Chapter 14. Safety Element

14.1 Purpose, Scope, and Content

The Goal of the Safety Element is to reduce the potential short- and long-term risks of death, injury, property damage, and economic and social dislocation resulting from fires, floods, droughts, earthquakes, landslides, climate change, and other hazards. The Safety Element is an important tool for the County to minimize and reduce the risk of death, injuries, property damage, and economic and social dislocation resulting from earthquake, fire, flood, and other hazards. Other locally relevant safety issues, such as airport land use, emergency response, and hazardous material spills may also be included. The components of this element include:

- Geologic/Seismic Hazards
- Flooding and Drainage
- Fire Hazards
- Airport Safety
- Industrial Hazards
- Emergency Management
- Climate Change

This Element identifies hazards and hazard abatement provisions to guide local decisions related to zoning, subdivision, and entitlement permits. Hazard and risk reduction policies supporting hazard mitigation implementation measures are contained in this Element.

The Element also identifies and provides guidelines for natural and human-caused risks that could impact current and future developments and provides practical guidelines to ensure safety to all community members, residents, employees, and visitors. This Chapter identifies present and future conditions and sets policy for preventing injury or harm. The scope encompasses safeguarding physical harm to buildings, infrastructure, and natural communities in Humboldt County to reduce damage to the local economy, services, and ecosystems. While some disasters cannot be eliminated, the goal of the Safety Element is to anticipate them and mitigate their impacts to the greatest extent possible.

The Safety Element meets the requirements laid out in California law Section 65302(g) of the California Government Code which requires the following:

- Protect the community from risks associated with a variety of hazards, including seismic activity, landslides, flooding, and wildfire, as required by the California Government Code Section 65302(g)(1).
- Map and assess the risk associated with flood hazards, develop policies to minimize the flood risk to new development and essential public facilities, and establish effective working relationships among agencies with flood protection responsibilities, as required by California Government Code Section 65302(g)(2).
- Map and assess the risk associated with wildfire hazards, develop policies to reduce the wildfire risk to new land uses and essential facilities, ensure there is adequate road and water infrastructure to respond to wildfire emergencies, and establish

cooperative relationships with wildfire protection agencies, as required by California Government Code Section 63502(g)(3).

- Assess the risks associated with climate change on local assets, populations, and resources. Note existing and planned development in at-risk areas and identify agencies responsible for providing public health and safety and environmental protection. Develop goals, policies, and objectives to reduce the risks associated with climate change impacts, including locating new public facilities outside of at-risk areas, providing adequate infrastructure in at-risk areas, and supporting natural infrastructure for climate adaptation, as required by California Government Code Section 65302(g)(4).
- Identify residential developments in any hazard area identified that does not have at least two emergency evacuation routes, as required by California Government Code Section 65302(g)(5).

14.2 Relationship to Other Elements

The hazards discussed in The Safety Element are considered in applying the policies and land use designations of the Land Use Element. For instance, lands subject to recurring flooding are planned for open space uses such as agriculture wherever practical. The Conservation and Open Space, Circulation, Community Infrastructure and Services and Water Resources Elements share common related subject matter.

14.3 Background

Hazard and Risk Reduction

Land development is subject to a number of hazards to life and property, including seismic and non-seismic land instability, flooding, fire, climate change, and dangers from airport operations.

The degree of risk associated with these hazards can only be measured in relative terms. What constitutes "acceptable risk" varies with the type of development involved. For instance, a hospital should meet very strict earthquake standards in order to ensure that it is able to function in the event of a serious earthquake. A warehouse, on the other hand, would not need to be designed to the same rigorous standards because its functions during an earthquake would not be critical to the community's response to the emergency, nor would it pose serious risk to large numbers of people should it fail.

This General Plan manages risk through the use of land use designations to limit exposure to hazardous areas and through policies tailored to specific hazardous conditions. The implementation measures of this Element are designed to proactively improve overall safety conditions within the county.

Geologic/Seismic Hazards

Humboldt County is a relatively hazardous area in terms of land sliding and soil erosion, and an extremely hazardous area in terms of groundshaking and fault rupture. The following sections briefly describe the seismic setting, bedrock geology, and soils of the county.

Seismicity

Humboldt County is located within two of the highest of five seismic risk zones specified by the Uniform Building Code. The area near Cape Mendocino is a complex, seismically active region, where three crustal plates intersect to form the Mendocino Triple Junction. The area offshore Cape Mendocino has the highest concentration of earthquake events anywhere in the continental United States.

The subducting Gorda and Juan de Fuca Plates form the "Cascadia Subduction Zone," which runs north offshore of Humboldt, Del Norte, Oregon, and Washington. Research shows that this system produced a series of great earthquakes (magnitude 8 to 9) over the last 20,000 years at intervals of 300–500 years. The last great earthquake occurred about 300 years ago.

The above described seismic setting has the potential to cause significant groundshaking, leading to: (1) a serious liquefaction and subsidence hazard, particularly around the muds and sands of Humboldt Bay; (2) a nearshore tsunami striking the coast within 15 minutes of groundshaking; (3) a significant landslide hazard countywide; and, (4) surface fault rupture along the San Andreas, and possibly along the Little Salmon and Mad River fault zones, and other active or potentially active faults in the county. This scenario is Humboldt County's most significant risk. Planning proactively for this risk to protect life, minimize damage to critical infrastructure, and respond in the event of this emergency are high priorities of this Plan.

Surface Fault Rupture

Surface fault rupture is a particular type of seismic hazard that is specifically addressed by state legislation, the Alquist-Priolo Earthquake Fault Zoning Act. This act generally requires disclosure and avoidance. Humboldt County has a number of fault zones mapped under this law. The County utilizes a combining zone designation ("G") to flag these areas where special geologic study is required to identify the precise location of active fault traces to ensure structures for human occupancy are not placed astride them.

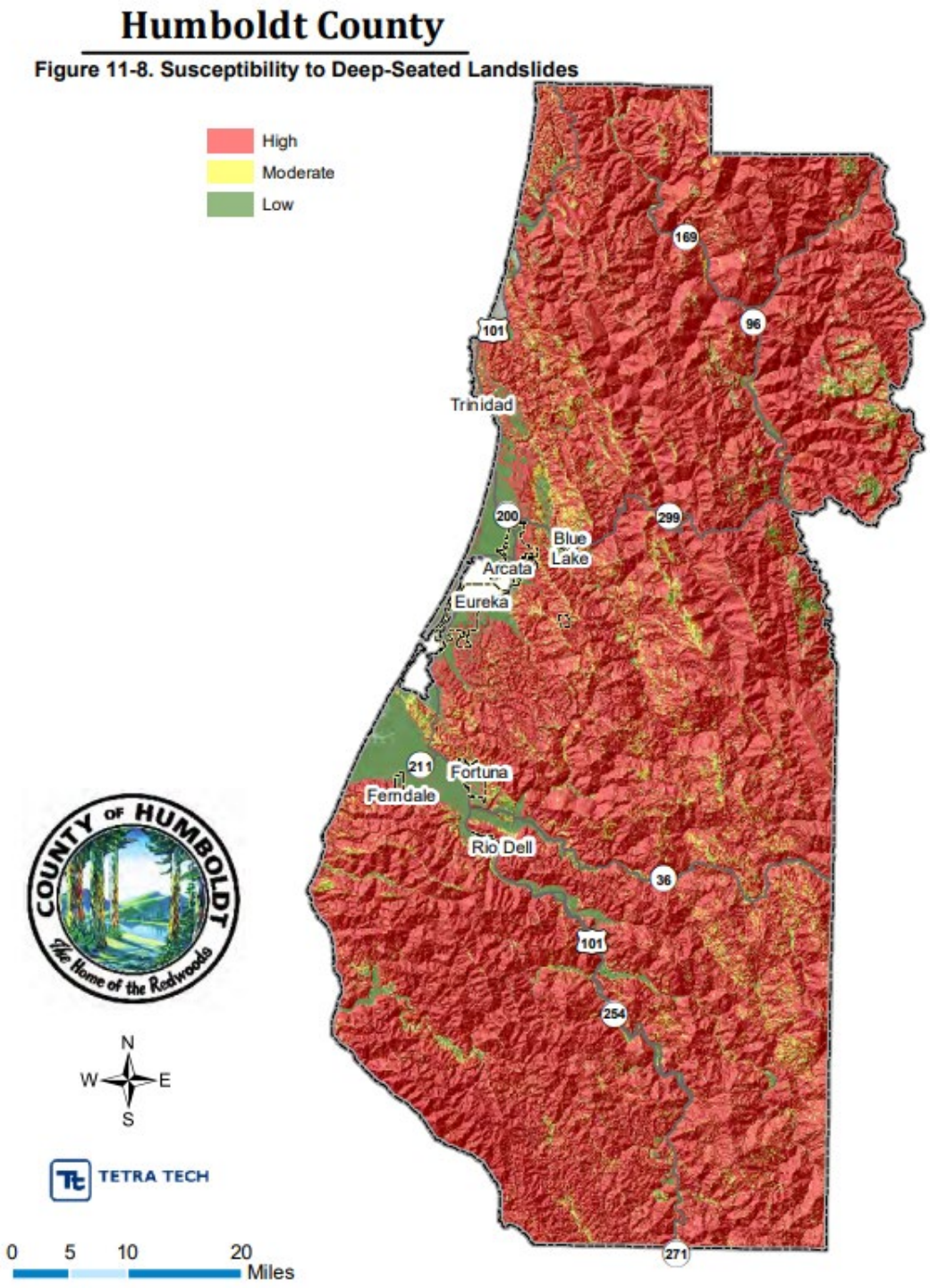
Liquefaction and Landsliding

Groundshaking gives rise to two secondary natural hazards, liquefaction and landsliding. Liquefaction involves a sudden loss in strength of a water-saturated soil, and results in temporary transformation of the soil into a fluid mass. Recent alluvial flood plain soils and coastal sand deposits exhibit the highest liquefaction hazard. To mitigate this hazard soils engineering investigations can assess the potential for liquefaction and specify appropriate foundation and building design.

Groundshaking can induce landslides, especially under saturated conditions. Again, soils engineering investigations can evaluate the seismic stability of slopes and prescribe appropriate setbacks.

Landslides can also occur without ground shaking. During the winter months when we see higher volumes of precipitation, water can travel though earthen layers and saturate soils or remain stagnant in pockets formed between rock and soil. This water can then freeze and expand creating larger separations in soil types or geologic formations. Once thawed, these separations can then cause landslides in areas with steep terrain and topography. Other hazards such as burn scars from previous wildfires can also contribute to landslides resulting from a lack of vegetation which previously stabilized vulnerable soils.

The map below identifies areas susceptible to landslides (Figure 11-8 is taken from the Humboldt County Operational Area Hazard Mitigation Plan 2020):



Active Fault Near-Source Zones

Since 1997, the UBC (Uniform Building Code) requires that in Seismic Zone 4 (most of Humboldt is in this zone) each listed ground motion fault shall be assigned a near-source seismic factor to be used in building design. Applying these factors to building construction substantially increases building strength and, for large multi-story buildings, cost. In Humboldt County, there are "A" and "B" designated fault zones, with "A" zones (including the San Andreas and Little Salmon faults) having more stringent design requirements.

Tsunami

Seismic activity such as earthquakes, tectonic movement, and volcanic activity can generate tsunamis through the displacement of large amounts of water. Humboldt County coastline borders the Pacific Ocean. This risk is higher for locations surrounding the Pacific Ocean given a higher volume of volcanic activity and plate movement, known as the Circum-Pacific Belt, or Ring of Fire. The movement of tectonic plates creates an immediate release of energy that travels through the Earth's crust and triggers sudden movement along the ocean floor. The vertical displacement of water releases this energy, causing seismic waves which move through ocean waters as a medium. Number of waves, height, and speed of the resulting tsunami depend on the magnitude, location, and severity of the earthquake. Once these waves are created, they can travel across the ocean gaining speed and energy as they travel.

It is important to note that not all earthquakes or volcanic eruptions generate tsunamis. The size of the event and characteristics of the ocean floor and coastline all play a role in how tsunamis are generated. When a significant seismic event occurs, it is crucial to be aware of the potential for tsunamis and take appropriate safety measures to protect lives and property. Humboldt County GIS incorporates layers which identify tsunami hazard areas and tsunami evacuation areas for members of the public and emergency services to be able to utilize in case of an event.

Bedrock Geology

The bedrock geology of the county is divided generally into two provinces: the Klamath Mountains province in the northeast and the Coast Ranges province in the central and southwest portion of the county. The dividing line between the two provinces is the South Fork Mountain Ridge, which separates the Trinity River basin from the Mad River and Redwood Creek drainages.

The Klamath Mountains province is an area of high alpine peaks east of the Humboldt County line. The province is drained by the Klamath and Trinity Rivers and, farther north, by the Smith River. Rocks in the Klamath Mountains province are generally older than those in the Coast Ranges. Rocks of sedimentary origin such as sandstone, chert, slate, and schist occur abundantly, with occasional granite intrusions.

The Coast Ranges province is the dominant geologic province in the county, trending northwest and drained by the Mad, Eel, and Mattole River drainages. The Franciscan and Yager complexes dominate inland, with sand and other alluvial deposits characterizing the lower reaches of the river basins and the area surrounding Humboldt Bay.

The Franciscan complex can be divided into two distinct units: Franciscan sandstone and Franciscan mélange. Franciscan sandstone consists mainly of sandstone and siltstone.

Although this sandstone unit is frequently sheared, there is little evidence of massive rock deformation. Slopes are fairly stable, but subject to debris sliding along steep river banks and in steep headwater drainages.

Franciscan mélange consists of sheared sandstone and siltstone along with blocks of volcanic rock, chert, and schist. Mélange terrain is generally unstable and characterized by rolling hummocky slopes that are highly susceptible to mass movement.

The Yager formation is predominantly shale and sandstone. Local shearing occurs but, in general, the formation is much less deformed and more stable than the Franciscan. However, it is subject to debris slides on steep slopes and river banks.

Alluvial sediments dominate the lower reaches of the river basins and in the area surrounding Humboldt Bay. These unconsolidated to partially consolidated sediments have been mildly folded and faulted but, when forested or gently sloped, are generally stable.

Recent advances have been made but the bedrock geology is still poorly mapped in much of the county. In most cases, lack of detailed mapping precludes determining stability without a site investigation. However, it may be valid to conclude varying degrees of relative risk based on general mapping of rock units when averaged over time.

Soils

There are many varied soils in Humboldt County. Some of the more abundant agricultural and lowland soils found in the county are the Ferndale series, a deep, well-drained soil formed on recent flood plains; the Bayside and the Loleta series, both deep, poorly drained soils found in depressed areas or on nearly level alluvial fans; and the Rohnerville, Carlotta, and Hookton soils series, all moderately well-drained soils.

Rohnerville soils are found on relatively flat, high marine terraces. The Hookton soils are on sloping, dissected marine terraces and the Carlotta soils are found on flat, low-lying terraces. Most of these agricultural soils are rated 80-100 in the Storie Index of agricultural productivity (good to excellent productivity) except the Bayside soils where drainage problems may reduce agricultural potential.

Forest Soils

In general, the forest soils of the county are medium textured, acid in reaction, and generally increasing in acidity with depth. They are permeable and well drained.

In the lowlands forest soils are formed on alluvial flood plains or low-lying terraces. Here they are either unclassified or of the Carlotta and Ferndale groups. The most superlative old growth redwood groves are found on these soils.

Grassland Soils

The general characteristics of grassland soils vary widely. They range from shallow loamy soils to deep clay soils. Their permeability ranges from moderate to slow. The general nutrient level of these grassland soils is higher than that of the adjacent forest soils. The major portion of these soils is intermingled with other soils in the Douglas fir zone beyond the fog belt. Some of these soils are formed on Franciscan parent material. Many of these are found in the shear zone or fault gouge material or on the mélange material of the Franciscan. This parent material weathers rapidly, forming a grey-blue clay subsoil (commonly called "blue goo") that tends to slip when wet. Thus, because of the parent material, these soils are found in landslide topography.

Woodland Soils

Most of the woodland soils are inland beyond the cool, foggy belt. They are intermingled with the conifer forest soils of the Douglas fir belt and the adjacent grassland soils. These are shallow soils, usually well drained, but permeability may be slow in some locations. The natural nutrient level of these soils tends to be somewhat higher than for the neighboring forest soils. Because the parent material is predominantly Franciscan mélange, these soils can be relatively unstable.

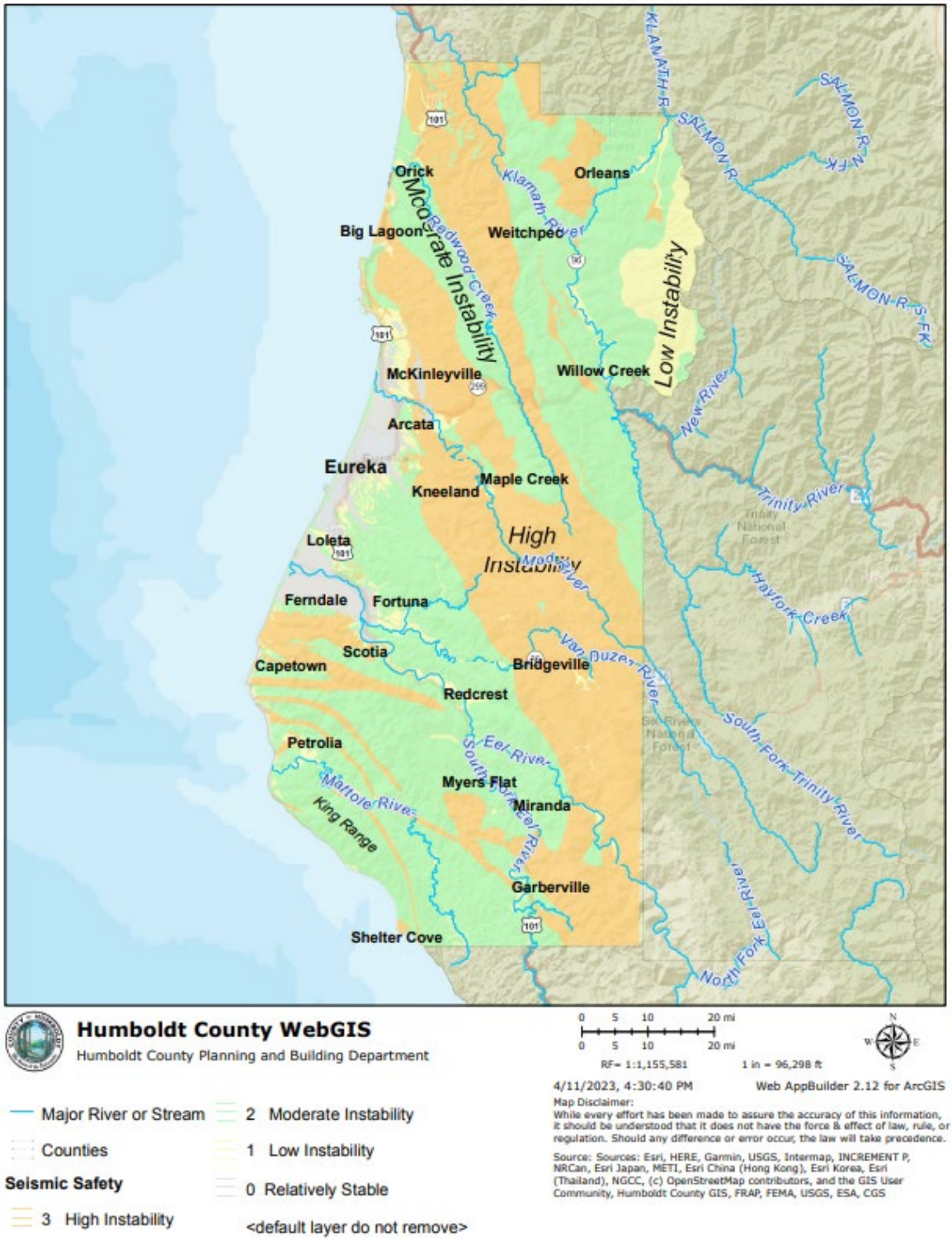
In contrast to the information on the county's bedrock geology, the available soils information is quite detailed. Soil-vegetation maps prepared by the California State Cooperative Soil-Vegetation Survey are available for the county at the 7-1/2 minute scale. These maps describe vegetation and soils, including information of parent rock materials, soil depth, erosion, and slope.

