

HAZARDOUS MITIGATION PLAN

Adopted 11/16/2016



MITIGATION STRATEGY

The first section is an introduction to and overview of RHCS D's natural/man-made hazards that affect the District. This section acts as a primer to hazards mitigation, providing definition of what Hazard Mitigation is, justification for the creation of a Hazard Mitigation Plan, and a set of goals that might be realized as a result of enacting the RHCS D Hazardous Mitigation Plan (HMP).

Section II is a hazards identification and risk assessment for the RHCS D, potential losses are analyzed and future development trends examined as part of this section.

Section III is the hazard mitigation strategy portion of the plan. This section includes a prioritization process in which natural hazards are rated. From the rating, mitigation measures for the RHCS D and implementation of mitigation strategies are discussed, as is the maintenance process.

“Hazard mitigation” is simply a term for reducing risks to people and property from natural/man-made hazards. It includes both structural measures, such as protecting infrastructure from the forces of wind and water and non-structural measures. These activities can target existing development or seek to protect future development by avoiding any new construction in hazardous areas. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

Recently, both the State of California and the U.S. Congress made the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for mitigation grant funding. Communities with an adopted plan will therefore become “pre-positioned” and more apt to receive any available mitigation funds. This requirement also applies to all forms of “local government” which has been defined by the Federal Emergency Management Administration (FEMA) to include counties, cities, school districts, special districts, Indian tribes, and other small and large governmental entities. Based on that broad requirement, the California Emergency Management Agency (Cal EMA) and FEMA have encouraged multi-jurisdictional hazard mitigation plans, and this plan has been designed to serve a multi-jurisdictional function. It is the District's intention that its plan will be incorporated into the El Dorado County comprehensive plan.

PURPOSE

The purpose of this Hazard Mitigation Plan is:

- To protect life, safety and property by reducing the potential for future damages and economic losses that result from natural hazards;
- To qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- To speed recovery and redevelopment following future disaster events;
- To demonstrate a firm local commitment to hazard mitigation principles; and
- To comply with both state and federal legislative requirements for local hazard mitigation plans.

SCOPE

This Hazard Mitigation Plan will be maintained to fully address the hazards determined to be “high risk” and “moderate risk.” Other hazards will be considered, but are not required to be fully addressed within this Plan.

AUTHORITY

This Hazard Mitigation Plan has been adopted by the Rolling Hills Community Services Board of Directors. This Plan has been developed to be in accordance with current rules and regulations governing local hazard mitigation plans. The Plan shall be routinely monitored to maintain compliance with the Robert T. Stafford Disaster Relief and Emergency Assistance Act as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390 – October 30, 2000); and all related laws and regulations.

DESCRIPTION OF THE PLANNING PROCESS

Rolling Hills CSD used resources recommended by the California Emergency Management Agency (Cal EMA) to develop this Hazard Mitigation Plan. There was little interest from those involved in the plan update to address in the Mitigation Action Plan those hazards that have a low frequency of occurrence and low/high level of impact potential. By establishing achievable goals and objectives the various groups involved in the LHMP update planning process can see that their efforts are making a difference and involvement in other mitigation efforts can be achieved. The process included the following steps, listed in order in which they were undertaken:

1. Hazard Identification and Analysis
2. Community Vulnerability Assessment
3. Mitigation Capabilities Assessment
4. Mitigation Strategy
5. Mitigation Action Plan and Implementation Program

Introduction

The greatest risk and vulnerability to the Rolling Hills Community Services District (RHCS D) are associated with wild land fires and flooding. The Hazardous Mitigation Planning Committee (HMPC) puts forth several mitigation goals and objectives that are based on the results of the risk assessment. RHCS D is an unincorporated community within El Dorado Hills with 398 parcels and approximately 1200 residents. Highway 50 and White Rock Road are borders to the North and South of the RHCS D respectively. The western border is the Sacramento County line/Folsom, where a new housing development of 49 homes is underway within the District and adjacent is an existing subdivision (Stonebriar). The eastern border adjoins an undeveloped commercial zoned lot, which borders a portion of Springfield Meadows subdivision and part of the Stonebriar subdivision. Tucked off of White Rock Road between Stonebriar and Springfield Meadows is Shadow Hills subdivision. The District has over 45 acres of open space, of which close to 30 acres are considered high risk for wildfires due to their proximity to Highway 50.

This mitigation plan addresses hazards and risks within and adjacent to the community. The greatest threat outside the community would be a fast moving wildfire in the brush fields within all open spaces adjoining RHCS D's boundaries. Within the community there are areas where homes are intermixed with dense vegetation (fuels).

