~~(1) Lifelines such as major communication, utility and transportation facilities and their connection~~
258 ~~to emergency facilities;~~

259 ~~(2) Essential facilities, such as:~~

260 ~~a. Hospitals and other medical facilities having surgery and emergency treatment areas;~~

261 ~~b. Fire and police stations;~~

262 ~~c. Tanks or other structures containing housing or supporting water or other fire-suppression~~
263 ~~materials or equipment required for the protection of essential or hazardous facilities, or~~
264 ~~special occupancy structures;~~

265 ~~d. Emergency vehicle shelters and garages;~~

266 ~~e. Structures and equipment in emergency-preparedness centers;~~

267 ~~f. Standby power generating equipment for essential facilities;~~

268 ~~g. Structures and equipment in government communication centers and other facilities~~
269 ~~required for emergency response;~~

270 ~~(3) Hazardous facilities such as structures housing, supporting or containing sufficient quantities of~~
271 ~~toxic or explosive substances to be dangerous to the safety of the general public if released; or~~

272 ~~(4) Special occupancy structures, such as:~~

273 ~~a. Covered structures whose primary occupancy is public assembly (capacity greater than~~
274 ~~300 persons);~~

275 ~~b. Buildings for schools through secondary or day care centers (capacity greater than 50~~
276 ~~students);~~

277 ~~c. Buildings for colleges or adult education schools (capacity greater than 50 students);~~

278 ~~d. Medical facilities with 50 or more resident incapacitated patients, but not included above;~~

279 ~~e. Jails and detention facilities;~~

280 ~~f. All structures with occupancy greater than 5,000 persons;~~

281 ~~g. Structures and equipment in power generating stations and other public utility facilities not~~
282 ~~included above, and required for continued operation;~~

283 ~~h. Unique or large structures whose failure might be catastrophic, such as dams holding over~~
284 ~~ten-acre feet of water.~~

285 ~~Debris flow means a mass of rock fragments, soil, and mud which, when wet, moves in a flow-like~~
286 ~~fashion. Debris flows will follow a confined channel, but may alter course if present on an alluvial/debris~~
287 ~~fan surface.~~

288 ~~Engineering geologist means a geologist who, through education, training and experience, is able to~~
289 ~~assure that geologic factors affecting engineering works are recognized, adequately interpreted and~~
290 ~~presented for use in engineering practice and for the protection of the public. This person shall have at~~
291 ~~least a four-year degree in geology, engineering geology, or a related field from an accredited university~~
292 ~~and at least three full years of experience in a responsible position in the field of engineering geology.~~

293 ~~Engineering geology means the application of geological data and principles to engineering~~
294 ~~problems dealing with naturally occurring rock and soil for the purposes of assuring that geological factors~~
295 ~~are recognized and adequately interpreted in engineering practice.~~

296 ~~Fault means a fracture in the earth's crust forming a boundary between rock and soil masses that~~
297 ~~have moved relative to each other (See Active fault).~~

298 ~~Fault scarp means a steep slope or cliff formed directly by movement along a fault.~~

299 ~~Fault trace means the intersection of a fault plane with the ground surface.~~

300 ~~Fault zone means a corridor of variable width along one or more fault traces.~~

301 ~~Landslide means a general term for the downslope movement of a mass of soil, surficial deposits or~~
302 ~~bedrock.~~

303 ~~Liquefaction means a process by which certain water-saturated soils lose bearing strength because~~
304 ~~of ground shaking and increase of groundwater pore pressure.~~

305 ~~Natural hazard means avalanche, liquefaction, surface fault rupture, rock fall, debris flow, flood,~~
306 ~~tectonic subsidence and/or landslide.~~

307 ~~Natural hazard maps means the overlay maps, which delineate hazards, such as avalanche,~~
308 ~~liquefaction, surface fault rupture, rock fall and/or landslide areas.~~

309 ~~Rock fall means the gravity induced drop of a newly detached segment of bedrock or perched rock~~
310 ~~of any size from a cliff or steep slope.~~

311 ~~Structure designed for human occupancy means any residential dwelling or any other structure used~~
312 ~~or intended for supporting or sheltering any use or occupancy which is expected to have occupancy rate~~
313 ~~of more than 2,000 person-hours per year.~~

314 ~~Sec. 104-27-4. Studies~~ Sec. 108-22-3. - Study and reports required.

