CHAPTER 15.
RISK RANKING

15.1 HAZARD RISK RATING

A risk ranking has been done for the hazards described in Part 3 of this plan for the City of Roseville. This risk ranking serves two purposes, first to describe the probability that each of these hazards will occur, and second to describe the impact each will have on the people, property, and economy of Roseville. Estimates of risk for the city were based on the methodology that the City used in preparing the risk assessment for this plan. The results of this risk ranking were determined via facilitated brain storming sessions with both the Technical and Steering Committees. Each committee was given a template to walk them through the exercise. The results of this exercise will be used by the planning to team to as a parameter in establishing mitigation priorities for the City of Roseville.

15.2 PROBABILITY OF OCCURRENCE

The probability of occurrence of a hazard event provides an estimation of how often the event occurs. This is generally based on the past hazard events that have occurred in the area and the forecast of the event occurring in the future. This is done by assigning a probability factor, which is based on yearly values of occurrence. The numerical value assigned to each category will be used to determine the risk rating of each hazard. These values were assigned by high, medium, and low occurrence:

- High—Hazard event is likely to occur within 25 years (Numerical value 3)

- Medium—Hazard event is likely to occur within 100 years (Numerical value 2)

- Low—Hazard event is not likely to occur within 100 years (Numerical value 1)

Table 15.1 provides a list of the probability of occurrence for each hazard in Roseville. This information should be identified in the risk assessment for each of the hazards.

TABLE 15.1 PROBABILITY OF HAZARDS		
Hazard Event	Probability (high, medium, low)	Numerical Value
Drought	High	3
Earthquake	Medium	2
Landslide	Low	1
Flood	High	3
Human Caused	High	3
Human Health	Medium	2
Severe Weather	High	3
Wildland Fire	High	3

15.3 IMPACT

The impact of each hazard was divided into three categories: impacts on people, property, or the economy. Tables 15.2, 15.3 and 15.4 summarize the identified impacts for each hazard. These three categories were also assigned weighted values. Impact on people was given a weighted factor of 3, impact on property was given a weight of 2 and impact on the economy was given a weighted factor of 1. A categorical impact was assigned for each hazard as high, medium, or low using contained in each risk assessment such as total dollar value of structures exposed to the risk. This was a subjective exercise based on perceptions of impact illustrated in the risk assessment of this plan. For impact on property, the values represent the property loss from each hazard using the weight of the property. For the economic impact, the values represent estimates of what the loss would be from a major event of each hazard. A numerical value for impact based on the following definitions:

- High Impact (numerical value = 3)

- Medium Impact (numerical value = 2)

- Low Impact (Numerical value = 1)

TABLE 15.2 IMPACT ON PEOPLE FROM HAZARDS			
Hazard Event	Impact (high, medium, low)	Numerical Value	Multiplied by weighted value of (3)
Drought	Low	1	3
Earthquake	Low	1	3
Flooding	Medium	2	6
Human Caused	High	3	9
Human Health	Low	1	3
Landslide	Low	1	3
Severe Weather	Low	1	3
Wildland Fire	Low	1	3

TABLE 15.3 IMPACT ON PROPERTY FROM HAZARDS			
Hazard Event	Impact (high, medium, low)	Numerical Value	Multiplied by weighted value of (2)
Drought	Low	1	2
Earthquake	Medium	2	4
Flooding	Medium	2	4
Human Caused	High	3	6
Human Health	Low	1	2
Landslide	Low	1	2
Severe Weather	Medium	2	4
Wildland Fire	Low	1	2

Hazard Event	Impact (high, medium, low)	Numerical Value	Multiplied by weighted value of (1)
Drought	Low	1	1
Earthquake	Medium	2	2
Flooding	Medium	2	2
Human Caused	High	3	3
Human Health	Low	1	1
Landslide	Low	1	1
Severe Weather	Low	1	1
Wildland Fire	Low	1	1

TABLE 15.4.
IMPACT ON ECONOMY FOR HAZARDS

15.4   RISK RANKING

The risk ranking for each hazard was determined by adding the assigned numerical value for probability to the weighted numerical value of impact to people, property, and economy (see Table 15.5).

Hazard Event	Probability	Impact	Total= (Probability + Impact)
Drought	3	3+2+1	9
Earthquake	2	3+4+2	11
Flooding	3	6+4+2	15
Human Caused	3	9+6+3	21
Human Health	2	3+2+1	8
Landslides	1	3+2+1	7
Severe Weather	3	3+4+1	11
Wildland Fire	3	3+2+1	9

TABLE 15.5.
RISK RATING

** Table 15.2 + Table 15. 3 + Table 15.4 values.

The following equation shows the risk rating calculation:

Risk Rating = Probability + Impact (people + property + economy)

It was possible to determine which hazards pose a higher risk to the City of Roseville. These were divided into the three categories of high, medium and low. **The hazards that were ranked as being of highest concern to the City were flooding and Human-Caused hazards.** The hazards that were ranked as being of medium concern for the City were Earthquake and Severe Weather. The hazards that were ranked as being of lowest concern were Drought, Wildland Fire, Human Health, and Landslide. Table 15.6 shows the hazard risk ranking.

TABLE 15.6. HAZARD RISK RANKING		
Hazard Ranking	Hazard Event	Category
1	**Human Caused**	**High**
2	**Flooding**	**High**
3	**Earthquake**	**Medium**
3	**Severe Weather**	**Medium**
4	**Drought**	**Low**
4	**Wildland Fire**	**Low**
5	**Human Health**	**Low**
6	**Landslide**	**Low**