Slope Stability

Slope stability refers to the landslide susceptibility of slopes composed of natural rock, soils, artificial fill, or combinations thereof. Landslides move along surfaces of separation by falling, sliding, and flowing, giving rise to many characteristic features. The features range in appearance from being clearly discernible, largely unweathered and uneroded, to highly weathered and eroded, recognized only by topographic configurations.

Landslides are characteristically abundant in areas of high seismicity, steep slope, and high rainfall, but may be triggered by any, or a combination, of the following: (1) type and structure of earth materials, (2) steepness of slope, (3) water, (4) vegetation, (5) erosion, and (6) earthquake-generated groundshaking.

The prediction of slope failure at a specific site, therefore, requires an analysis of all possible factors. As part of the County General Plan, relative slope stability maps have been prepared to show areas susceptible to sliding. The following map from Humboldt GIS identifies slope stability within the County ranging from stable, relatively stable, moderately stable, or high instability:

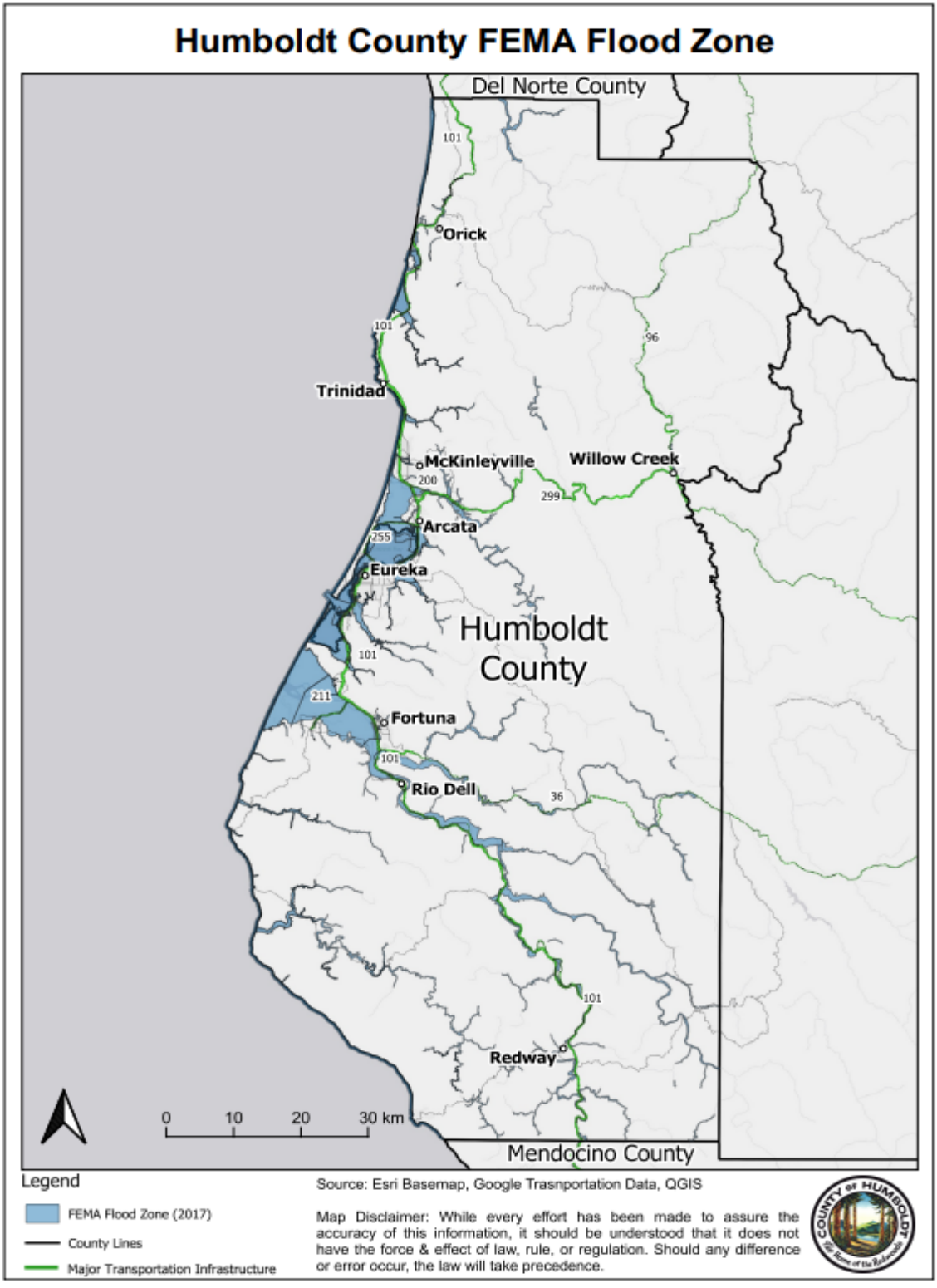

Orick
Big Lagoon
Orleans
Weitchpec
Moderate Instability
Low Instability
McKinleyville
Willow Creek
Arcata
Eureka
Maple Creek
Kneeland
Loleta
High Instability
Ferndale
Fortuna
Scotia
Capetown
Bridgeville
Redcrest
Petrolia
Myers Flat
Miranda
Garberville
Shelter Cove
King Range
Klamath River
Redwood Creek
Mattole River
Eel River
South Fork Eel River
Van Duzen River
New River
Trinity River
Hayfork Creek
South Fork Trinity River
North Fork Eel River
Salmon River
Salmon R. N. Fk.
Salmon R. S. Fk.
Humboldt County WebGIS
Humboldt County Planning and Building Department
0 5 10 20 mi
RF= 1:1,155,581
1 in = 96,298 ft
4/11/2023, 4:30:40 PM
Web AppBuilder 2.12 for ArcGIS
Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.
Source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Humboldt County GIS, FRAP, FEMA, USGS, ESA, CGS
Major River or Stream
Counties
Seismic Safety
3 High Instability
2 Moderate Instability
1 Low Instability
0 Relatively Stable
<default layer do not remove>

Flooding and Drainage Management

This section examines four aspects of flood-related hazards: river flooding, dam failure, coastal high water, and drainage management.

River Flooding

The 1955 and 1964 floods caused extensive damage along the Eel, Mad, and Trinity Rivers. Damages from the 1964 flood alone totaled $100 million. Flood prone areas have been mapped by the Federal Emergency Management Agency (FEMA). The maps provide the basis for regulating flood plains in conformance with the National Flood Insurance Program. The County has adopted flood plain regulations in order to continue participation in the federal flood insurance program. Below is a map identifying the FEMA Flood Zones (2017):


Humboldt County FEMA Flood Zone
Del Norte County
Orick
Trinidad
McKinleyville
Willow Creek
Arcata
Eureka
Humboldt County
Fortuna
Rio Dell
Redway
Mendocino County
101
96
200
299
255
211
36
0 10 20 30 km
Legend
FEMA Flood Zone (2017)
County Lines
Major Transportation Infrastructure
Source: Esri Basemap, Google Trasnportation Data, QGIS
Map Disclaimer: While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Dam Failure

While providing some degree of flood control, dams also present a possible hazard in the event of failure. Trinity Dam and Ruth Dam pose the most substantial risk, with their large volumes and, in the event of a failure, short downstream warning times.

Hazards from dam failure are those associated with the downstream inundation that would occur given a major structural failure of a nearby impoundment. Such failures would most likely be caused by geologic phenomena, including seismic events and slope stability problems.

Five dams are located in adjacent counties on rivers that drain into Humboldt County and the failure of any one of these structures could significantly impact this county. Humboldt GIS identifies areas of dam failure inundation within the hazards layer which contribute to the maintenance of emergency response plans for the Trinity, Ruth (Matthews), Scott, Copco, and Iron Gate dams.

Coastal High Water Hazards

Tsunamis and storm surges are coastal flooding concerns. Damaging tsunamis are rare but potentially catastrophic events due to sudden massive inundation of lower lying coastal areas typically triggered by a seismic/tectonic event. Storm surges occur when coastal storms produce large ocean waves that sweep across coastlines inundating low lying areas and causing flooding. If a storm surge occurs at the same time as high tide, flooding is more extensive. Flooding caused by a tsunami or storm surge can persist for an extended period. The water can also carry with it large amounts of debris or hazardous material causing further damage to infrastructure and property, the environment, and public safety. Flooding severity from such events depends on several factors, including size and speed of the wave(s), the topography of the area, and the proximity of infrastructure or buildings to the shoreline.

Over the past 150 years, California has had 12 tsunamis which have caused damage, the worst occurring in 1964 when 12 people died from a tsunami generated by an Alaskan earthquake. Local earthquakes can produce damaging tsunamis that will provide very little warning time. The geologic record indicates that the Cascadia Subduction Zone has been a near-shore source for a number of significant tsunami events affecting Humboldt County, the most recent occurring about 300 years ago. Tsunami run-up elevations in excess of 30 feet above mean sea level have been estimated for the north and south spit of Humboldt Bay. The Plan addresses this risk through mapping of at-risk areas, standards for new development located in run-up zones, and tsunami preparedness efforts in low-lying coastal communities.

Coastal Zone standards for new development located in tsunami run-up zones can be found within the Local Coastal Plans (LCPs) for Humboldt County. Each Coastal Plan is specific for a given area with set boundaries and applies development standards, consistent with the Coastal Act, as certified by the Coastal Commission. The LCPs for Humboldt County are as follows:

- Trinidad Area Plan
- McKinleyville Area Plan
- North Coast Area Plan
- Humboldt Bay Area Plan
- Eel River Area Plan

- South Coast Area Plan

These plans can be located here: https://humboldtgov.org/205/General-Plan

To mitigate the risks of flooding associated with tsunamis and storm surges, coastal communities can implement various measures such as building seawalls, levees, and dikes, identifying evacuation routes, following coastal development standards within local coastal policy, and ensuring public education of the proper emergency response procedures.

Below is a map which identifies tsunami hazard and evacuation areas with the boundary depicted in red:

Drainage Management

Large storm events can create sudden escalations in water volume which can exceed the capacities of drainage infrastructure or natural stream basins, leading to flooding of nearby areas. Severity of flooding depends on the amount of rainfall, the duration of the storm, the topography of the area, and a drainage systems' condition. Drainages are susceptible to becoming clogged with debris during such events. Debris can consist of twigs, branches, brush, man-made material, trash, and damaged goods. Drainage clogs can exacerbate flooding and cause water and associated pressure to back up, potentially damaging additional infrastructure.

To reduce the risk of flooding and clogging of drainage systems, communities can implement various measures. These measures consist of installing grates and screens on drainage systems, cleaning and removing debris which can build up within drainages, educating the public of proper disposal of trash and yard waste, and taking adequate precautions when preparing for large storm events, such as utilizing sandbags and other water flow prevention methods.

Drainage management becomes increasingly important as new development converts additional areas in a watershed to hard surfaces. Impervious surfaces reduce infiltration and increase peak flows during storms. Increased peak flows can accelerate erosion and the loss of fish habitat and riparian areas or require the conversion of natural drainage ways into higher capacity conveyances that can more rapidly transport stormwater. The loss of natural stream and riparian systems in urban areas may cause water quality problems downstream by concentrating runoff, which may contain pollutants such as sediment, oil and greases, pesticides, fertilizers, metals, and bacterial and viral contaminants. Higher capacity conveyances are problematic for Humboldt's flood basins because moving water faster to these areas only prolongs flooding of the low-lying areas.

Drainage problems and associated flooding are reduced through this Plan by use of various measures to decrease runoff. These measures include upstream retention and detention basins, improved watershed management and stream protection, reduction of impervious surfaces, proper siting of development projects, and other similar measures.

Fire Hazard

Fire Hazard Severity Mapping

The wildfire hazard in the county has been analyzed using the methodology of CAL FIRE's Fire and Resource Assessment Program (FRAP) (2022). This method takes into account fuels, terrain, weather, topography, and other relevant factors. The potential for destructive fires in Humboldt County ranges from moderate to very high in severity classification.

CAL FIRE's severity classifications for State Responsibility Areas (SRA's) areas within Humboldt County are shown on the CAL FIRE Fire Hazard Severity Zone Map (2022). The Map generally reflects a moderate to high rating on the western portions of the county where the fuel potential is high but the climate is damp. The very high ratings are generally in the drier eastern and southern portions of the county or on very steep terrain. Below is a table from the Community Wildfire Protection Program (CWPP) which identifies

communities within very high, high, moderate, and other, fire hazard severity zones within Humboldt County:

HUMBOLDT COUNTY COMMUNITY WILDFIRE PROTECTION PLAN, 2019

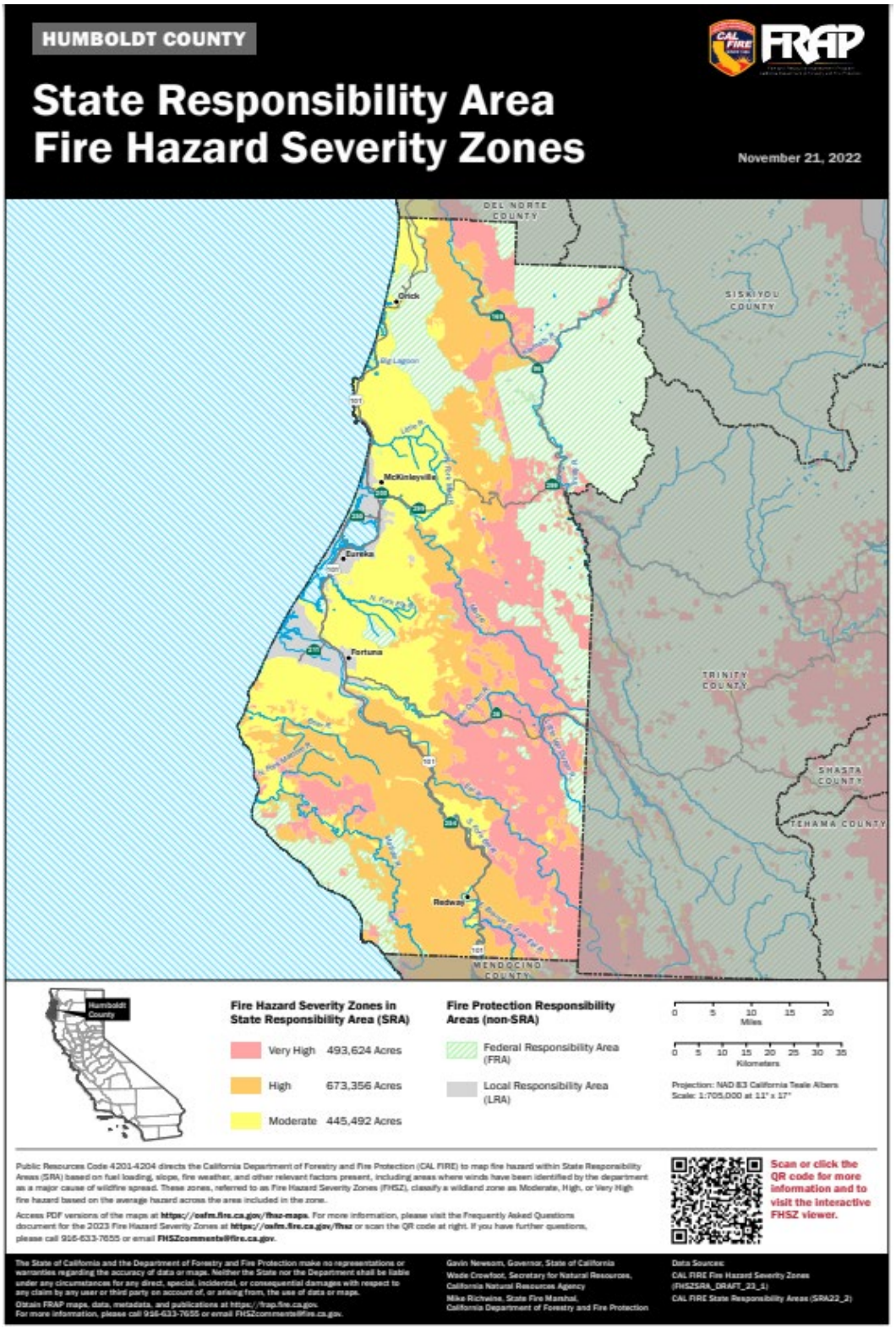
Forty-five percent of Humboldt County is classified as Very High, 48% as High, and only 4% Moderate, the remainder being unclassified as unzoned or water, etc. The table below and the map on the following page illustrate the distribution of FHSZs in acres by planning unit and geographically throughout the county. *For a detailed map of FHSZ ranking for each Planning Unit, see Part 4,* ***Planning Unit Action Plans.***