315 (a) Requirement for a study and report. ~~Any applicant requesting~~ Unless otherwise exempted in
316 Section 108-22-5, any application for development on a parcel of land within a natural
317 hazard study area, ~~as shown on the natural hazards maps,~~ shall ~~submit~~ be submitted
318 to the planning ~~commission six~~ division with two hard copies ~~of~~ and one electronic (pdf) copy of a
319 site-specific natural hazard ~~studies~~ study and ~~reports~~ report, where required for such
320 development according to the following chart-;

321

<u>Land Use (Type of Facility)</u>	<u>Liquefaction Potential High/Moderate</u>	<u>Landslide/Rock Fall/Debris Flow Study Area</u>	<u>Surface Fault Rupture Study Area</u>	<u>Tectonic Subsidence Study Area</u>	<u>Flood Study Area</u>	<u>Other Hazardous Areas</u>
<u>Critical facilities</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>Recommended</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Industrial, commercial, or multifamily (4 or more units)</u>	<u>Yes</u>	<u>Yes</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Residential subdivisions</u>	<u>No**</u>	<u>Yes, unless otherwise provided by Section 108-22- 2(4)b.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>Residential, single lots/multifamily (less than 4 units)</u>	<u>No**</u>	<u>Yes, unless otherwise provided by Section 108-22- 2(4)b.</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>As determined by the County Engineer</u>
<u>**Although no study and report is required, disclosure is required as described in Section 108-22-4.</u>						

Comment [c8]: This section has been expanded and modified to accommodate all hazards listed in 108-22-2. It has been moved here from further down for clarity purposes.

322
323
324
325
326
327
328
329
330
331
332
333
334
335
336

- (1) ~~The Each~~ natural ~~hazards hazard study and report and studies~~ shall be prepared by an engineering geologist. In the case of a snow avalanche hazard, the study and report shall be prepared by an experienced avalanche expert. The study and report shall be signed by the preparer and shall also include the qualifications of the preparer.
- (2) ~~The Each natural hazard study and~~ report shall be site-specific and identify, to the extent practicable, all known or suspected potential natural ~~hazards hazard(s)~~ originating on-site or off-site which present a reasonable likelihood of adversely affecting the particular property.
- (3) ~~The Each natural hazard study and~~ report shall include a detailed site map (scale: one inch equals 200 feet or larger), showing the location and type of ~~the~~ hazard with delineation of the recommended setback distances from the hazard and the recommended location for structures.
- (4) ~~The Each natural hazard study and~~ report shall address the potential adverse effects of the hazard on the proposed development and occupants thereof in terms of ~~risk and the reasonable likelihood of~~ potential damage.
- (5) ~~The Each natural hazard study and~~ report shall contain recommendations for avoidance or mitigation of the identified adverse effects of the hazard consistent with the purposes set forth in

337 | ~~section 104-27~~Section 108-22-1 of this chapter. The evidence on which recommendations and
 338 | conclusions are based shall be clearly stated in the report.

339 | (6) Trench logs (scale: one inch equals five feet or larger), [trench photos](#), aerial photographs,
 340 | references with citations, and other supporting information, as applicable, shall also be included
 341 | in ~~the~~[each natural hazard study and](#) report.

Land Use (Type of Facility)	Liquefaction Potential High/Moderate	Landslide/Rock Fall/Debris Flow Special Study Area	Surface Fault Rupture Special Study Area
Critical facilities	Yes	Yes	Yes
Industrial or commercial ;gt;2 stories;/;gt;5,000 sq. ft.	Yes	Yes	Yes
Multifamily (4 or more units) and all other industrial or commercial	Yes	Yes	Yes
Residential subdivisions	No**	Yes	Yes
Residential, single lots/multifamily (less than 4 units/acre)	No**	Yes	Yes
**Although no special study is required, disclosure is required as described in section 104-27-7.			