Rolling Hills Community Services District Boundary Map (Oct. 2016)



II. Hazard Identification and Analysis of Risk

This section provides a treatment for all of the typical natural and man-made hazards such as but not limited to wildfire, winter storm flooding, drought, thunderstorms, toxic substance spills (as related to the proximity of Highway 50) and terrorism.

Given Rolling Hills CSD location, many of the natural hazards including dam failure, seiche wave, erosion, volcanic events, earthquakes, landslides, avalanches, and tornados are not applicable to our area and therefore will not be addressed in this plan given their lack of likelihood of occurring.

The District has had previous occurrence of wildfire in 2013, winter storm flooding (multiple years), toxic substance spill as a result of an occurrence on Highway 50, and drought related issues which have resulted in significant financial damage. Due to the higher level of risk for these hazards compared to others and the impact these hazards may have on the District's infrastructure, they will be focused on within this hazard mitigation plan.

It is important to note that this risk assessment is based on best available data and represents a base-level assessment for the planning area. Additional work will be done on an on-going basis to enhance, expand and further improve the accuracy of the baseline established here.

Methodologies Used

It should be noted that the determinations presented in this section with regard to vulnerability were developed using best available data, and the results are an *approximation* of risk. These estimates should be used to understand relative risk from hazards and the potential losses that may be incurred; however, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning natural hazards and their effects on the built environment and also from approximations and simplifications that are necessary in order to provide a comprehensive analysis.

Explanation of Hybrid Approach

As described in the preceding commentary, the quantitative assessment focuses on potential loss estimates, while the qualitative assessment is comprised of a scoring system built around values assigned by the Hazard Mitigation Advisory Committee to the likelihood of occurrence, spatial extent and potential impact of each hazard presented. For likelihood of occurrence, the following four options were available to members of the Mitigation Advisory Committee: Highly Likely, Likely, Possible or Unlikely. For spatial extent, three options were offered to describe the area which might be expected to be affected: Large, Moderate or Small. For potential impact, the choices consisted of: Catastrophic, Critical, Limited or Minor. Table 1 provides the criteria associated with each label.

Table 1. Criteria for Qualitative Assessment Assigned

	Assigned Value	Definition
Likelihood of Occurrence		
Highly Likely	3	Near 100% annual probability
Likely	2	Between 10 and 100% annual probability
Possible	1	Between 1 and 10% annual probability

Unlikely	0	Less than 1% annual probability
Spatial Extent		
Large	3	More than 50% of area infrastructure affected
Moderate	2	Between 10 and 50% of area infrastructure affected
Small	1	Less than 1% of area infrastructure affected
Potential Impact		
Catastrophic	4	High number of deaths/injuries possible. More than 50% of infrastructure, roadways and transportation facilities in affected area damaged or destroyed. Complete shutdown of facilities for 30 days or more
Critical	3	Multiple deaths/injuries possible. More than 25% of infrastructure, roadways and transportation facilities in affected area damaged or destroyed. Complete shutdown of facilities for more than one week.
Limited	2	Minor injuries only. More than 10% of infrastructure, roadways and transportation facilities in affected area damaged or destroyed. Complete shutdown of facilities for more than one day.
Minor	1	Very few injuries, if any. Only minor infrastructure, roadways and transportation facility damage and minimal disruption on quality of life. Temporary shutdown of facilities.

The values assigned for each option chosen are added together for each hazard to arrive at a total score. All conclusions are presented in “Conclusions on Hazard Risk,” found at the end of this section. Findings for each hazard are detailed in the hazard-by-hazard vulnerability assessment which follows, beginning with an overview of the planning area.

TOPOGRAPHY AND LAND FORMS

The District has a large expanse of grassy rolling hills where one of the historic El Dorado Hills monument signs sits atop the Highway 50 corridor hillside. The elevation of El Dorado Hills is 768’. Within the District there are a few major creek beds that feed from Highway 50 through the residential homes/streets that pass through to White Rock Road and beyond.

DEMOGRAPHICS

El Dorado Hills (EDH) is an unincorporated census-designated place (CDP) located in El Dorado County, California, 22 miles (35 km) east of the state capital of Sacramento. Its population was **42,108** at the 2010 census, up from 18,016 at the 2000 census.

DEVELOPMENT TRENDS

Since the early 1980’s, El Dorado County has been included in the Sacramento Metropolitan Statistical area. El Dorado Hills is located in the western part of the county and serves as suburban area to the booming Sacramento metropolitan region.