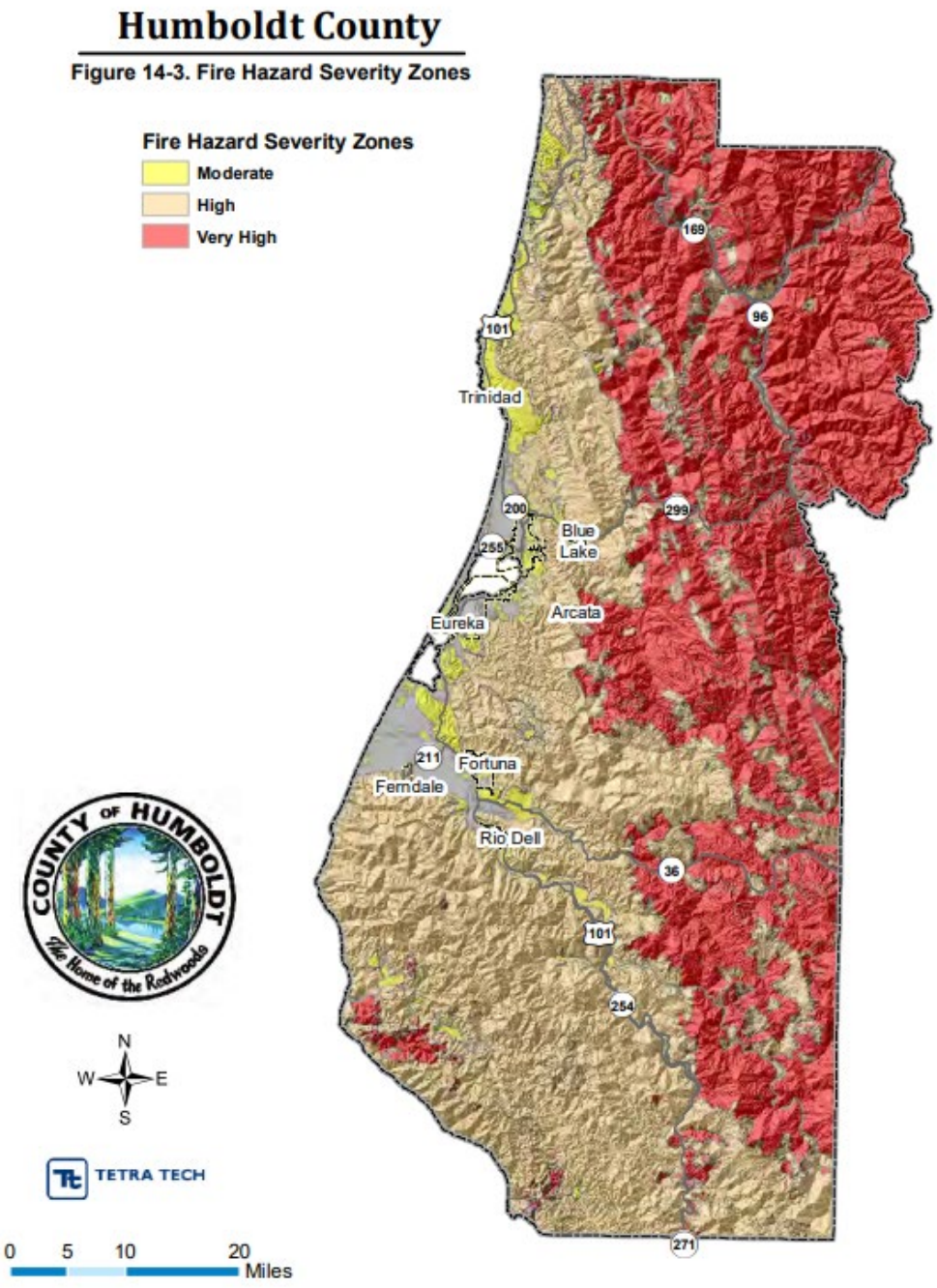
FIGURE 5.2.3 FIRE HAZARD SEVERITY BY PLANNING UNIT (ACRES AND PERCENTAGE)

PLANNING UNIT	*Very High*	*%*	*High*	*%*	*Moderate*	*%*	*Other*	*%*
Orick–Redwood Park (PU 1)	15,228	15	72,174	72	12,132	12	876	1
Upper Yurok Reservation (PU 2)	132,016	88	16,237	11	1,857	1	1,063	1
Mid Klamath (PU 3)	134,324	99	78	0	37	0	1,897	1
Hoopa (PU 4)	107,620	94	4,768	4	544	0	2,303	2
Trinidad (PU 5)	6	0	45,980	68	21,336	32	59	0
Redwood Creek (PU 6)	117,895	62	71,983	38	103	0	0	0
Willow Creek Area (PU 7)	163,937	97	3,921	2	114	0	376	0
Humboldt Bay Region (PU 8)	1,017	1	97,029	61	25,118	16	41,089	36
Kneeland–Maple Creek (PU 9)	79,578	65	43,553	35		0	0	0
Eel (PU 10)	2	0	133,267	70	24,138	13	65,653	35
Mad–Van Duzen (PU 11)	189,558	62	113,881	37	1,596	1	0	0
Mattole–Lost Coast (PU 12)	13,821	7	180,174	90	6,077	3	716	0
Southern Humboldt (PU 13)	58,028	23	194,740	76	1,964	1	402	0
Avenue of the Giants (PU 14)	19,508	13	120,897	82	6,780	5	0	0
Total	**1,032,538**	45%	**1,098,682**	48%	**101,793**	4%	**114,434**	0

**Other = Non-Wildland/Non-Urban or Urban Unzoned*

The Fire Hazard Severity Zone Map is used to apply mitigation strategies in proportion to wildland fire risk. Below is the 2022 Fire Hazard Severity Map illustrating levels of fire hazard severity within Humboldt County:


HUMBOLDT COUNTY
FRAP
State Responsibility Area
Fire Hazard Severity Zones
November 21, 2022
DEL NORTE COUNTY
SISKIYOU COUNTY
TRINITY COUNTY
SHASTA COUNTY
TEHAMA COUNTY
MENDOCINO COUNTY
Orick
McKinleyville
Eureka
Fortuna
Redwood
Humboldt County
Fire Hazard Severity Zones in State Responsibility Area (SRA)
Very High 493,624 Acres
High 673,356 Acres
Moderate 445,492 Acres
Fire Protection Responsibility Areas (non-SRA)
Federal Responsibility Area (FRA)
Local Responsibility Area (LRA)
0 5 10 15 20 Miles
0 5 10 15 20 25 30 35 Kilometers
Projection: NAD 83 California Teale Albers
Scale: 1:705,000 at 11" x 17"
Public Resources Code 4201-4204 directs the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA) based on fuel loading, slope, fire weather, and other relevant factors present, including areas where winds have been identified by the department as a major cause of wildfire spread. These zones, referred to as Fire Hazard Severity Zones (FHSZ), classify a wildland zone as Moderate, High, or Very High fire hazard based on the average hazard across the area included in the zone.
Access PDF versions of the maps at https://osfm.fire.ca.gov/fhsz-maps. For more information, please visit the Frequently Asked Questions document for the 2023 Fire Hazard Severity Zones at https://osfm.fire.ca.gov/fhsz or scan the QR code at right. If you have further questions, please call 916-633-7655 or email FHSZcomments@fire.ca.gov.
Scan or click the QR code for more information and to visit the interactive FHSZ viewer.
The State of California and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of, or arising from, the use of data or maps.
Obtain FRAP maps, data, metadata, and publications at https://frap.fire.ca.gov.
For more information, please call 916-633-7655 or email FHSZcomments@fire.ca.gov.
Gavin Newsom, Governor, State of California
Wade Crowfoot, Secretary for Natural Resources, California Natural Resources Agency
Mike Richwine, State Fire Marshal, California Department of Forestry and Fire Protection
Data Sources:
CAL FIRE Fire Hazard Severity Zones (FHSZSRA_DRAFT_23_1)
CAL FIRE State Responsibility Areas (SRA22_2)



Above is another FHSZ Map from the LHMP (2020).

Fire Responsibility Areas

There are three responsibility areas codified by the State of California which include: local responsibility areas, state responsibility areas, and federal responsibility areas.

- Local responsibility areas (LRAs) are areas protected by local agencies including city and county fire departments and local fire protection districts. CAL FIRE can be considered an LRA if under contract with local government. A majority of LRA areas are within lower lying areas with population bases such as towns and cities.
- State responsibility areas (SRAs) are areas where CAL FIRE has responsibility for wildfire protection. SRAs are generally comprised of highlands, unincorporated areas, areas of open space or high vegetation, and rangelands.
- Federal responsibility areas (FRAs) are areas managed by U.S. Forest Service, U.S. Fish and Wildlife Service, and the Bureau of Land Management. These areas are typically comprised of public lands, national parks, or any other lands owned by the federal government.

The state-approved mitigation strategies and standards currently applied in the SRA are those authorized by California Public Resources Code, Section 4290. The County adopted a Fire Safe Ordinance which applied to new development from January 1, 1992 through 2018 when they were replaced by state requirements. All development approved prior to 1992 is assumed not to meet the County's or state's SRA standards. The policies in this Element are aligned with the following Priority Actions in the CWPP to mitigate the increased risk of non-conforming structures to wildfire hazards through public education and community organizing measures:

3.2.1 Metric: Hardened Homes: Priority Action 3.2.1-1: Create and distribute a brochure How to Fire-Safe (or Harden) Your Humboldt-County Home

3.2.2 Metric: Defensible-Space Education:

Priority Action 3.2.1-1: Update Living with Wildfire in Northwestern California and distribute widely.

Priority Action 3.2.2-2: Create a local video about defensible space and hardened homes.

Priority Action 3.2.2-3: Continually build a photo and graphic library of hardened homes, defensible space, and fuel hazard-reduction projects in Humboldt County.

3.2.3 Metric: Defensible-Space Compliance:

Priority Action 3.2.3-1: Collaborate to create defensible space for elderly and disabled residents who are not able to do this for themselves.

Priority Action 3.2.3-2: Identify priority-interface areas for implementation of defensible space and hardened homes on private properties.

3.2.4 Metric: Community Wildfire-Preparedness Organizations

Priority Action 3.2.4-1: Support the formation of new Fire Safe Councils or Firewise® Communities to coordinate local community wildfire-preparedness efforts.

Priority Action 3.2.4-2: Help organize a regional Fire Safe Council capacity-building workshop to help inspire new FSCs and sustain existing ones.

3.2.6 Metric: Community Fuel Reduction

Priority Action 3.2.6-1: Work with leaders in each Planning Unit to support project development, including identification of needed resources and potential obstacles to facilitate fuel-hazard reduction project implementation and maintenance.

A map showing the location of existing and planned land uses, including habitable structures, roads, utilities, and essential public facilities in SRAs and VHFHSZs is available on the webGIS available at the following link: http://webgis.co.humboldt.ca.us/HCEGIS2.0/.

The 2020 State's SRA Fire Safe Regulations have been adopted. The following map identifies fire responsibility areas, taken from County GIS (LRAs are grey, SRAs are orange, and FRAs are green):

Humboldt County WebGIS
Humboldt County Planning and Building Department

0 5 10 20 mi
0 5 10 20 mi
RF= 1:1,155,581 1 in = 96,298 ft

4/12/2023, 8:37:20 AM Web AppBuilder 2.12 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Source: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community, Humboldt County GIS, FRAP, FEMA, USGS, ESA, CGS

Major River or Stream
Counties
Cal Fire SRA
SRA
LRA
FRA
<default layer do not remove>

Fire Service Providers

Fire hazards fall into two general categories: wildland fires, which emanate from forest, grassland, or open chaparral; and structural fires, which damage homes and workplaces and may spread to other areas. In general, structural fire protection is the responsibility of local agencies, such as fire protection districts and volunteer fire companies; wildland fire protection is the responsibility of federal and state agencies.

Due to the highly diverse range of community characteristics and emergency service needs throughout Humboldt County, each local fire department strives to develop an emergency response and deployment system that reflects its constituents' expectations, community needs, and local risks, while staying within the organization's revenue and support constraints. Most local fire departments are multi-service providers, responding to structure fires, wildland fires, vehicle accidents, medical aid calls, and more. In response to such a diverse range of service demands, the County receives fire protection and related emergency services from a variety of fire organizations.

A majority of the local fire departments are associated with a special district formed to provide services within a specific jurisdictional boundary. However, there are many areas throughout the county where homeowners live outside the boundaries of an established district. District resources often respond to these "good will" service areas even though they are under no obligation to do so and receive no dependable compensation for their service. Redwood Valley, Maple Creek, upper Jacoby Creek, and other remote areas currently fall into this category. There are other areas outside of local district boundaries where volunteer fire companies have assumed responsibility for community fire service. These companies have no government affiliation and do not receive a reliable source of funding to support services.

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for wildland fires on State Responsibility Areas (SRA), which includes most of the rural privately owned lands within the county. When staffed, CAL FIRE provides emergency response for wildland fires, structure fires, vehicle accidents and medical aid calls, and support for local fire agencies as needed. CAL FIRE and the Forest Service are at peak staffing from July through October. During the off-peak part of the year, CAL FIRE responds as available. As cooperators, local agencies frequently assist the federal and State agencies with vegetation fires.

CAL FIRE also provides structural fire protection through an annually renewable contract with the County for County Service Area No. 4 (CSA No. 4). CSA No. 4 covers an area along U.S. Highway 101 (U.S. 101) from the southern boundary of the Orick Community Service District (CSD) to the northern boundary of the Arcata Fire Protection District. CAL FIRE is also under contract with the County and Arcata Fire Protection District to provide local fire dispatch services, which includes the majority of the county fire agencies.

The below table compares the various organizations that provide fire protection services to Humboldt County communities. The organization type, district size in square miles, number of facilities, and urban study areas are identified below:

Table X1. Fire Protection Services within Humboldt County

Name of Organization	Organization Type	District Size*	# of Fire Stations	USA/WSA
Arcata Fire Protection District	Combination Career-Volunteer	62.0	3	Arcata USA McKinleyville USA/WSA
Briceland Volunteer Fire Department	Volunteer (non-agency)	N/A	1	Briceland WSA
Blue Lake Fire Protection District	Volunteer (Career Chief)	13.6	1	Blue Lake USA/WSA Glendale USA/WSA
Carlotta Community Services District	Volunteer	4.4	1	Hydesville USA/WSA
County Service Area No. 4	Career	23.5	1	Big Lagoon WSA & Westhaven WSA
Eureka City Fire Department[1]	Career	15.8	3	Works in concert with Humboldt FPD No. 1
Ferndale Fire Protection District	Volunteer	44.2	1	City of Ferndale and Riverside WSA
Fieldbrook Community Services District	Volunteer	9.4	1	Fieldbrook USA
Fortuna Fire Protection District	Volunteer	29.4	3	Fortuna USA Hydesville USA/WSA
Garberville Fire Protection District	Volunteer	1.1	1	Garberville USA/WSA
Humboldt Fire Protection District #1	Career	40	2	Myrtletown USA & Humboldt Hill USA & South Eureka USA
Loleta Fire Protection District	Volunteer	48.9	1	Loleta USA
Miranda Community Services District	Volunteer	0.5	1	Miranda USA
Myers Flat Fire Protection District	Volunteer	0.7	1	Myers Flat WSA
Orick Community Services District	Volunteer	2.3	1	Orick USA/WSA
Orleans Community Services District	Volunteer	1.6	1	Orleans WSA
Phillipsville Community Services District	Volunteer	0.5	1	Phillipsville WSA
Redway Fire Protection District	Volunteer	1.1	1	Redway USA
Resort Improvement District No. 1	Volunteer	4.8	1	Shelter Cove USA/WSA
Rio Dell Fire Protection District	Volunteer	4.6	1	Rio Dell USA/WSA
Samoa Peninsula Fire Protection District	Volunteer	2.8	1	Samoa USA

[1] Shown due to Auto-Aid agreement with Humboldt Fire Protection District No. 1

Name of Organization	Organization Type	District Size*	# of Fire Stations	USA/WSA
Weott Community Services District	Volunteer	0.5	1	Weott USA
Westhaven Volunteer Fire Department	Volunteer (non-agency)	N/A	1	Westhaven WSA
Willow Creek Fire Protection District	Volunteer	6.6	1	Willow Creek USAWSA

*In square miles

The U.S. Forest Service is primarily concerned with wildfires in national forests. The Forest Service participates in mutual aid agreements with other fire agencies when crews and equipment are available. The National Park Service provides wildland fire protection within the boundaries of Redwood National Park. The Hoopa Tribe has responsibility for wildland protection within the Hoopa Tribal Lands through a federal agreement.

Community Wildfire Protection Plan

The Community Wildfire Protection Plan (CWPP) identifies SRA Fire Safe Regulations specific to local hazard areas based on past fire history, weather, location, topography, and other characteristics that influence fire behavior. The requirement for specific fire-safe measures for those areas identified as High and Very High Fire Hazard Zones should be elevated to address structural ignitability, road conditions and evacuation considerations, vegetation setbacks, ongoing fuel management, and improved enforcement of these regulations.

In 2006, the Humboldt County Board of Supervisors approved the Master Fire Protection Plan, as a resource to assist in the development of appropriate policies in this General Plan, and was updated in 2013 as the Humboldt County Community Wildfire Protection Plan (CWPP). The CWPP was most recently updated in 2019 and serves as a framework for fire coordination, prevention, and protection throughout the county. The CWPP also contains significant findings and recommendations relating to fire protection capability, fire safe education, fire risk and hazard assessment, fire risk reduction and management, community preparedness and response, and fiscal issues relating to fire protection.

Some of the key findings of the CWPP are summarized below. Addressing these issues is a priority of this Plan.

- Volunteers for both non-district fire companies and fire protection districts with varying degrees of experience are primarily responsible for delivering emergency response services in some areas of the county;
- Many developed areas of the county are located outside jurisdictions responsible for year-round structural fire protection and receive services on a "good will" basis;
- Most local fire organizations report having insufficient funding to adequately respond to the demands placed on their service; and,
- Hazardous wildland fuel loading is increasing within and adjacent to local communities at a faster rate than it can be managed.