342 | -

343 | (b) Review of [the study and report](#). In order to fulfill the purposes of this chapter, the ~~planning~~
 344 | ~~commission (for conditional uses, site plan review, design review and subdivisions)~~Land Use
 345 | ~~Authority~~ shall review any proposed development which requires preparation of a natural
 346 | ~~hazardshazard study and~~ report under this chapter to determine the possible risks to the safety of
 347 | persons or property from ~~a natural hazardshazard~~.

348 | (1) Prior to consideration by the ~~planning commission~~Land Use Authority of any such development,
 349 | the ~~planning director shall~~County Engineer ~~may~~ submit the ~~study and report to the Utah~~
 350 | ~~Geological and Mineral Survey, the U.S. Forest Service, and/or any other experts, if applicable,~~
 351 | ~~site specific plan, to outsourced qualified professionals~~ for review and recommendation. Any
 352 | cost for the review shall be paid by the applicant prior to any ~~planning commission~~Land Use
 353 | ~~Authority~~ action.

354 | (2) ~~The County Engineer has discretion to reject the scope, techniques, methodology, conclusions,~~
 355 | ~~or specific types of information presented in the study and report if industry standards of care~~
 356 | ~~were not used. All conclusions of the study and report shall be supported by adequate data.~~

357 | (3) ~~The County Engineer shall prepare a final review and recommendation of an acceptable study~~
 358 | ~~and report, and, if applicable, site specific plans, for the Land Use Authority's consideration.~~

Comment [c9]: County Engineer may, but is not required to, outsource the review. The County Engineer will outsource in the event that there are unique issues with geology or a geology report.

Comment [c10]: This section is identified as potentially producing a decision of "technical aspects" for which an appeal may merit a special panel for review. See the new section 108-22-9(b) for more details.

Comment [c11]: This section is identified as potentially producing a decision of "technical aspects" for which an appeal may merit a special panel for review. See the new section 108-22-9(b) for more details.

359 (4) Whenever the ~~planning commission~~ Land Use Authority determines that an area is subject to a
360 natural ~~hazards~~ hazard which present an unreasonable risk to the safety of persons or property,
361 including public streets, such area shall not be approved for development unless the applicant
362 can demonstrate that such a risk can be reduced to a reasonable and acceptable level in a
363 manner which has a minimum effect on the natural environment.

364 (35) The ~~planning commission~~ Land Use Authority may set requirements or conditions necessary to
365 reduce the risks from a natural hazards ~~hazard~~ as a condition to the approval of any
366 development which requires preparation of a natural hazards study and report.

367 ~~(c) Active fault consideration. No critical facility (excluding transportation lines or utilities which by
368 their nature may cross active faults) or structures designed for human occupancy shall be built
369 astride an active fault. If a fault is discovered in the excavation for such a structure, a special
370 study and report, as described in subsection (a) of this section, shall be performed to determine
371 if the fault is active, and if the fault is determined to be active, the procedures set forth in
372 subsection (b) of this section, shall be followed. No structure designed for human occupancy
373 shall be built on a fault scarp. Footing setbacks from a fault scarp shall meet the requirements
374 of chapter 29 of the Uniform Building Code. The planning commission may increase footing
375 setback requirements where information from a geotechnical report indicates slope conditions
376 warrant a greater setback distance.~~

Comment [c12]: This section does not belong here. It is incorporated into 108-22-2.

377 (c) Study and report confirmation. The project engineering geologist shall submit with the study a signed
378 and sealed confirmation letter that the study was conducted in accordance with industry standards of
379 care, and that it complies with this Land Use Code and all other applicable laws. Written verification
380 shall be provided from the issuer of professional errors and omissions liability insurance, in the
381 amount of one million dollars (\$1,000,000.00), which covers the engineering geologist, and which is
382 in effect on the date of preparation of all required studies and reports.

Comment [c13]: Subsection c and d are an expansion of a "certification" requirement in current code. It has been modified and expanded to provide for the following:

383 (d) Development design confirmation. Whenever possible, avoidance of development in an area with an
384 identified natural hazard is strongly encouraged. However, pursuant to requirements of this chapter,
385 development in an area with an identified natural hazard shall be permitted when it is designed to
386 mitigate, and is reasonably safe from, the identified hazard. Final design of the development shall not
387 be accepted by the County unless:

1. It's been moved here to provide better visibility. It was previously tucked into §104-27-2, which is an inconsistent place for its meaning and application.