Population growth of approximately 3.5% annually is projected into the 21st century. Studies show that 78.2% of population increases since 1980 are due to the overall growth of the

Sacramento Region with the majority of the growth in El Dorado County occurring in the El Dorado Hills/Cameron Park area. As transportation services and housing opportunities increase, this trend is expected to continue.

High Potential Loss to Transportation/Infrastructures

RHCSD has inventoried high potential loss to transportation infrastructures within the District. These facilities are considered to be of special value and/or significance, and are considered as a default to be generally at-risk from such hazards as earthquakes and winter storms. Table 2 lists these facilities along with a total number in the District’s inventory that are assumed to be at-risk from most general hazards.

Table 2. High Potential Loss Transportation/Infrastructure

Type	Total Number in Inventory
Roads	871,828 sq. ft.
Detention Basins	68,802 sq. ft.
Rock V Ditch	1,000 sq. ft.
Storm Drain Pipe	9,850 sq. ft.
Drain inlets	70
Manholes	52

Winter/Seasonal Storms

Intense localized rainfall causes washouts of roadways and/or localized flooding of structures that lack the storm-drain capacity to remove the water. RHCSD has a few major stream beds that run throughout the District and past years excessive rainfall has caused existing drainage culverts/storm drains to become inefficient to deal with the excessive water. No damage to homes noted, some landscape affected. Continued maintenance/service is required on these drainage systems to help keep the risk low to future property damages. Flooding has primarily affected roadways and impeded traffic which leads to emergency egress hazards. Seasonal, localized flooding due to inadequate drainage impacts has occurred within the District along the entrance to Stonebriar and at Prima Drive. Normal mobility is lost or delayed as roadways become inaccessible with excess water and have potential to cause accidents.

Costs incurred over the past five years as a result of winter storm related floods and drainage maintenance averaged about \$2,000 per year. However, due to the extreme storm water in 2016, cost exceeded \$6,000 for that year.

El Dorado County Special Districts

California Government Code §25210 allows for the formation of county service areas in unincorporated areas, providing an alternative method of furnishing extended governmental services and the levy of taxes to pay for the extended services. The County has established Drainage Zones of Benefit, as well as Road and Drainage Zones of Benefit that are managed by the County’s General Services Department for the purpose of generating funding for the construction of community drainage facilities.

Drought/Extreme Heat

The District has been experiencing issues with tree mortality due to the lack of water. The previous ground water levels are reduced so that any existing mature trees that were growing without irrigation systems in place are at risk of dying. There has been one instance of a 30+ year old tree falling over in the park and five others were determined to be at risk and removed. Due to the location of mature trees within the District’s public areas, this will be an ongoing review.

Wildfire

Rolling Hills CSD Fire Risk Map (right)

The Rolling Hills CSD is situated within a large buffer of open rolling hills adjacent to Highway 50 which represents many hazardous fire conditions. The majority of the acreage is filled with savanna grasses, generally below the knee that create significant fuel loads of approximately 1 ton per acre. There are few trees on the larger acreage bordering the western Sacramento County line but along Dunnwood Drive there are significant numbers of trees, mostly oaks and evergreens.



Toxic Substance Spills

The RHCS D’s proximity to Highway 50 along Dunnwood Drive presents the potential for vehicle accidents that may cause damage to the bordering open space and potential hazards to nearby residents in the case of a hazardous substance spill.

Conclusions on Hazard Risk

**Table 3. Summary of Potential Annualized Losses (From Quantitative Assessment)
Hazard Estimated Annualized Losses**

Hazard	Estimated Annual Losses
Wildland Fire	
Flooding	
Drought/Extreme Heat (Tree Mortality)	
Toxic Substance Spills	

Based upon the qualitative approach defined in detail under Methodologies Used, the risk from hazards in the District was weighed by the Hazard Mitigation Advisory Committee and criteria was used to assign values to the likelihood of occurrence, spatial extent affected, and potential impact of each hazard. These values combined to form a total rating for each hazard (Table 5). The dominant hazard identified through this process is the wildfire hazard followed by the winter or seasonal storm hazard.

Table 5. Overall Hazard Rating

Hazard	Likelihood	Spatial Extent	Potential Impact	Hazard Rating
Wildland Fire	2	2	2	6
Winter / Seasonal Storms	2	2	1	5
Drought - Tree Mortality	1	1	1	3
Toxic Substance Spill	0	1	1	2

The conclusions drawn from the qualitative and quantitative assessments, with final determinations from the Hazard Mitigation Advisory Committee, were fitted into three categories for a final summary of hazard risk based on High, Moderate or Low designations (Table 6). The hazards identified with the highest risk through this process are the wildland fire and inter/seasonal storm and resulting floods.