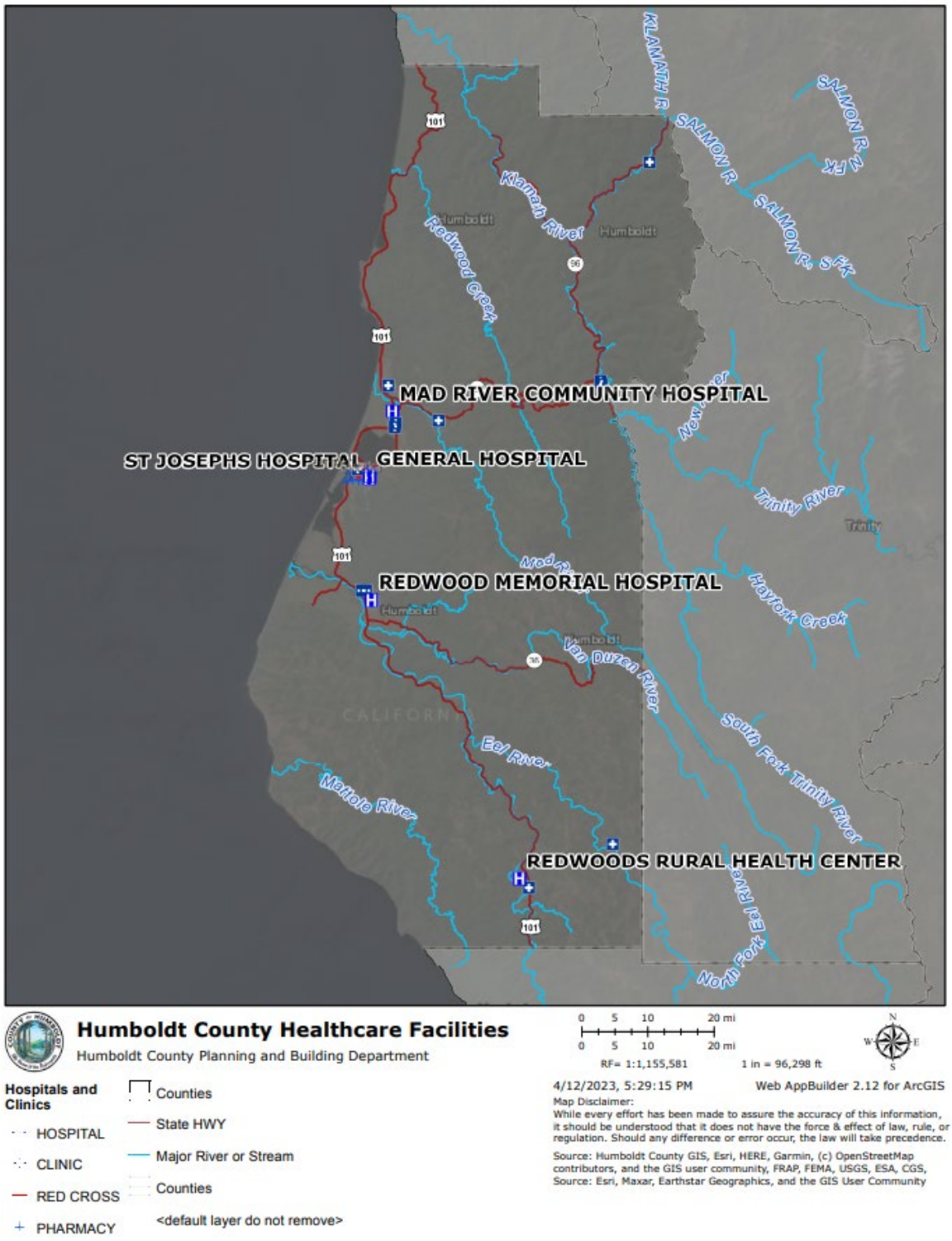
The Humboldt County Community Wildfire Protection Plan can be accessed here: https://humboldtgov.org/2431/Community-Wildfire-Protection-Plan

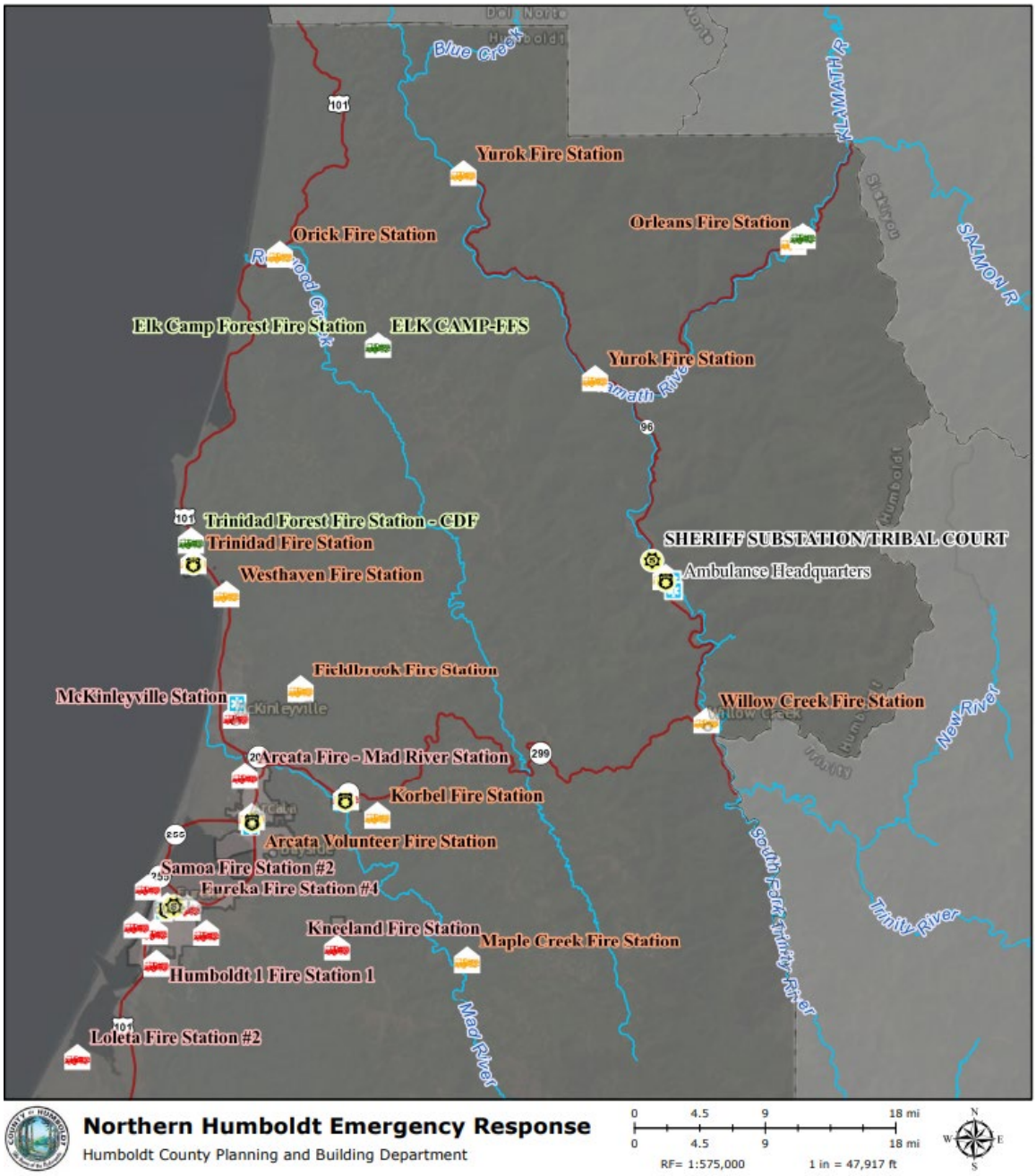
Critical Facilities, Infrastructure, Essential Public Services, and Environment

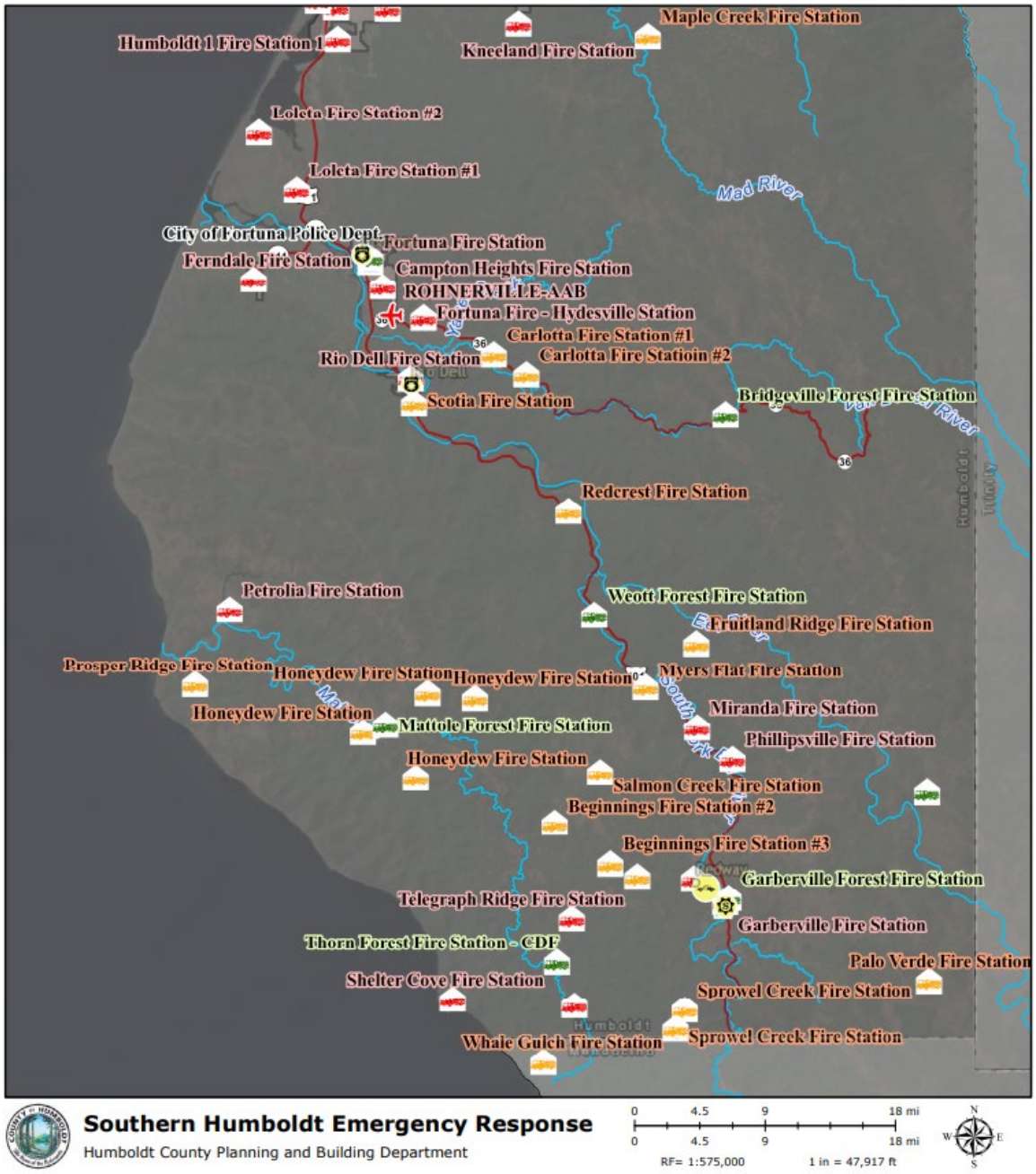
The County's Geographical Information System (GIS) is a powerful tool for identifying critical infrastructure, public facilities, essential services, and planning future uses. This information can be used to analyze existing and future development in SRA areas and areas high fire risk which helps the County and other agencies develop plans to safeguard critical facilities, infrastructure, evacuation routes, public services, and other essential services from the impacts of wildfire. The GIS can also be used to help plan the construction and planning of new facilities by analyzing demographic data, land use patterns, and transportation networks to avoid the impacts of wildfire and other hazards outlined within the Safety Element.

Humboldt County GIS can be accessed here:
http://webgis.co.humboldt.ca.us/HCEGIS2.0/

Below are layers from Humboldt County GIS showing hospitals, clinics, pharmacies, the red cross (located in the City of Eureka), emergency response stations (i.e. fire departments, police departments, ambulance stations, air bases, sheriff stations, CHP stations, Forrest Service stations), and more:


KLAMATH R
SALMON R
SALMON R, N FK
SALMON R, S FK
Klamath River
Redwood Creek
MAD RIVER COMMUNITY HOSPITAL
ST JOSEPHS HOSPITAL
GENERAL HOSPITAL
Trinity River
REDWOOD MEMORIAL HOSPITAL
Hayfork Creek
Van Duzen River
South Fork Trinity River
Eel River
Mattole River
REDWOODS RURAL HEALTH CENTER
Eel River
North Fork
Humboldt
Trinity
101
36
Humboldt County Healthcare Facilities
Humboldt County Planning and Building Department
Hospitals and Clinics
HOSPITAL
CLINIC
RED CROSS
PHARMACY
Counties
State HWY
Major River or Stream
Counties
<default layer do not remove>
0 5 10 20 mi
RF= 1:1,155,581
1 in = 96,298 ft
4/12/2023, 5:29:15 PM
Web AppBuilder 2.12 for ArcGIS
Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.
Source: Humboldt County GIS, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, FRAP, FEMA, USGS, ESA, CGS, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community


Blue Creek
KLAMATH R
SALMON R
Yurok Fire Station
Orick Fire Station
Orleans Fire Station
Elk Camp Forest Fire Station
ELK CAMP-FFS
Yurok Fire Station
Trinidad Forest Fire Station - CDF
Trinidad Fire Station
Westhaven Fire Station
SHERIFF SUBSTATION/TRIBAL COURT
Ambulance Headquarters
Fieldbrook Fire Station
McKinleyville Station
Willow Creek Fire Station
New River
Arcata Fire - Mad River Station
Korbel Fire Station
Arcata Volunteer Fire Station
Samoa Fire Station #2
Eureka Fire Station #4
Kneeland Fire Station
Maple Creek Fire Station
Humboldt 1 Fire Station 1
Loleta Fire Station #2
South Fork Trinity River
Trinity River
Mad River
Northern Humboldt Emergency Response
Humboldt County Planning and Building Department
0 4.5 9 18 mi
RF= 1:575,000
1 in = 47,917 ft
N
W
E
S



Critical facilities not built to fire protection standards, above ground utility poles and lines, and facilities containing hazardous materials are most vulnerable to wildfire hazards. Most roads, bridges, and railroads would be without damage except in worst case scenarios, where roads or access to bridges/railways are blocked by debris or become inaccessible due to fire conditions.

Key potential impacts:

- Hazardous materials and fuel storage could become compromised and contribute to a wildfire fuel source contributing to wildfire escalation and growth. These

materials and fuels can also impact the surrounding environment by leaching into soils, contaminating waterways, and impacting the environment.
- If communication facilities are damaged or inoperable it could impact communication related to fire fighting and prevention efforts within a given planning area, increasing risk within a given community.
- Protection of fire stations and fire response equipment/facilities.

Though fire is a natural and critical ecosystem process, this process becomes unnatural when attributed to human caused ignitions, which have accounted for roughly 63% of fires (LHMP, 2020). This has a severe impact on the environment and contributes to the following:

- Loss of sensitive natural communities, essential habitat, and listed species of flora/fauna.
- Intensified erosion from burn contributing to increased potential of landslides, and the increase in runoff and sedimentation which impacts water quality and fisheries.
- Contribution to invasive plant species and insect infestations due to burn scars within open space and dead, dying, or diseased timber as a result of a fire.
- Impacts to agricultural lands and timber harvest.
- Damaging of Tribal Cultural Resources/Cultural Resources.

History of Wildfire Events

Fire has been a significant factor in the history of Humboldt County. Though there is a significant damp climate along the County's coast, the coastal climate alone does not prevent wildfire. Several destructive fires have occurred within the Trinidad area including the following:

- 7,432-acre Luffenholz Fire of 1908
- 17,527-acre A-Line Fire of 1936
- 15,000-acre unnamed fire near Patrick's Point in 1945

According to CAL FIRE data, 634 wildfires burned in Humboldt County between 1910 and 2017 as shown in the figure below:

Source: 2019 Humboldt County CWPP

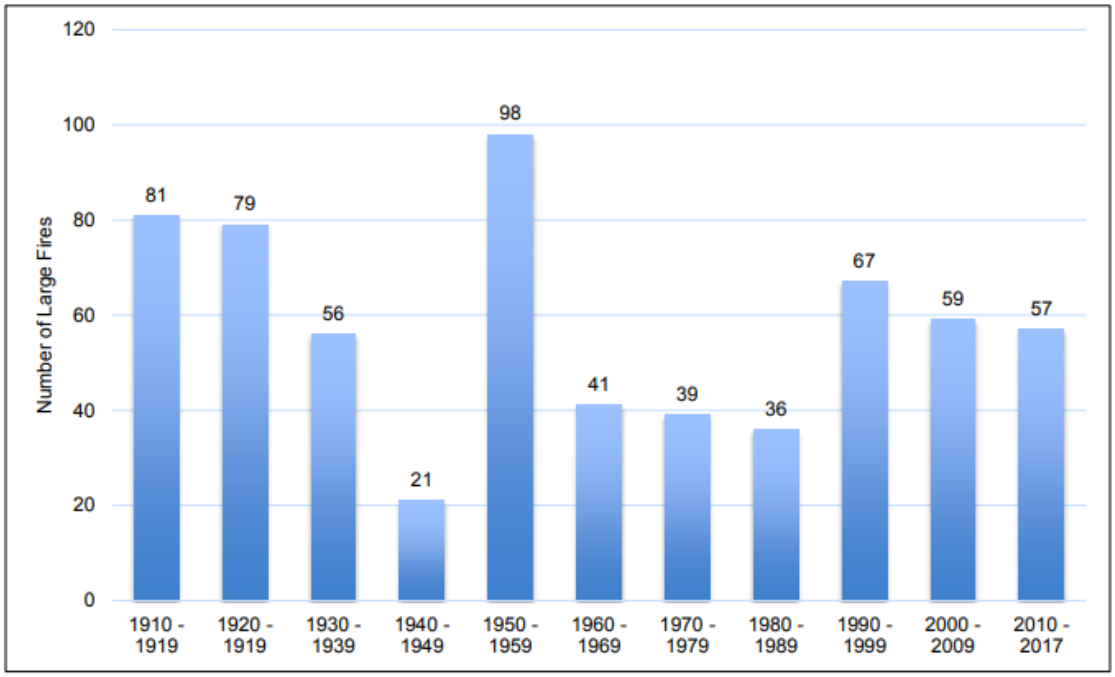


Figure 14-1. Humboldt County, Large Fires by Decade, 1910–2017

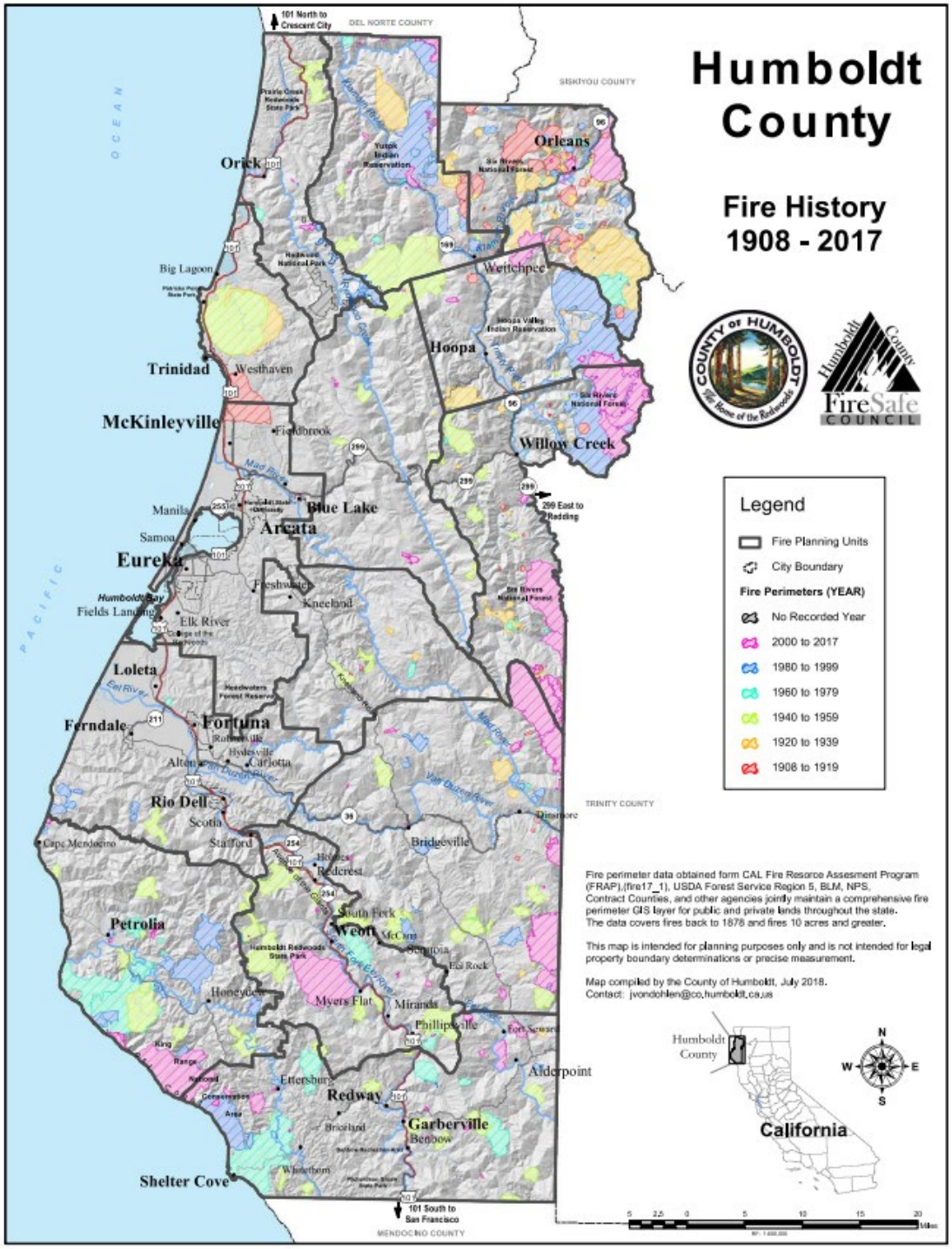
The decade with the highest recording of fires was the 1950's, followed by decades beginning in the 20th century. This data includes timber fires 10-acres or larger, brush fires 30-acres and larger, and grassland fires 300-acres and larger. Fire data taken from U.S. Forest Service included fires 10-acres of larger since the 1950's. Most fires (259 fires, or 40 percent) are small and consisted of less than 25-acres. The largest fires (135 fires, or 21 percent) were between 100-acres and 500-acres. Lastly, according to the data presented, there have been 22 fires over 5,000-acres since 1908 (3 percent), of which seven have occurred since 1999.

Contemporary fires have occurred more often in the inland parts of the County due to large fuel sources, dryer climates, steeper lands, and exposure to extreme weather given higher elevation. Below is a list of wildfires in Humboldt County over the last twenty years which have exceeded 200-acres (CWPP 2019):

FIGURE 5.2.11 WILDFIRES OVER 200 ACRES IN THE LAST 20 YEARS (1997-2017)[54]				
Fire name	*Location*	*Year*	*Acres*	
			Humboldt	*Total*
Megram	West of Willow Creek and Hoopa	1999	59,272	125,073
1998[55] (no name)	Orleans	1998	19,880	20,282
Honeydew	King Range, Honeydew Creek	2003	11,770	11,794
Corral	Six Rivers National Forest (SRNF), northwest of Willow Creek	2013	11,719	12,541
Blake	SRNF	2015	11,425	11,439
Canoe	Humboldt Redwoods State Park, Canoe Creek	2003	11,044	11,044
Half	Sims Mountain, SRNF	2008	9,078	15,130
Lassics	SRNF, northeast of Blocksburg	2015	7,469	18,192
Somes	SNRF, west of Orleans	2006	6,544	15,506
Johnson	Trinity National Forest, north of Dinsmore	2015	5,139	17,821
Groves	Lone Pine Ridge (SRNF), east of Willow Creek	2015	4,023	6,803
Mill Creek 4	SNRF/Hoopa, east of Weitchpec	2009	2,831	2,831
Sims	Sims Mountain, SRNF	2004	2,021	4,036
LT-17 (Backbone)	Lone Pine Ridge (SRNF), east of Willow Creek	2009	1,779	5,194
Pine 1-44	Pine Mountain, SRNF	2015	1,660	1,773
East	SRNF, northwest of Willow Creek	2015	1,531	1,531

HUMBOLDT COUNTY COMMUNITY WILDFIRE PROTECTION PLAN, 2019

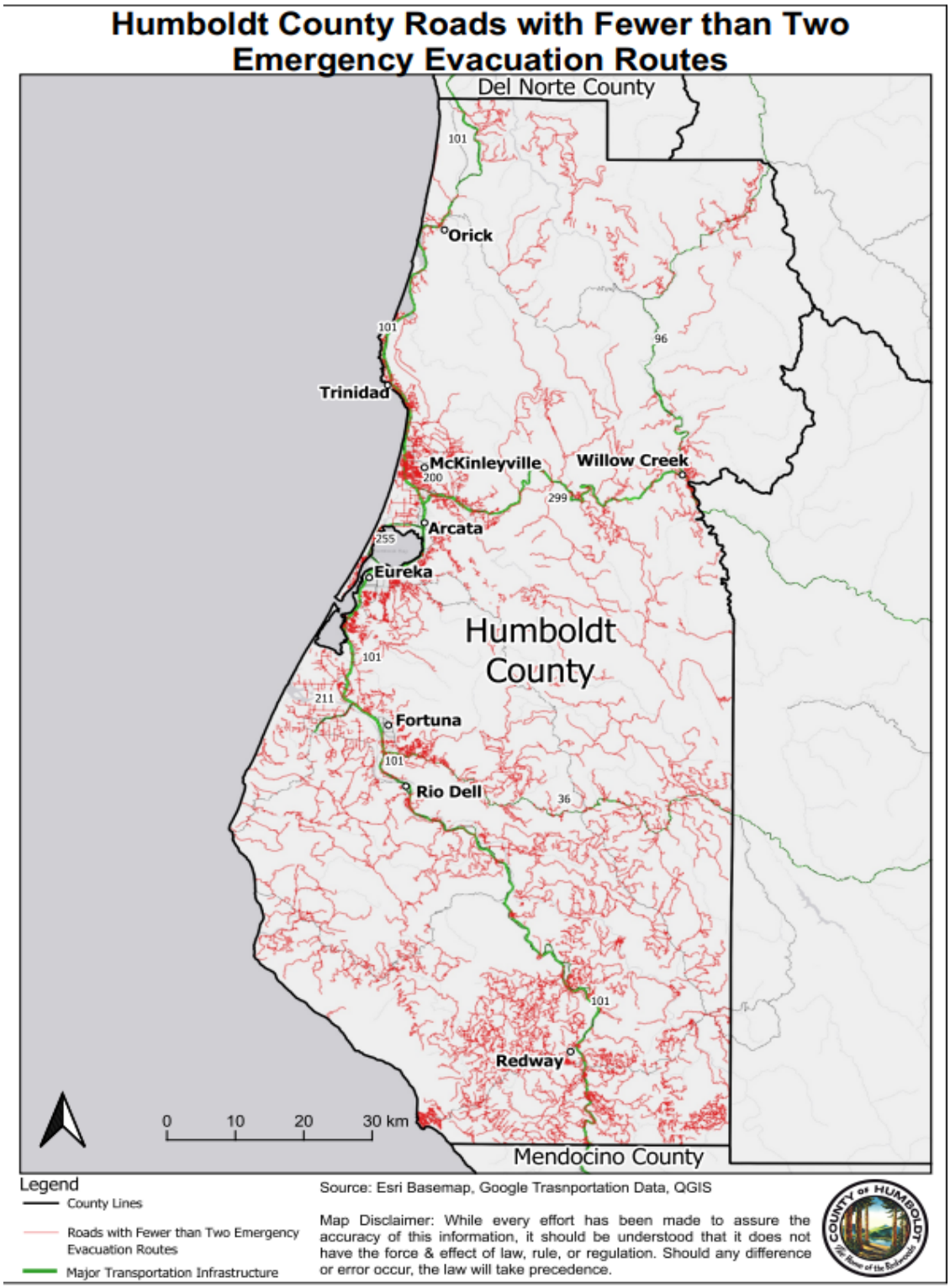
FIGURE 5.2.11 WILDFIRES OVER 200 ACRES IN THE LAST 20 YEARS (1997-2017)[54]				
Fire name	*Location*	*Year*	*Acres*	
			Humboldt	*Total*
Steelhead 1-54	Eel River, Alderpoint	2015	1,403	1,403
Buck	SRNF, southeast of Dinsmore	2015	1,274	1,420
Nickowitz	SRNF, Del Norte County line	2015	1,263	7,576
Paradise	Southwest of Ettersburg	2008	1,072	1,072
Dobbyn 1-57	Fort Seward	2015	787	787
Tulley	Tulley Creek, Hwy 169	2016	607	607
Dance	Orleans	2013	577	577
Happy	NE (SRNF) and SE of Willow Creek	2015	547	68,095
Spanish	Spanish Flat, King Range National Conservation Area	2011	512	524
Friday	Above Sandy Bar	2003	389	389
Red	East of Maple Creek	2014	332	332
Flat	Spanish Flat, King Range National Conservation Area	2001	289	317
Pilot	North of Dinsmore	2004	287	287
Blocksburg 1-58	South of Blocksburg	2015	284	284
Wildcat 1-51	Wildcat Butte, west of Fort Seward	2015	283	283
Tuk	West of Elk Camp	2003	279	279
Tierney	Buck Mountain, SRNF	2015	248	248
10	King's Peak, King Range National Conservation Area	2003	213	213
Bald Hill 3	Hoopa Reservation, Hog Ranch Prairie	2014	210	210
Buckeye	Buckeye Mountain	2010	202	202


Humboldt County
Fire History 1908 - 2017
Legend
Fire Planning Units
City Boundary
Fire Perimeters (YEAR)
No Recorded Year
2000 to 2017
1980 to 1999
1960 to 1979
1940 to 1959
1920 to 1939
1908 to 1919
Fire perimeter data obtained form CAL Fire Resorce Assesment Program (FRAP),(fire17_1), USDA Forest Service Region 5, BLM, NPS, Contract Counties, and other agencies jointly maintain a comprehensive fire perimeter GIS layer for public and private lands throughout the state. The data covers fires back to 1878 and fires 10 acres and greater.
This map is intended for planning purposes only and is not intended for legal property boundary determinations or precise measurement.
Map compiled by the County of Humboldt, July 2018.
Contact: jvondohlen@co.humboldt.ca.us
Humboldt County
California
N
S
E
W
OCEAN
PACIFIC
DEL NORTE COUNTY
SISKIYOU COUNTY
TRINITY COUNTY
MENDOCINO COUNTY
101 North to Crescent City
101 South to San Francisco
299 East to Redding
Orick
Orleans
Weitchpec
Hoopa
Willow Creek
Big Lagoon
Trinidad
Westhaven
McKinleyville
Fieldbrook
Blue Lake
Arcata
Manila
Samoa
Eureka
Humboldt Bay
Fields Landing
Elk River
Freshwater
Kneeland
Loleta
Ferndale
Fortuna
Rohnerville
Hydesville
Carlotta
Alton
Rio Dell
Scotia
Stafford
Cape Mendocino
Bridgeville
Dinsmore
Redcrest
South Fork
Weott
Petrolia
Myers Flat
Miranda
Phillipsville
Honeydew
Alderpoint
Ettersburg
Redway
Garberville
Benbow
Briceland
Whitethorn
Shelter Cove

Planning Evacuation Routes

The Humboldt County GIS includes a "dead-end roads" layer identifying all roadways within the County which do not have at least two emergency evacuation routes. GIS also includes a "structures footprint" layer within the housing layer dropdown which allows the viewing of existing structures on any property within the County. This information can help private property owners, developers, emergency service professionals and planners identify areas that may be difficult to evacuate during a wildfire or any other natural disaster consistent with Senate Bill (SB) 99. The decision to allow future development in these areas should consider this potential risk to property and the health and safety of those residing or building new structures for occupancy along these routes.

The following map identifies all roads without at least two emergency evacuation routes within County, taken from GIS:


Humboldt County Roads with Fewer than Two Emergency Evacuation Routes
Del Norte County
Orick
Trinidad
McKinleyville
Willow Creek
Arcata
Eureka
Humboldt County
Fortuna
Rio Dell
Redway
Mendocino County
101
96
200
299
255
211
36
0 10 20 30 km
Legend
County Lines
Roads with Fewer than Two Emergency Evacuation Routes
Major Transportation Infrastructure
Source: Esri Basemap, Google Trasnportation Data, QGIS
Map Disclaimer: While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Airport Safety

The Airport Land Use Commission (ALUC) governs all public use airports, regardless of the agency that owns them. In Humboldt County, The Board of Supervisors acts in the capacity for the ALUC. The ALUC adopted the updated Airport Land Use Compatibility Plan in 2021, which outlines policies for land use surrounding airports. The County Public Works Department operates six county airports: California Redwood Coast – Humboldt County Airport (Arcata-Eureka, located in McKinleyville), Murray Field Airport, Dinsmore Airport, Garberville Airport, Kneeland Airport and Rohnerville Airport. Airports not maintained by the County include the Shelter Cove Airport (Resort Improvements District), Hoopa Airport (Hoopa Tribe), and Samoa Field (City of Eureka). The Hoopa Airport did not participate in the update of the ALUCP and as a result are still subject to the ALUCP of 1993. Below is the current ALUCP safety compatibility criteria table applied to developments in approach zones and fly space:

TABLE 3-2
SAFETY COMPATIBILITY CRITERIA

Land Use Category Note: Multiple categories may apply to a land use action.	Safety Zone							Criteria for Conditionally Compatible Uses (Yellow Colored Cells) (The numbers below refer to safety zones in which additional conditions beyond the Maximum Residential Density, Maximum Nonresidential Intensity, and Maximum and Lot Coverage limits (provided to the left) are applicable)
	1	2	3	3*	4	5	6	
Maximum Residential Density (Dwelling Units/Acre)	0	0.10	0.50	4[a]	0.50	1	no limit[1]	
Maximum Nonresidential Intensity (Average Number of People/Acre)	0	40	70	70	100	70	300	
Maximum Single Acre	0	80	210	210	300	210	600	
Maximum Lot Coverage (Building Footprint)	0%	50%	60%	60%	70%	70%	100%	
Agriculture								
Agriculture (except residences and livestock)	CC	C	C	C	C	C	C	1: Outdoor crop production and aquaculture only. No orchards, timber production, or new structures (e.g., greenhouses) are allowed.
Livestock/Animal Husbandry	CC	C	C	C	C	C	C	1: Grazing activity only. No new structures (e.g., barns, stables, feed lots) are allowed.
Timber Production	I	CC	CC	CC	CC	CC	C	2, 3, 4,and 5: Allowed if compliant with Noise and Airspace Protection Compatibility Policies.
Assembly - Public, Fraternal, Other								
Small Assembly Facilities - Indoor	I	I	I	I	CC	I	C	4. See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Large Assembly Facilities - Indoor	I	I	I	I	I	I	C	
Major Assembly Facilities – Indoor	I	I	I	I	I	I	C	
Small Assembly Facilities - Outdoor	I	I	I	I	CC	I	C	4. See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Large Assembly Facilities - Outdoor	I	I	I	I	I	I	C	
Major Assembly Facilities – Outdoor	I	I	I	I	I	I	CC	6. If possible, outdoor stadiums and similar high intensity uses should be avoided. If parcel is partially located in Safety Zone 6, the facility should be situated outside the safety zones unless an alternative location is unavailable. Limited to maximum nonresidential intensity for Safety Zone 6.
Commercial - Lodging/Retail/Office								
Eating/Drinking Establishments	I	CC	CC	CC	C	CC	C	2, 3, and 5: Limited to businesses selling food and/or beverages primarily for off-premise consumption (e.g., fast-food or carryout restaurants, coffee shops, juice/smoothie bars.).
Lodging	I	CC	CC	CC	C	CC	C	2: Limited to single-story buildings. 3: Limited to buildings less than three-stories. 5: Hotels allowed if compliant with Noise and Airspace Protection Compatibility Policies.
Professional Office	I	CC	CC	CC	C	CC	C	2, 5: Limited to single-story buildings. 3, 4: Limited to buildings less than three-stories.