388 (1) The development's state licensed engineer, or if applicable, engineers, provide(s) the County
389 with a signed and sealed confirmation letter stating that, pursuant to the considerations,
390 findings, recommendations, and conclusions of the development's engineering geologist's study
391 and report, the development has been designed to mitigate, and is reasonably safe from, the
392 identified hazard.

2. It has been modified to avoid the word "certify." In the geology and engineering world this word has a different meaning than the code anticipates.

393 (2) The development's engineering geologist submits a signed and sealed confirmation letter
394 stating that the final design of the development adequately provides for the considerations,
395 findings, recommendations, and conclusions of the study and report, and is reasonably safe
396 from the identified hazard.

3. It has been modified to put the general public and the private market on notice that the private market needs to be willing to accept full accountability for their work. This is an attempt to help shift "good development practices" from needing complete governmental control, and place it on the private market folks who are actually experts in their field.

397 (3) Written verification is provided from the issuer(s) of professional errors and omissions liability
398 insurance, in the amount of one million dollars (\$1,000,000.00), which covers the engineering
399 geologist and state licensed engineer(s), and which is in effect on the date of preparation of all
400 required reports and certifications.

4. It is an effort to keep the project geologist in the loop during development design – and to keep designs complying with the geologists recommendations. A reoccurring flaw in relying on the private market to provide optimal geologic hazards safety without significant governmental oversight is that there are not the appropriate checks and balances. Often times development designers do not completely consider the geologists recommendations and infrastructure failures can result. In lieu of significant governmental control over geology review, this section requires that the government check that the project geologist has checked the work and is satisfied.

401 **Sec. 104-27-5 108-22-4. - Disclosure required.**

402 (a) When a natural hazard report shows that a hazard exists which affects a particular parcel, ~~a copy of
403 the report shall be kept for public inspection in the county planning commission office. The natural
404 hazard report denoting the type and severity of the hazard, the professional who prepared the report,
405 the fact that the report is available to the public at the county planning department, and any
406 restrictions on the use of the parcel required within the natural hazards report shall be recorded as a
407 deed covenant running with the land, in the office of the county recorder, in addition to the following:~~

408 (1) a copy of the report shall be kept for public inspection in the County Planning Division Office.

409 (2) A covenant that runs with the land shall be recorded, and, if applicable, a note on the
410 subdivision plat shall be required, which provide:

411 a. Notice that the parcel is located within a natural ~~hazards-special~~hazard study area ~~as~~
412 ~~shown on the natural hazards map-;~~

413 (2)b. ~~Notice of the existence and availability of the~~ that a natural hazards-hazard study and
414 report is available for public inspection in the ~~county-planning-commission-office-County~~
415 Planning Division Office;

416 (3)c. Notice that a hazard has been identified on the parcel and the type and severity of the
417 hazard;

418 d. The professional who prepared the report, with his or her contact information;

419 e. Any restrictions on the use of the parcel required within the natural hazard report, or by the
420 Land Use Authority; and

421 f. An agreement by the owner of the parcel and any successor in interest to comply with
422 anythe conditions set by the ~~planning-commission~~Land Use Authority to minimize adverse
423 effects of the natural hazard.

424 (4b) When a natural hazard report is not required, but where the parcel is located within a ~~mapped~~
425 ~~hazardous area, as shown on one of the~~ natural hazards overlay maps~~hazard study area~~, notice
426 that the parcel is located within such an area shall be recorded as a ~~deed~~ covenant running with the
427 land ~~in the county recorder's office~~and noted on the subdivision plat (if applicable), and shall be
428 written in a form satisfactory to the ~~county-engineer~~County Engineer and ~~attorney~~County Attorney.