Table 6. Estimated Risk Levels for El Dorado County (Combination of Qualitative and Qualitative Assessments)

HIGH RISK HAZARDS	Wildland Fire, Winter/Seasonal Storms & Resulting Flooding
MODERATE RISK HAZARDS	Drought/Tree Mortality
LOW RISK HAZARDS	Toxic Substance Spills

It should be noted that although some hazards may show Moderate or Low risk, hazard occurrence is still possible. Also, any hazard occurrence could potentially cause a sizable impact and losses could be extremely high.

In conclusion, the Rolling Hills CSD is susceptible to a range of hazards to varying degrees. The hazard of Wildland Fire and Winter/Seasonal Storms and the resulting floods are of the utmost, immediate concern to the District and its residents with regard to hazard mitigation practices and policies. This is further reflected in the *Mitigation Strategy* section of this plan.

The Rolling Hills CSD's small size and limited funding base is a handicap to aggressive implementation of natural hazard mitigation measures, funding sources are still available to

assist the District in accomplishing its natural hazard mitigation goals. Wherever plausible and possible, the District will pursue funding sources in an effort to complete the actions of this plan. The end result being a District made safer from the dangerous consequences related to natural hazard events.

III. Hazard Mitigation Strategies

Mitigation Goals

The Rolling Hills CSD Hazardous Mitigation Plan has identified the hazards that could impact the residents and property of the District and assessed the risks inherent to each hazard. The goals for the creation and implementation of this plan are to:

- Save lives and protect property;
- Reduce impact of future disaster events;
- Enable post-disaster funding;
- Hasten recovery from disaster; and
- Demonstrate a dedication to improving the District's safety and well-being.

These goals are applicable to all identified hazards in this plan. Although the plan goals might appear overly broad in scope, their intent, namely to reduce the threat of natural/man-made hazards through mitigation approaches, is still quite clear in definition and vision. From these goals come the objectives of the Rolling Hills CSD HMP. The objectives are arranged in a manner that addresses each hazard individually and finally actions are formulated for each hazard.

WILDLAND FIRE

Objective #1: Minimize the threat to lives and property posed by the possibility of wildland fire within the District

Actions:

- District continues to cut fire breaks around all District open space to meet the required standards per the El Dorado Hills Fire Department requirements (See Graphic 1).

Graphic 1 – District Map with Fire Break



- District continues to contract work for additional fire scraping to increase the fire break distances by an additional 20 feet around District owned open spaces (See Graphic 2).

Graphic 2 – District Map with Fire Scraping Locations





- Approximate existing area that burned.
- Area that needs additional scraping – out from the 25' existing firebreak

- Enforce District “No Vehicle Access” on District lands to prevent vehicle exhaust caused fires.
- In case of fire affecting the Stonebriar community, local emergency services to open two emergency gates (Haddington and Manchester) to assist with egress of traffic more quickly (See Graphic 3).

Graphic 3 – District Map with Emergency Access Gates



-  EMERGENCY ACCESS GATE
-  EMERGENCY FIRE/ACCESS ROAD

- Access to District open spaces to the County line and bordering Highway 50 is available through multiple utility access roads (Winterfield, Dunnwood and Prima Drive) Winterfield Drive has emergency gate that has a KNOX box on it for emergency access (See Graphic 4).

WINTER STORMS/SEASONAL FLOODING

Objective #1: Minimize the threat to property posed by the possibility of street flooding within the District

- Check culverts/storm drains annually to ensure no blockage within due to landscape/debris.
- Clear out any obstructions from culverts/storm drains that may cause water drainage issues.
- Promote within the community the need to clean up fallen leaves from yards/gutters to decrease debris clogging waterway systems.
- If severe flooding occurs, use emergency access gates for additional egress (See Graphic 3)

DROUGHT/TREE MORTALITY

Objective #1: Minimize the threat to lives and property posed by the possibility of compromised trees on District property that may impact persons or personal property

- Complete semi-annual inspections of District property to include trees/landscaping materials that may cause hazardous conditions.
- Promote within the community the need for increased communication when they see an issue with trees/landscaping dangers on District property.

TOXIC SUBSTANCE SPILLS

Objective #1: Minimize the threat to lives and property posed by the possibility of toxic substance spills within the District.

- Ensure evacuation plans published for the District's residents to know route to exit District
- In case of toxic substance event affecting Stonebriar community, local emergency services to open two emergency gates (Haddington and Manchester) to assist with egress of traffic more quickly (See Graphic 3).
- District to contact all appropriate agencies to ensure environmental hazards are dealt with correctly.