TABLE 3-2
SAFETY COMPATIBILITY CRITERIA

Land Use Category Note: Multiple categories may apply to a land use action.	Safety Zone 1	2	3	3*	4	5	6	Criteria for Conditionally Compatible Uses (Yellow Colored Cells) (The numbers below refer to safety zones in which additional conditions beyond the Maximum Residential Density, Maximum Nonresidential Intensity, and Maximum and Lot Coverage limits (provided to the left) are applicable)
Maximum Residential Density (Dwelling Units/Acre)	0	0.10	0.50	4*	0.50	1	no limit[1]	
Maximum Nonresidential Intensity (Average Number of People/Acre)	0	40	70	70	100	70	300	
Maximum Single Acre	0	80	210	210	300	210	600	
Maximum Lot Coverage (Building Footprint)	0%	50%	60%	60%	70%	70%	100%	
Retail/Sales – Outdoor Oriented	I	CC	CC	CC	CC	I	C	2, 3, 4: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Retail/Sales - Service Uses	I	CC	CC	CC	CC	I	C	2, 3, 4: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Retail/Sales – Stand Alone Retail	I	CC	CC	CC	C	I	C	2, 3: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Retail/Sales - Larger Format (≥20,000 sq. ft. - <50,000 sq. ft.)	I	I	I	I	CC	I	C	4: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Retail/Sales - Big-Box/Shopping Centers (≥50,000 sq. ft.)	I	I	I	I	CC	I	C	4: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Institutional								
Cemeteries/Mortuaries	I	CC	CC	CC	CC	CC	C	2, 3, 4, and-5: No places of assembly.
Children's' Schools/Daycare Centers	I	I	I	I	I	I	C	
College/University/Trade Schools	I	I	CC	CC	CC	I	C	3: See applicable Maximum Nonresidential Intensity and Lot Coverage limits above.
Hospitals/Nursing Homes	I	I	I	I	I	I	C	
Library/Museum	I	I	CC	CC	CC	I	C	3: Caution should be exercised regarding potential noise interference.
Public Buildings	I	I	CC	CC	CC	CC	C	3, 4: Limited to buildings less than three-stories. 5: Airport-related business only.
Manufacturing/Processing								
Manufacturing/Processing - Hazardous	I	I	I	I	I	I	CC	6: Allowed only if site outside zone would not serve intended function.
Manufacturing/Processing - Low Hazard	I	CC	C	C	C	C	C	2: Allowed only if site outside zone would not serve intended function.
Warehousing/Storage								
Materials Storage - Hazardous	I	I	I	I	I	I	CC	6: Allowed only if site outside zone would not serve intended function.
Materials Storage - Low Hazard	I	C	C	C	C	C	C	1: No new structures are allowed. No objects or structures are allowed in the Object Free Area or Object Free Zone.
Recreation/Parks/Open Space								
Open Space	CC	C	C	C	C	C	C	1: No new structures are allowed.
Parks	I	CC	CC	CC	C	I	C	2, 3: No group recreational activities allowed.
Recreation	I	CC	CC	CC	C	I	C	2, 3: No group recreational activities allowed.

TABLE 3-2
SAFETY COMPATIBILITY CRITERIA

Land Use Category Note: Multiple categories may apply to a land use action.	Safety Zone							**Criteria for Conditionally Compatible Uses (Yellow Colored Cells)** (The numbers below refer to safety zones in which additional conditions beyond the Maximum Residential Density, Maximum Nonresidential Intensity, and Maximum and Lot Coverage limits (provided to the left) are applicable)
	1	2	3	3*	4	5	6	
Maximum Residential Density (Dwelling Units/Acre)	0	0.10	0.50	4[a]	0.50	1	no limit[1]	
Maximum Nonresidential Intensity (Average Number of People/Acre)	0	40	70	70	100	70	300	
Maximum Single Acre	0	80	210	210	300	210	600	
Maximum Lot Coverage (Building Footprint)	0%	50%	60%	60%	70%	70%	100%	
Residential								
Single Family Residential	I	CC	CC	CC	CC	CC	C	2: Limited to infill in areas developed with similar land uses. 3, 4: See applicable Maximum Residential Densities and Lot Coverage limits above. 5: Yards and accessory buildings can be sited in Safety Zone 5, but dwelling units must be sited outside safety zone.
Multifamily Residential	I	CC	CC	CC	CC	I	C	2: Limited to infill in areas developed with similar land uses. 3, 4: See applicable Maximum Residential Density and Lot Coverage limits above.
Manufactured Homes	I	CC	CC	CC	CC	CC	C	2: Limited to infill in areas developed with similar land uses. 3, 4: See applicable Maximum Residential Density and Lot Coverage limits above. 5: Yards and accessory buildings can be sited in Safety Zone 5, but dwelling units must be sited outside safety zone.
Group Quarters	I	I	I	I	CC	I	C	4: Allowed only if site outside zone would not serve intended function.
Transportation/Utilities								
Critical Community Infrastructure	I	CC	CC	CC	CC	I	C	2, 3, and 4: Emergency and infrastructure services only services only. No day-care centers, schools, parks, or playgrounds allowed.
Transportation (right-of-way, parking, transit lines)	I	C	C	C	C	C	C	
Transportation (passenger and freight terminals and stations)	I	C	C	C	C	C	C	
Utilities (communication, power, and water transmission facilities and infrastructure)	I	CC	CC	CC	CC	CC	C	2, 3, 4,and 5: Allowed if compliant with Noise and Airspace Protection Compatibility Policies.

TABLE 3-2
SAFETY COMPATIBILITY CRITERIA

Land Use Category Note: Multiple categories may apply to a land use action.	Safety Zone							Criteria for Conditionally Compatible Uses (Yellow Colored Cells) (The numbers below refer to safety zones in which additional conditions beyond the Maximum Residential Density, Maximum Nonresidential Intensity, and Maximum and Lot Coverage limits (provided to the left) are applicable)
	1	2	3	3*	4	5	6	
Maximum Residential Density (Dwelling Units/Acre)	0	0.10	0.50	4[a]	0.50	1	no limit[1]	
Maximum Nonresidential Intensity (Average Number of People/Acre)	0	40	70	70	100	70	300	
Maximum Single Acre	0	80	210	210	300	210	600	
Maximum Lot Coverage (Building Footprint)	0%	50%	60%	60%	70%	70%	100%	

Legend

Land Use Acceptability			Interpretation/Comments
C	Compatible		Use is acceptable without safety-related conditions (noise, airspace protection, and/or overflight limitations may apply)
CC	Conditionally Compatible		Use is acceptable if indicated conditions are met
I	Incompatible		Use should not be permitted under any circumstances

NOTES:

d.u. dwelling units

sf. square feet

a The rationale for the increased residential density in Safety Zone 3* is provided in Appendix K, *Safety Zone 3 Residential Densities - California Redwood Coast – Humboldt County Airport.*

1 Noise and Overflight issues should be considered in future development.

† Incidental uses such as conference facilities and restaurants to be evaluated independently.

‡ Per the Humboldt County Zoning Code: includes any industrial activity which involves the handling of toxic, highly flammable, explosive or radioactive materials in such quantities that would, if released or ignited, constitute a significant risk to adjacent human populations or development.

** **Runway Safety Area (RSA), Object Free Area (OFA):** Dimensions are as established by FAA airport design standards for the runway.

The Airport Land Use Commission (presently embodied as the Board of Supervisors) coordinates with applicable agencies in ensuring compatible land uses for areas surrounding County airports.

The principal airport/airspace/land use compatibility issues at most airports are:

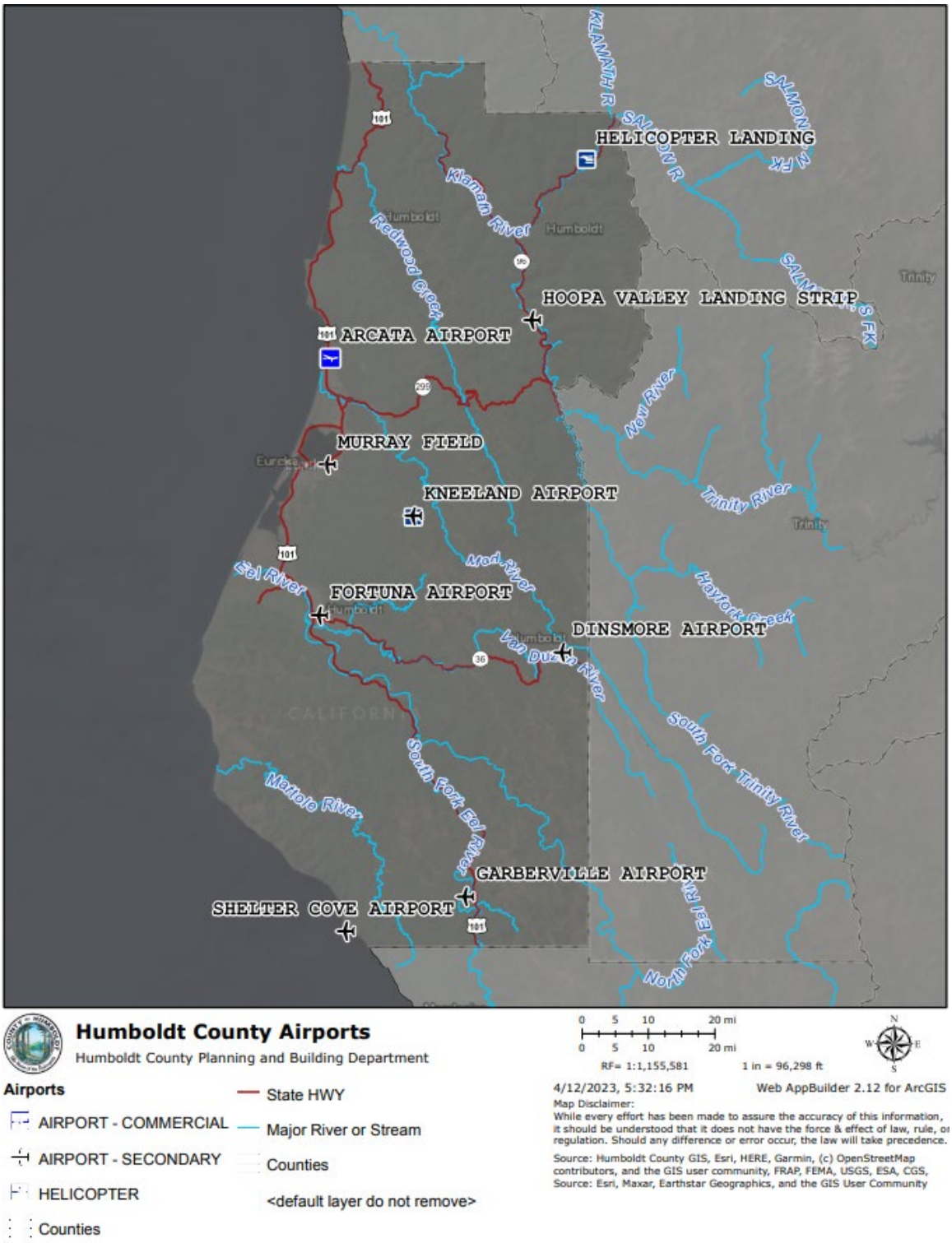
Noise: Often the most significant of the adverse impacts of airport activities.

Airspace: The height of structures, trees, and other objects in the MOA or in the vicinity of an airport greatly affects the use of that airport.

Safety: Controls on land uses near airports can reduce potential risks both to people on the ground and to the occupants of aircraft.

This Plan requires close coordination between County Planning and Public Works when making land use and zoning decisions around the airports. Specific attention to this issue is given in the community plans, most importantly the McKinleyville Community Plan.

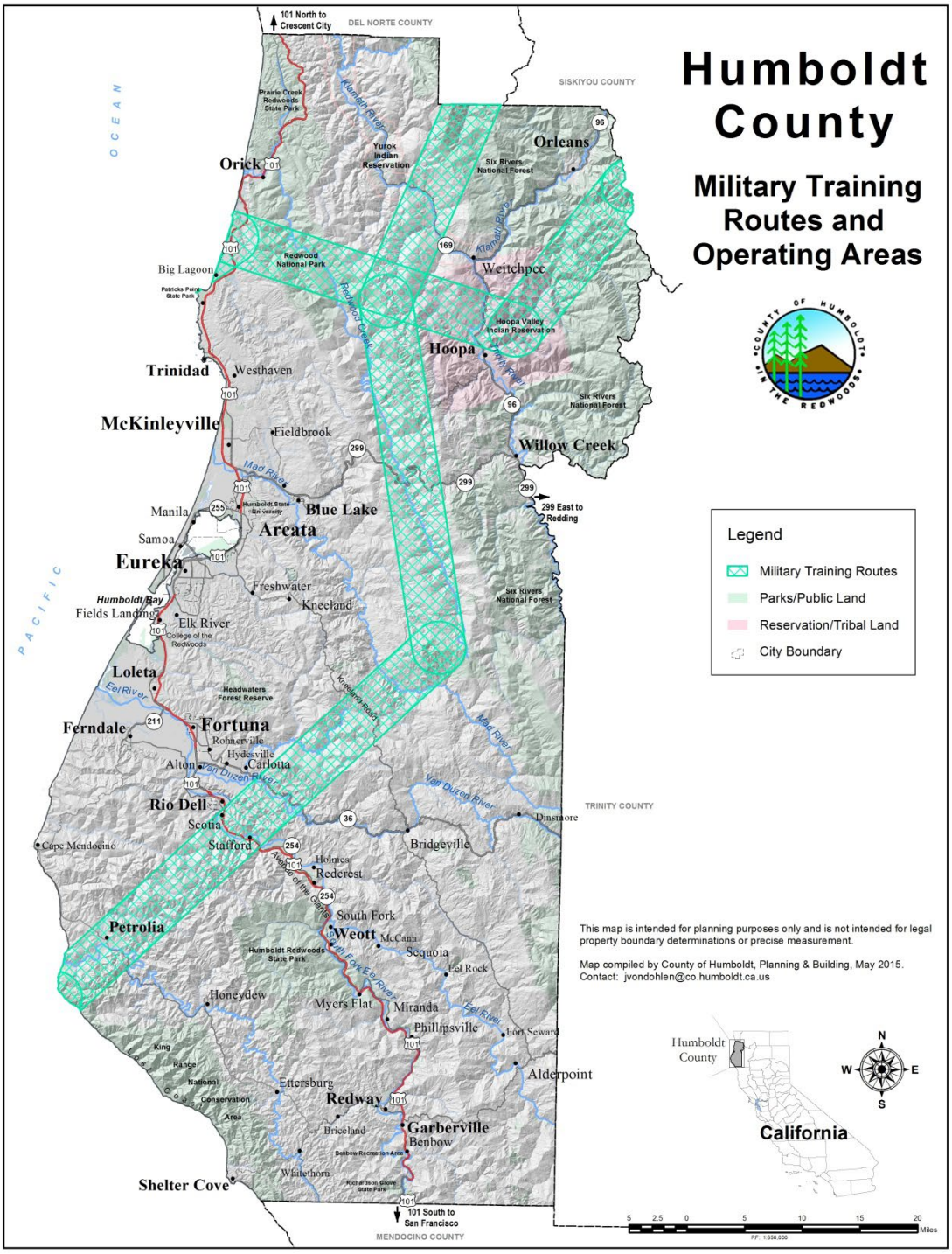
Below is a map identifying all airports within Humboldt County:


HELICOPTER LANDING
HOOPA VALLEY LANDING STRIP
ARCATA AIRPORT
MURRAY FIELD
KNEELAND AIRPORT
FORTUNA AIRPORT
DINSMORE AIRPORT
GARBERVILLE AIRPORT
SHELTER COVE AIRPORT
KLAMATH R
SALMON R
SALMON N. FK
Klamath River
Redwood Creek
New River
Trinity River
Mad River
Eel River
Hayfork Creek
Lake Dutra River
South Fork Trinity River
Mattole River
South Fork Eel River
North Fork
Humboldt
Trinity
Eureka
101
299
36
Humboldt County Airports
Humboldt County Planning and Building Department
Airports
AIRPORT - COMMERCIAL
AIRPORT - SECONDARY
HELICOPTER
Counties
State HWY
Major River or Stream
Counties
<default layer do not remove>
0 5 10 20 mi
RF= 1:1,155,581
1 in = 96,298 ft
4/12/2023, 5:32:16 PM
Web AppBuilder 2.12 for ArcGIS
Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.
Source: Humboldt County GIS, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, FRAP, FEMA, USGS, ESA, CGS, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Military Component

In addition to the airport facilities, the Department of the Navy operates Military Training Routes (MTR) or Military Operating Areas (MOA) that traverse the central parts of the County. The Military Training Routes are comprised of a three-dimensional airspace designated for military training and transport activities that have a defined floor (minimum altitude) and ceiling (maximum altitude). The MTR boundaries and minimum altitudes are identified in the Military Operation Area Figure 14-1. Within the MOA, the County needs to consider the impact of new development on military readiness activities and provide notice to the military of new discretionary development within MOA's.

Figure 14-1 Military Training Routes and Operating Areas



Industrial Hazards

Several specific industrial activities have been identified as having the potential to cause significant damage to the surrounding area in the event of an accident. These activities include the use of chlorine at the regional sewage treatment plants, shipping and receiving of hazardous materials other than chlorine, and the nuclear materials at the PG&E Humboldt Bay Power Plant. Each of these activities/facilities has a contingency plan that directs the appropriate disaster responses. In addition, policy is provided here to address the siting of new hazardous industrial facilities.

Emergency Management

Humboldt County Ordinance 2203 established the Humboldt Operational Area (OA) and identified the Sheriff as Director of Emergency Services for the County. The Humboldt OA is composed of the County of Humboldt, serving as the lead agency, and all political subdivisions (cities and special districts). The Office of Emergency Services (OES) assists the Sheriff in controlling and directing the effort of the emergency organization of the County and is part of the Special Operations Division within the Sheriff's Department.

Additionally, the Humboldt County Office of Emergency Services (OES) is responsible for providing emergency management services in working with local cities, fire and law enforcement agencies, and special districts. OES helps to support and implement emergency mitigation and preparation activities across Humboldt County, secure resources for first responders, and coordinate with state and federal emergency agencies. OES manages and coordinates local mitigation programs, including Humboldt County Fire Safe Council which serves as a forum for implementing Community Wildfire Protection Plans (CWPP), and Humboldt County's Operational Area Local Hazard Mitigation Plan (LHMP).

The OES is responsible for maintaining the Humboldt County Emergency Operations Plan, which serves to address the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in, or affecting, Humboldt County. OES also maintains specific hazard response plans for earthquake, flooding, tsunamis, coastal storms, and other events. These response plans are used to determine the most appropriate evacuation routes based on the nature and extent of hazard. Pre-disaster evacuation route planning is addressed through a variety of efforts including the FEMA local hazard mitigation plan program, the seismic retrofit program for state bridges and overpasses, tsunami response planning, and the application of the CAL FIRE SRA standards for emergency access.