429 (5c) The natural ~~hazards~~hazard ordinance codified in this chapter and natural ~~hazards-maps~~hazard map
430 represent only those potentially hazardous areas known to the ~~county~~County, and shall not be
431 construed to include all possible potential hazard areas. The natural hazards listed in this chapter
432 ~~and associated maps~~ may be amended as new information becomes available. The provisions of
433 this chapter do not in any way assure or imply that areas outside its boundaries will be free from the
434 possible adverse effects of a natural ~~hazards~~hazard. This chapter shall not create liability on the part
435 of the ~~county~~County, any officer or employee thereof for any damages from a natural ~~hazards~~hazard
436 that result from reliance on this chapter or any administrative requirement or decision lawfully made
437 thereunder.

438 **Sec. ~~104-27-6~~108-22-5. - Exemptions from ~~filling~~-natural hazard study and report.**

439 ~~Proposed development~~A proposed structure that is not ~~occupied by humans~~a structure designed for
440 human occupancy shall not be required to provide a natural hazard report, except ~~critical facilities which~~
441 report shall be provided for a critical facility if required ~~to provide a report~~by Section 108-22-3.

442 **Sec. ~~104-27-7~~108-22-6. - ~~Costs~~ to be the responsibility of the developer/applicant.**

443 Any of the above described technical reports and/or studies shall be performed by ~~the required~~
444 qualified professionals on behalf of the ~~county through a third-party contract where all fees,~~
445 ~~costs and expenses are applicant. The cost of outsourced qualified professionals used by the County to~~
446 aid in the review required in Section 108-22-3 is the responsibility of the applicant. Any other costs
447 incurred in providing technical reports or testimony by qualified professionals or expert witnesses shall be
448 solely the responsibility of the applicant and not the ~~county~~County.

449 **Sec. ~~104-27-8~~108-22-7. - Change of use.**

450 No change in use which results in the conversion of a building or structure ~~from one not~~
451 used~~designed~~ for human occupancy to one ~~that is so used~~designed for human occupancy shall ~~not~~
452 be permitted unless the building or structure complies with the provisions of this chapter.

453 **Sec. ~~104-27-9~~ - Variances.**

Comment [c14]: One objective of this amendment is to make it clear that expert reviews will not always be required by the County Engineer; but when they are the applicant is responsible for the cost.

454 ~~(a) Ability to grant. The county board of adjustment, when deciding appeals for variances of distance or~~
455 ~~area within the Natural Hazards Overlay Zone shall follow both the standards of title 102, chapter 3~~
456 ~~of the Weber County Land Use Code and the standards stated below.~~

457 ~~(b) Items to consider. In deciding whether to grant a variance and what conditions to attach to its~~
458 ~~approval, the board of adjustment shall consider:~~

459 ~~(1) The likelihood during a significant seismic or other geologic event that materials may be moved~~
460 ~~onto adjacent land areas causing injury to persons or property;~~

461 ~~(2) The degree of susceptibility to damage by seismic or other geologic activity for the building~~
462 ~~design or use proposed;~~

463 ~~(3) The importance of the services of the proposed facility to the community and the need for the~~
464 ~~facility to be functional following a significant event of geologic activity;~~

465 ~~(4) The necessity of the facility to be in the proposed location or proposed design;~~

466 ~~(5) Considering alternate locations and designs available;~~

467 ~~(6) The ability of the community to provide emergency services to the facility in the event of a~~
468 ~~catastrophe;~~

469 ~~(7) The degree of benefit received from the variance relative to the hazards posed to the facility's~~
470 ~~neighbors, visitors, and owners.~~

471 ~~(c) Presumption relative to approval. Generally, the standards of this chapter shall not be varied unless~~
472 ~~an equally safe method of use and construction can be approved.~~

473 ~~(1) The amount of variance approved shall be only the minimum amount required to provide relief.~~

474 ~~(2) A variance shall be granted only if it will not result in a threat to public safety, cause~~
475 ~~extraordinary public expense, or create a nuisance.~~

476 ~~(3) A variance shall be granted only if it will not result in a threat to public safety, cause~~
477 ~~extraordinary public expense, or create a nuisance.~~

478 ~~(4) In a continuum beginning with hay barns and agricultural structures and going to high rise~~
479 ~~apartment buildings and auditoriums, the difficulty in obtaining a variance shall be greater for~~
480 ~~structures with a high percentage of time when the structure is utilized by humans or is~~
481 ~~occupied by a large number of people.~~

482 ~~Sec. 104-27-10. Disputes; 108-22-8. - Conflict between boundaries of study area or identified hazard,~~
483 ~~or mapped hazards.~~

484 ~~The boundary lines of the special study areas shown on the Natural Hazards Overlay Maps shall be~~
485 ~~determined by use of the scale appearing on the map.~~

486 Where there is a conflict between the ~~boundary lines illustrated on the map~~ boundaries of an
487 identified natural hazard study area and actual field conditions, or where detailed investigations show that
488 the ~~mapped hazards are~~ identified hazard is not present within a particular area, the ~~dispute~~ conflict shall
489 be settled as follows:

490 (1) The person disputing the natural hazard study area boundary ~~area boundary or the mapped hazards present~~
491 ~~within a particular area~~ boundary shall submit technical and geologic evidence to support such
492 claim to the ~~planning commission~~ County Engineer in the form of a site-specific natural
493 ~~hazards~~ hazard report.

494 (2) The ~~planning commission~~ County Engineer may request the ~~Utah Geological Survey, the U.S.~~
495 ~~Forest Service, and/or other experts~~ outsourced qualified professionals to review the evidence
496 ~~and make a recommendation~~ prior to making a final written decision concerning the dispute.

497 ~~(3)~~—The cost of the outsourced qualified professional's review shall be paid by the person disputing
498 the map boundary.

499 (43) The ~~planning commission~~County Engineer may allow ~~deviations from~~modifications to the
500 ~~mapped boundary line~~ only if the evidence clearly and conclusively establishes that the natural
501 hazard study area boundary location is incorrect, or that the ~~mapped hazards are~~identified
502 hazard is not present within a particular area.

503 ~~(5)~~—Any.

504 Sec. 108-22-9. - Appeals.

505 (a) Except as allowed in subsection (b) of this Section, an appeal of any written decision of in the
506 ~~planning commission may~~ application of this chapter shall be appealed ~~to~~ in accordance with Title
507 102, Chapter 3 – Board of Adjustment, of this Land Use Code.

508 (b) When a written decision provided under this chapter contains technical aspects, an applicant may
509 request the ~~board of county commissioners by filing an appeal within 15 days of~~ County to assemble
510 a panel of qualified professionals to serve as the ~~planning commission's decision~~ appeal authority
511 for the sole purpose of determining those technical aspects.

512 (1) The technical aspects of the administration and interpretation of this chapter are decisions
513 related to:

514 a. the acceptance or rejection of scope, techniques, methodology, conclusions or specific
515 types of information presented in a study or report;

516 b. the review and recommendation of an acceptable study or report for the Land Use
517 Authority's consideration;

518 c. the interpretation of any technical provisions of a study or report that is required by this
519 chapter; or

520 d. the modification of a natural hazard study area boundary.

521 (2) Unless otherwise agreed by the applicant and County, if an applicant makes a request under
522 this subsection, the County shall assemble the panel consisting of:

523 a. one qualified professional designated by the County;

524 b. one qualified professional designated by the applicant; and

525 c. one qualified professional chosen jointly by the County's designated qualified professional
526 and the applicant's designated qualified professional.

527 (3) A member of the panel may not be associated with the application that is the subject of the
528 appeal.

529 (4) The applicant shall pay for one half the cost of the panel in addition to the County's appeal fee.

530 (5) The panel shall be governed by the same appeal provisions of the Board of Adjustment
531 provided in Title 102, Chapter 3 - Board of Adjustment, of this Land Use Code.

532

Comment [c15]: State code requires the county to allow appeals to be run this way. Our natural hazards code does not currently adequately provide for this.

Weber County Land Use Code Revision Process Workflow

This flowchart is intended to illustrate the intended course of the revision process. It is not an absolute plan, and deviations may occur as more information is gathered, but it will provide the Planning Commission with an idea where we are in the process at any given time. Staff will refer to this structure regularly.