Local Hazard Mitigation Plan

Humboldt County Operational Area Hazard Mitigation Plan (LHMP) is a plan to identify and profile hazard conditions, analyze risk to people and facilities, and develop mitigation actions to reduce or eliminate hazard risks in Humboldt County and in incorporated jurisdictions within the County. This plan was developed according to the Disaster Mitigation Act of 2000 and followed Federal Emergency Management Agency's (FEMA) Local Hazard Mitigation Plan guidance.

The mitigation actions in the LHMP include both short-term and long-term strategies and involve planning, policy changes, programs, projects, and other activities. The LHMP and

Safety Element address similar issues, but the Safety Element provides a higher-level framework and set of policies while the LHMP focus on more specific mitigation actions. Assembly Bill (AB) 2140 adopted in 2006 includes provisions for what should be included in the LHMP and allows California counties and cities to adopt a current FEMA approved LHMP into the Safety Element of the General Plan, making a jurisdiction fully eligible for public assistance funding through the California Disaster Assistance Act. The LHMP focuses on mitigation related actions while the Safety Element also includes policy related to emergency response recovery and preparation activities. Humboldt County has adopted and incorporated by reference the Hazard Mitigation Plan which was approved by the California Governor's Office of Emergency Services (Cal OES) on 10/24/2019 and submitted to the Federal Emergency Management Agency (FEMA) for approval. On 1/2/2020, FEMA determined the Hazard Mitigation Plan was eligible for approval.

The Humboldt County Operational Area Hazard Mitigation Plan can be found here: https://humboldtgov.org/3011/County-Emergency-Plans

Climate Change

Climate change refers to long term shifts in temperature and weather patterns. Since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas. Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures.

Climate change has exacerbated existing hazards and introduced new hazards, such as extreme heat, extreme precipitation, and drought in Humboldt County. Adaptation and resilience strategies are adjustments in natural or human systems in response to existing or expected climate impacts to reduce harm. This section includes adaptation and resilience strategies applicable to all hazards in compliance with Senate Bill 379. Hazard-specific adaptation and resilience strategies can be found in the individual hazard sections of this Element.

The 2020 Humboldt County Operational Area Hazard Mitigation Plan (LHMP) assesses how people and infrastructure in Humboldt County may be vulnerable to climate change. Vulnerability in this context is generally defined as a combination of increased exposure to climate hazards; high sensitivity, or susceptibility, to negative impacts of exposure; and adaptive capacity, or ability to manage and recover from exposure. The LHMP analyzes eight climate hazards: dam failure, drought, earthquakes, flood, landslides, severe weather, tsunami, and wildfire.

The greatest risks from climate change on local assets, populations, and resources are:

- Drought
- Reduced snowpack
- Increased wildfires
- Sea level rise and inland flooding
- Threats to sensitive species
- Loss in agricultural productivity
- Public health and safety

Humboldt County residents that experience the earliest and most acute consequences of climate change are those with limited resources and/or capacity to adapt. When disadvantaged communities are affected by hazards, it is harder for them to recover. A hazard event may require residents to vacate homes due to unsafe conditions, and the costly and lengthy rebuilding process may prevent communities from recovering completely. The lack of a social safety net can also make it difficult for disadvantaged communities to navigate reducing the harms of hazards.

Physical vulnerability of assets includes the susceptibility and limitations of physical infrastructure during extreme events. Climate change has the potential to damage physical infrastructure and disrupt services or limit accessibility. Disruption to infrastructure can create cascading impacts that can heighten the severity of a climate event and impact other interconnected sectors that serve critical needs.

Secondary impacts may be felt during and after the hazard event and outside of the immediate area of impact. Examples of secondary impacts are smoke and hazardous air quality from a wildland fire, or mudslides after extreme precipitation falling on a recent burn area. Effective emergency response planning will need to consider how secondary impacts may affect the impacted and adjacent communities.

Designated Shelter Sites

Designated shelter sites are community-serving facilities that support residents and coordinate resource distribution and services before, during, or after a natural hazard event. They provide the physical space and social safety net for a community in the event of a hazard and its secondary impacts, such as heat waves, wildfire smoke, floods, and earthquakes. Designated shelter sites can be designed to operate independent of the electrical grid by relying on solar power and battery storage as a backup source of electricity. These alternative sources of power allow the sites to provide support to residents impacted by the hazards during power outages.

Microgrids

Microgrids are smaller distributed energy sources that have localized grids that can disconnect from the traditional grid to operate autonomously. One example is the recently developed microgrid at the California Redwood Coast-Humboldt County Airport in McKinleyville. Microgrids can become a more flexible and efficient electric grid by integrating renewable energy resources, such as solar. Microgrids can strengthen grid resilience and help mitigate grid disturbances during Public Safety Power Shutoffs (PSPS) due to dangerous wind conditions that may exacerbate wildland fire ignition potential. A microgrid can also provide life-saving reprieve in the event of a hazard, especially for sensitive populations that are dependent on electricity for survival.

Drought Response

Drought is one of the major challenges posed by Climate Change because it can exacerbate other impacts like water scarcity, impacts on agricultural production (one of Humboldt County's vital economic industries), food scarcity, human consumption, wildfire, and industrial activities. The Board of Supervisors created a Drought Task Force on May 25, 2021, assigned to monitor drought conditions and data, and assist forming mitigation strategies for impacts associated with drought which may pose risks to the people, property, natural communities, and cultural resources, which have arisen due to

drought. As climate change intensifies, droughts are becoming more severe and unpredictable. Drought conditions have ranged from moderate to severe over the past decade seeing record low rain fall and snowpack -impacting use allocations, groundwater recharge, and increasing risks of wildfire. This level of impact varies by geographic area, watershed, water supply sources, and level of community preparedness.

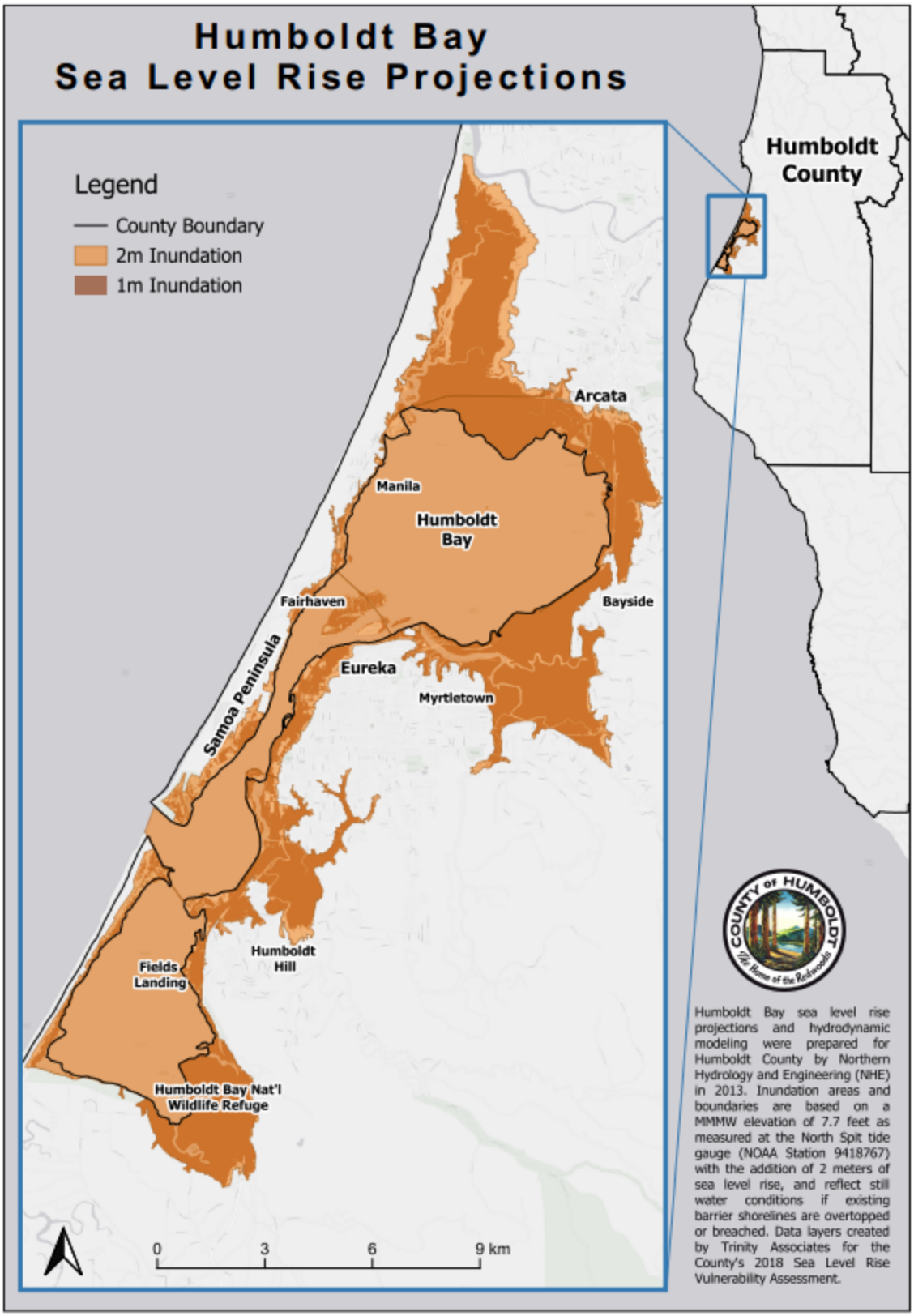
Sea Level Rise

Sea level rise (SLR) is a gradual increase in the average level of the ocean's surface over time, primarily due to thermal expansion of sea water as it warms. Ice packs and glaciers continue to melt due to rising temperatures associated with Climate Change which contributes to SLR. The following are risks Humboldt County is facing due to sea level rise:

- Coastal Flooding and Erosion
- Displacement of coastal residents
- Salinization of low-lying agricultural lands
- Loss of essential habitat

Adaptation strategies are important to remain resilient both in the short and long term. The County aims to reduce its greenhouse gas production, introduce the construction of sea walls and elevated structures as accepted by the Coastal Commission, and encourage coastal ecosystem and wetland restoration projects. Stainable development practice that follows the development guidelines of the County's Local Coastal Plans (LCPs) will reduce the vulnerability of these impacts, such as locating new infrastructure and buildings outside of areas susceptible to sea level rise.

The following map identifies sea level rise impacts if unmitigated within the Humboldt Bay Region of the County. This information is derived from the Humboldt Bay Area Plan Sea Level Rise Vulnerability Assessment prepared by Trinity Associates (January 2018) and identifies one-meter SLR by 2050 and two-meter SLR by 2100. These projections are dependent upon how much greenhouse gas is produced in the given timeframe.



This Element contains policies that respond to climate change through supportive planning, education, and services.

14.4 Goals and Policies

Goals

S-G1. **Minimize Loss.** Communities designed and built to minimize the potential for loss of life, injury, property, and social and economic dislocations, resulting from natural and manmade hazards.

S-G2. **Prevent Unnecessary Exposure.** Areas of geologic instability, floodplains, tsunami run-up areas, high risk wildland fire areas, and airport areas planned and conditioned to prevent unnecessary exposure of people and property to risks of damage or injury.

S-G3. **Drainage and Watershed Protection.** Natural drainage channels, flood control infrastructure, and watersheds are managed to minimize peak flows in order to reduce the severity and frequency of flooding, adaptable to new and changing conditions.

S-G4. **Fire Risk and Loss.** Development designed to reduce the risk of structural and wildland fires supported by fire protection services and prevention methods that minimize the potential for loss of life, property, natural resources, and watershed degradation.

S-G5. **Airport Safety.** Land use and development in the vicinity of airports that minimizes exposure to unsafe levels of noise, light, urban encroachment, and other aircraft hazards consistent with the applicable Airport Land Use Compatibility Plan.

S-G6. **Industrial Safety.** Industrial development regulated by performance standards, monitored by the appropriate agencies, and supported by land use plans that minimizes risk and exposure of the population to industrial hazards.

S-G7. **Response Preparedness.** Interagency readiness and capacity to prepare for, respond to, recover from, and mitigate the effects of emergencies to reduce loss of life and property, and support the population.

S-G8. **Cascadia Event Preparation.** A community prepared to withstand and recover from a high magnitude, long-duration local earthquake along the Cascadia subduction zone.

S-G9. **Climate Adaptation**. Resilient and effective regulatory implementation that prevents or minimizes personal injury, loss of life, and property damage due to climate hazards and climate-induced secondary impacts.

S-G10. **Structural Protection**. Public health and safety is protected through identifying safe locations that could support new structures and facilities necessary for emergency management services.

S-G11. **Water Supply.** A resilient water supply that will meet the needs and demands of visitors, residents, and businesses in a sustainable manner.

S-G12. **Community Protection.** Infrastructure and utilities that meet community needs during and after a severe natural event.

Policies

General

S-P1. **Reduce the Potential for Loss.** Plan land uses and regulate new development to reduce the potential for loss of life, injury, property damage, and economic and social dislocations resulting from natural and manmade hazards, including but not limited to, steep slopes, unstable soils areas, active earthquake faults, wildland fire risk areas, airport influence areas, military operating areas, flood plains, and tsunami run-up areas.

S-P2. **Coastal Zone Hazards.** Development within the coastal zone shall minimize risks to life and property in areas of high geologic, tsunami, flood, and fire hazard; assure stability and structural integrity; and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.

S-P3. **Hazard Education.** Encourage the education of the community regarding the nature and extent of hazards and community disaster preparation and response.

S-P4. **Disaster Response Plans.** The County shall prepare and maintain current disaster response plans. The County shall support and participate in the preparation of disaster response plans by community organizations, companies, cities, and state and federal agencies.

S-P5. **Hazard Mitigation.** The County shall actively seek opportunities to reduce the impacts of disasters through hazard mitigation planning.

S-P6. **Military Operating Areas.** Provide notification and project information to the military for discretionary development projects within military airspace operating areas as may be required by the California Government Code.

Geologic/Seismic

S-P7. **Structural Hazards.** The County shall protect life and property by applying and enforcing state adopted building codes and Alquist-Priolo requirements to new construction.

S-P8. **Improved Information.** Encourage and support more detailed scientific analysis of Cascadia Subduction Zone earthquake risks, probabilities, and anticipated effects.

S-P9. **Earthquake Mitigation Planning**. The potential for a local earthquake in excess of magnitude 9.0 (Richter scale) shall be considered in disaster planning, risk assessment, and pre-disaster mitigation efforts.

S-P10. Cascadia Event Disaster Response. The County shall maintain readiness for a comprehensive response to a major earthquake consistent with the nationwide emergency management hierarchy and the adopted Emergency Response Plan for the Humboldt Operational Area.

S-P11. Site Suitability. New development may be approved only if it can be demonstrated that the proposed development will neither create nor significantly contribute to, or be impacted by, geologic instability or geologic hazards.

S-P12. Landslide Prevention. The County shall minimize impacts to structures from landslide hazards that may result from concentration of water through drainage, irrigation, septic systems, removal of vegetative cover, steepening of slopes, or undercutting steep slope bases.

Flooding

S-P13. Federal Flood Insurance Program. The County shall participate in the Federal Flood Insurance Program and maintain Flood Damage Prevention regulations in the County Code to regulate land uses in flood hazard areas in order to minimize loss of life and property and public flood-related expense.

S-P14. Flood Plains. Agricultural lands that are in mapped floodplains shall be retained for use in agriculture.

S-P15. Prohibition of Residential Subdivisions within Floodplain. The creation of new parcels that increase residential density wholly within the 100 year floodplain, as identified in the most recent FEMA flood insurance rate maps, shall be prohibited unless the Board of Supervisors makes specific findings that the potential for loss of life and property can be reduced to less than significant levels.

S-P16. Construction Within Special Flood Hazard Areas. Construction within a floodplain identified as the 100-Year Flood Boundary on FEMA's Flood Insurance Rate Map shall comply with the County's Flood Damage Prevention Regulations. Fill in the floodplain shall only be allowed if it can be demonstrated that the fill will not have cumulative adverse impacts on or off site and such fill shall not be detrimental to productive farm land, and is otherwise in conformance with the County's Flood Damage Prevention Regulations.

S-P17. Development on, or Adjacent to, Coastal Bluffs and Beaches. Allow development in areas immediately adjacent to coastal bluffs and beaches only if it can be demonstrated by a certified engineering geologist that wave action, storm swell, tsunami inundation, and projected sea level rise using the best available scientific information and at the time of review, are not a hazard to the proposed development.

S-P18. Flood Proofing/Certification. The County shall require flood proofing/certification of new and significantly improved structures in areas subject to flooding to be built in accordance with County regulation and guidelines.

S-P19. **Public Facilities in Flood Zones.** The County shall discourage the construction of public facilities and facilities essential for public service within the County's Regulatory Floodway, unless the structure and access to the structure are adequately protected from flood hazards and incorporates all required flood protection methods specific to the County's regulations and guidelines, which will not result in a significant impact to public health and safety.

S-P20. **Nature-based Flood Control.** The County shall promote nature-based methods of flood control to maintain natural conditions within the County's Regulatory Floodplain of rivers and streams such as widening natural flood plains, protecting and expanding wetlands, and protecting green space to reduce runoff.

Fire Hazards

S-P21. **Joint Planning and Implementation.** The County shall plan collaboratively with local fire agencies and companies, CAL FIRE, and federal fire organizations on countywide fire prevention and response strategies. Implementation shall be coordinated to maximize efficiency and ensure efforts are complimentary.

S-P22. **Subdivision Design in High and Very High Fire Hazard Zones.** Subdivisions within State Responsibility Area (SRA) high and very high fire severity classification areas shall explicitly consider designs and layout to reduce wildfire hazards and improve defensibility; for example, through clustering of lots in defensible areas, irrigated green belts, water storage, perimeter roads, fuel breaks, roadway layout and design, slope development constraints, fuel modification plans, and vegetation setbacks as identified in the 2020 State Fire Safe Regulations

S-P23. **Conformance with State Responsibility Areas (SRA) Fire Safe Regulations.** Development shall conform to Humboldt County SRA Fire Safe Regulations.

S-P24. **Level-of-Service Standards.** Support the development of a level of service standard by the Humboldt County Fire Chief's Association for all emergency response services (fire, EMS, HazMat, and rescue) and make such information public so that landowners and residents understand the distribution and quality of service.

S-P25. **Fire District Boundary Maps.** The County shall maintain and publish fire district boundary maps.

S-P26. **Prescribed Burning.** Encourage the use of prescribed burning as a management tool for hazardous fuels reduction, timber management purposes, livestock production, and enhancement of wildlife habitat.

S-P27. **Hazardous Fuel Reduction.** Encourage land management activities that result in the reduction of hazardous fuels and also support timber management, livestock production, and the enhancement of wildlife habitat, through the use of prescribed burning, hand or mechanical methods, Firewise plants, biomass utilization, and animal grazing.

S-P28. **Fire Safe Education.** Expand fire prevention and mitigation education capacity in the county.

S-P29. **Fire Service Provider Support.** Make information available to fire service providers about creating districts, increasing organizational capacity, developing funding streams, and improving Insurance Services Office (ISO) ratings for reduced insurance costs.

S-P30. **Protection of Native Plants.** The County shall promote fire-safe practices that encourage conservation and use of native plants and native plant ecosystems, while protecting citizens, firefighters, and property.

S-P31. **Alternative Owner Builder High and Very High Fire Severity Zones.** Alternative Owner Builder (AOB) permits for construction of new dwellings in high and very high fire severity zones shall be required to comply with the materials and construction methods for exterior wildfire exposures of the California Residential Code (CRC) and chapter 7-A of the California Building Code (CBC) as amended, unless the construction materials can be found to be in substantial conformance with the California Building Codes by the Humboldt County Building Official.

S-P32. **Required Fire Referral Response in Unincorporated Areas.** The County shall refer development projects in the unincorporated areas of the county to the appropriate local fire agencies for review for compliance with fire safety standards. If dual responsibility exists, then the County shall refer development projects to both agencies to review and comment relative to their area of responsibility. If standards are different or conflicting, the more stringent standards shall be applied. All developments in high fire hazards severity zones shall be designed and constructed to minimize the risk associated with fire hazards.

S-P33. **Public Facility Fire Protection Measures.** The County shall ensure that all public buildings (existing and proposed) incorporate adequate fire protection measures to reduce the potential loss of life and property in accordance with local and state regulatory requirements.

S-P34. **Fire Safe Requirements for SRA & VHFHSZ.** The County shall encourage all new development within State Responsibility Areas (SRA) or Very High Fire Hazard Severity Zones (VHFHSZ) implement fuel reduction practices, maintain adequate fire suppression, and identify ingress and egress for fire equipment and emergency response access.

S-P35. **Will-Serve Letter Requirement.** All applications for new subdivisions or commercial/industrial entitlements outside of a mapped fire response area must 1) submit a Will-Serve Letter from the nearest fire protection district stating that emergency response will be provided to the project site, or 2) record a "Notice of No Available Emergency Response and Fire Suppression Services" document prior to recordation of the subdivision map or initiation of the use.

S-P36. **Fuel Breaks/Emergency Access Routes.** The County shall work with local, state, and federal entities to maintain existing fuel breaks and emergency access routes for effective fire suppression.

S-P37. **Fire Risk Reduction for Existing Development.** Existing development that does not meet or exceed the SRA Fire Safe Regulations shall be required to reduce fuel hazards and enhance defensible space within 100 feet of structures.

S-P38. **Planning for Ongoing Maintenance and Long-term Integrity of Planned and Existing Water Supply Infrastructure.** The County shall coordinate with water service providers to plan for the ongoing maintenance and long-term integrity of planned and existing water supply infrastructure.

Airport Safety

S-P39. **Development Compatibility.** Encourage the Airport Land Use Commission to review the Airport Land Use Compatibility Plan (ALUCP) at least every five years to ensure that the ALUCP accurately defines planning areas around airports and establish land use policies and standards appropriate for the public safety and protection of airport operations. .

S-P40. **Airport Land Use Safety Compatibility Criteria**. Regulate and plan land use around airports according to the Airport Land Use Safety Compatibility Criteria (Table 3-2), which is consistent with the ALUCP.

S-P41. **Obstruction-free Approach Surfaces.** The maintenance of obstruction-free approach surfaces at all airports identified on the Approach and Clear Zone plans consistent with FAA requirements shall be principally permitted.

S-P42. **Airport Safety Combining Zone.** Utilize an airport safety combining zone within airport influence areas to ensure consistent application of the Airport/Land Use Safety Compatibility Criteria matrix.

Industrial Hazards

S-P43. **Hazardous Industrial Development.** Hazardous industrial development may be permitted when:

A. It includes mitigation measures sufficient to offset increased risks to adjacent human populations and the environment; and

B. Increased risks to adjacent human populations and the environment have been adequately mitigated by approved disaster response plans. (See definition of "hazardous industrial development" in Standard S-S16, Hazardous Materials Handling and Emergency Response).

S-P44. **Hazardous Waste.** Eliminate the use of toxic materials within Humboldt County, where feasible, and require the reduction, recycling, and reuse of such materials, to the greatest extent possible, where complete elimination of their use is not feasible. Require new development which may generate significant quantities of hazardous wastes to be consistent with all the goals and policies of the Hazardous Waste Management Plan (Appendix H).

Emergency Management

S-P45. **Pre-disaster Planning and Mitigation.** The County shall proactively reduce known hazards through pre-disaster planning and mitigation efforts.

S-P46. **Local Hazard Mitigation Plan.** The County incorporates by reference into this Safety Element the Local Hazard Mitigation Plan for unincorporated areas (Volume I and the Humboldt County Annex and the Appendices of Volume II) as adopted and amended by the Board of Supervisors, in accordance with the Federal Disaster Mitigation Act of 2000 and California Government Code, Section 65302.6. The LHMP (2020) can be found here: https://humboldtgov.org/3011/County-Emergency-Plans.

S-P47. **Emergency Operations Capability.** The County shall maintain the ability to implement the nationwide National Incident Management System (NIMS), statewide Standardized Emergency Management System (SEMS), activate the Operational Area Emergency Operations Center (EOC), coordinate responders, and implement other tactical response measures as required. Emergency operations shall conform to the Humboldt County Operational Area Emergency Operations Plan.

S-P48. **Tsunami Ready Program.** The County shall support efforts of low-lying coastal communities to attain TsunamiReady™ status, as developed by the National Weather Service.

S-P49. **Emergency Broadcast.** The County shall provide alerts about potential, developing, and ongoing emergency situations through extensive alert and warning systems that convey information to all residents, in multiple languages and formats to ensure it is widely accessible.

Climate Change Adaptation and Resilience

S-P50. **Consider Climate Impacts in Future Planning.** Plan for future climate impacts on critical infrastructure and essential public facilities.

S-P51. **Evacuation Routes for New Residential Development.** Require new major subdivisions within high and very high fire hazard severity zones to have a minimum of two evacuation routes.

S-P52. **Designated Shelter Sites.** Promote the creation of designated shelter sites in disadvantaged communities that are highly vulnerable to climate hazards and ensure that they have adequate resources to adapt to climate-induced emergencies.

S-P53. **Community Resilience.** Promote the development of community-based and workplace groups to improve community resilience to climate emergencies.

S-P54. **Resiliency Education.** Promote climate change and resilience awareness education about the effects of climate change-induced hazards and ways to adapt and build resiliency to climate change.

S-P55. **Expand the Use of Microgrids.** Encourage development of additional community microgrids powered by renewable energy sources to increase

local energy resilience during grid power outages, reduce reliance on long-distance transmission lines, and reduce strain on the grid when demand for electricity is high.

S-P56. City-State-Federal-County Coordination. Promote coordination between city, state, federal and County climate change hazard planning efforts through consistent communication, cooperative working relationships, and joint projects.

14.5 Standards

Geologic

S-S1. Geologic Report Requirements. Site specific reports addressing geologic hazards and geologic conditions shall be required as part of the review of discretionary development and ministerial permits. Geologic reports shall be required and prepared consistent with land use regulations (Title III, Land Use and Development, Division 3, Building Regulations, Chapter 6—Geologic Hazards).

S-S2. Landslide Maps. Utilize California Division of Mines and Geology, North Coast Watersheds landslide mapping as information to assist in review of developments.

S-S3. Alquist-Priolo Fault Hazard Zones. Utilize California Mines and Geology Board Policies and Criteria for Alquist-Priolo Fault Hazard Zones (Special Publication #42) as standards of implementation within zones.

S-S4. Tsunami Emergency Response Plan. The Tsunami Emergency Response Plan shall guide interagency response efforts.

Flood Management

S-S5. Flood Regulations. Regulatory standards for flood mitigation shall be based on FEMA Flood Insurance Rate Maps and regulations and local ordinances.

S-S6. Flood Plains. No new essential facilities that would be rendered inoperable by flooding shall be permitted to locate within the 100-year flood plain.

S-S7. Tsunamis. New development below the level of the 100-year tsunami run-up elevation as described in Tsunami Predictions for the West Coast of the Continental United States (Technical Report H-78-26 by the Corps of Engineers) shall be limited to public access, boating, public recreation facilities, agriculture, wildlife management, habitat restoration, and ocean intakes, outfalls, pipelines, and dredge spoils disposal.

S-S8. Flooding and Drainage Management Activities. Flooding and drainage management shall be principally permitted in all zones when consistent with applicable state, federal, and local regulations.

Fire Hazards

S-S9. **SRA Fire Safe Regulations.** Development within SRA shall conform to SRA Fire Safe Regulations (Humboldt County Code, Division 11 of Title III as amended).

S-S10. **California Building Codes.** New construction shall conform to the most recently adopted California building codes.

S-S11. **California Fire Code.** The California Fire Code shall be applied to all applicable development.

S-S12. **Fire Hazard Severity Zone Maps.** The County shall use the most recently adopted CALFIRE Fire Hazard Severity Zone Maps for fire planning and local land use and development review purposes found here: https://osfm.fire.ca.gov/fire-hazard-severity-zones-maps-2022/.

S-S13. **Community Wildfire Protection Plan.** Utilize the Community Wildfire Protection Plan for countywide fire prevention and response strategy and implementation found here: https://humboldtgov.org/2431/Community-Wildfire-Protection-Plan.

Airport Safety

S-S14. **Airport Land Use Compatibility Plan.** Development within the jurisdiction of Airport Land Use Compatibility Plans (ALUCP) shall conform to the policies and standards of the ALUCP.

S-S15. **Airport Land Use Compatibility Zone Overlay.** An Airport Land Use Compatibility Zone for all public use airports shall be established that matches the Recommended Compatibility Zones contained in the March 1993 Airport Land Use Compatibility Plan, as amended, for Humboldt County Airports, and that limits the maximum allowable residential density and building occupancy for each land use designation subject to such zones, to the Airport/Land Use Safety Compatibility Criteria of the Airport Land Use Compatibility Plan (Table 14-A).

Industrial Hazards

S-S16. **Hazardous Materials Handling and Emergency Response.** The County shall condition new development that handles toxic, flammable, or explosive materials in such quantities that would, if released or ignited, constitute a significant risk to adjacent human populations or development to conform to the applicable state or federal materials handling and emergency response plans.

S-S17. **Transport of Nuclear Materials**. Transport of nuclear materials shall conform to the prohibitions of Ordinance #1403; Humboldt County Code, Title III, Division 8, Chapter 3, as amended.

Emergency Management

S-S18. **Humboldt County Operational Area Office of Emergency Services (OES)**. Local emergency management and response operations shall be consistent with Humboldt County Operational Area Emergency Operations Plan, Humboldt County Ordinance 2203, Local Hazard Mitigation Plan (2020), and Assembly Bill 2140.

S-S19. **Consistency with State and Federal Framework.** County emergency response efforts shall be consistent with the California Emergency Services Act (California Government Code, Section 8550 et seq.) and the federal National Response Framework (effective March 2008, as amended) and the National Incident Management System (NIMS).

14.6 Implementation

S-IM1. **Code Review.** Review and amend, as needed, the land use code and subdivision regulations for consistency with fire protection policies of the General Plan.

S-IM2. **Hazard Planning Information on the Internet.** Maintain countywide hazard land use planning data, such as fire district boundaries, State Responsibility Areas (SRA), hazard areas and plans, on the internet.

S-IM3. **Drainage Ordinance.** The County shall implement drainage course flood mitigation policies through the adoption of a drainage ordinance.

S-IM4 **Agency Coordination.** County agencies shall continue to collaborate to develop potential short, medium, and long-term actions for a coordinated County wide response to drought, emergency management, wildfire, and evacuation response services.

S-IM5. **Coordination with CAL FIRE on State Responsibility Areas (SRA) Exception Requests**. The County shall maintain efficient and timely procedures for processing SRA Exception Requests to CAL FIRE.

S-IM6. **Community Wildfire Protection Plan (CWPP).** Actively support and pursue the implementation recommendations in the CWPP. Periodically update the CWPP as needed to include the most recent science on climate change and wildfire, adaptation strategies, and other best practices. The risk assessment portion of the CWPP shall be updated at least every five years. The most recent version of the CWPP (2019) can be found here: https://humboldtgov.org/2431/Community-Wildfire-Protection-Plan.

S-IM7. **Funding Fire Planning Activities.** The County shall pursue state and federal funding sources to support the coordination and planning needs of local fire safe councils and fire agencies.

S-IM8. **Local Hazard Mitigation Plan.** Participate in FEMA's pre-disaster mitigation program by developing, maintaining, and implementing a Local Hazard Mitigation Plan. The most recent version of the LHMP (2020) can be found here: https://humboldtgov.org/3011/County-Emergency-Plans.

S-IM9. **Flood Elevation Markers.** To increase public awareness of flood hazard levels, seek funding to place flood elevation markers along roadways in flood-prone communities.

S-IM10. **Emergency Operations Plan.** The County shall maintain a Humboldt County Operational Area Emergency Operations Plan consistent with FEMA standards.

S-IM11. **Geologic Reports Correction.** Correct errata in the Geologic Hazards Land Use Matrix contained in the grading and building regulations (Title III, Land Use and Development, Division 3, Building Regulations, Chapter 6—Geologic Hazards.)

S-IM13. **Firewise Plants.** The County shall provide a list of recommended "Firewise" plants suited to, and/or native to, the local area. This list should be developed with the cooperation of the County and fire authorities having jurisdiction and botanical experts, and made available at the Humboldt County Planning Department and include information about how to maintain plants to maximize fire resistance.

S-IM14. **Structural Hazards.** The County shall assist property owners in making upgrades to existing structures to mitigate structural hazards.

S-IM15. **Airport Safety Review Combining Zone.** Amend the Zoning Maps to apply an Airport Safety Review Combining Zone, indicated by "AP", that matches the outer boundaries of the Recommended Compatibility Zones contained in the 2021 Airport Land Use Compatibility Plan, as amended, for Humboldt County Airports. Until such time as the Zoning Maps are amended, places a note on the record for each parcel in Humboldt County's online permit management system that lies within the outer boundaries of the Recommended Compatibility Zones.

S-IM16. **Airport Compatibility Zones.** Maps in Appendix F show the new airport land use compatibility zone data for airports and surrounding areas. The ALUCP criteria can be located here: https://webgis.co.humboldt.ca.us/documents/safety_compatibiity_criteria.pdf

S-IM17. **Structural Design.** The County shall enforce the provisions of the California Building Code that addresses seismic and geologic concerns, including building design requirements, and establish additional local standards as needed.

S-IM18. **Soils Reports Requirement for Subdivision.** The County shall require and review preliminary soils reports submitted by applicants for every subdivision and for each individual lot or project site where expansive soils have been identified or are expected to exist.

S-IM19. **Retrofitting Essential Infrastructure.** The County shall conduct structural retrofits of at-risk bridges to protect against flooding and landslide/debris flows.

S-IM20. **Public Infrastructure Protection.** The County shall evaluate County-owned buildings and facilities in areas prone to flood, landslide debris flows, and wildfire to maximize defensible space and outdoor fire proofing, improve drainage systems, stabilize nearby slopes, and take actions to harden property as needed.

S-IM21. Drainage Maintenance. The County shall conduct regular cleaning and maintenance of storm drains along key roadways and other essential infrastructure, in advance of the rainy season. The County shall address the potential for water pooling at these locations and identify the need for drainage improvements as needed.

S-IM22. Wastewater Treatment Protection. The County shall work with Community Service Districts to ensure that wastewater infrastructure in flood-prone areas is hardened to minimize the risk of overflow.

S-IM23. Periodic Fire Services Evaluation. Through the Community Wildfire Protection Plan the County shall periodically evaluate fire protection services to determine if fire protection resources are being effectively used, managed, and allocated.

S-IM24. Fire Water Allocation. The County shall work with local water districts to maintain adequate water supply and identify areas which may lack adequate water service for firefighting, including peak-load under worst-case wildland fire scenarios as determined by CalFire.

S-IM25. Emergency Broadcast. The County shall provide alerts about potential, developing, and ongoing emergency situations through extensive alert and warning systems that convey information to all residents, in multiple languages and formats to ensure it is widely accessible.

S-IM26. Amend AOB Ordinance. The County shall amend the AOB Ordinance to require compliance with materials and construction methods for exterior wildfire exposures of the California Residential Code (CRC) and chapter 7-A of the California Building Code (CBC) as amended, unless the construction materials can be found to be in substantial conformance with the California Building Codes by the Humboldt County Building Official.

S-IM27. Micro-Grids for Essential Facilities. The County shall seek funding to install renewable energy micro-grids at essential service and emergency response facilities countywide (hospitals, fire response, ambulance response, emergency shelters, etc.).

S-IM28. Subdivision Restriction. New major subdivisions shall be prohibited in areas not served by at least two emergency evacuation routes in high and very high fire severity zones.

S-IM29. Micro-Grids in Unincorporated Areas. The County shall research, review, and continue to seek out equitable micro-grid contractors and services for service options which would allow communities in unincorporated areas a resilient and independent renewable energy source in the case of emergency or for general energy independence.

S-IM30. Designated Shelter Sites. The County shall coordinate with other agencies to identify areas suitable for designated shelter sites within vulnerable areas susceptible to high or severe natural hazard(s).

S-IM31. Community Resilience and Education. The County shall provide annual public workshops to strengthen public education related to emergency events.

Workshops should cover a range of topics which include: identifying hazards within a given area, identifying emergency response procedures, educating on defense strategies and preparation techniques to enhance the protection for personal property and livestock, and identifying shelters and emergency evacuation routes within a given area.

S-IM32. Stormwater Infrastructure Design. The County shall update stormwater infrastructure design requirements as needed to maintain consistency with federal, state, and local regulatory requirements.