Safety Element

EXECUTIVE SUMMARY

The Safety element recommends ways to reduce the risks of natural and man-made hazards.

Soil and geologic hazards: protect the community from soil contamination, failure erosion and geologic instability.

Fire hazards: prevent and reduce the risks from natural and man-made fires.

Emergency medical service: provide rapid on-scene emergency medical services and transportation.

Hazardous materials: educate about and enforce standards for the proper storage and transportation of hazardous materials and protect the public when hazardous material emergencies occur.

Police and crime: maintain response times in all areas of the city and improve the perception and reality of safety.

Aircraft and airport safety: protect the community from aircraft accidents.

Ground transportation and emergency response programs: be prepared to respond to natural or man-made catastrophes.

INTRODUCTION

The Safety element provides guidelines for alleviating natural and man-made hazards. Natural hazards such as flooding, wildfires, and soil and geologic hazards can result in significant costs to the community, major property damage and potential loss of life. Equally dangerous are man-made hazards such as improper handling/use of hazardous materials and disposal of industrial chemicals.

Airport safety is also discussed in the Safety element, while airport noise impacts are covered in the Environmental Planning element under Goal 8, Noise Mitigation. Airport noise is covered in the Land Use element under Goal 8, Incompatible Land Uses, Policies 1 and 2, Recommendations A through C, Figures 11 and 12. Flood hazards are discussed in the Natural Resources Conservation element.

Since it is not possible to eliminate all risks, the city and its residents must decide the degree of acceptable risk based on personal, social and economic cost and benefits. To a large extent, this has already been accomplished by adopting development standards for floodplains, adopting street and highway standards, and maintaining police and fire departments and the Emergency Response Program.

GOAL 1 **NATURAL AND MAN-MADE HAZARDS PROTECTION:** THE COMMUNITY SHOULD BE PROTECTED FROM INJURY AND DAMAGE RESULTING FROM NATURAL AND MAN-MADE HAZARDOUS CONDITIONS, BOTH CATASTROPHIC AND INSIDIOUS.

Any aspect of the environment, man-made or natural, that impacts public health and safety should concern the community. However, to some extent most of the following categories of hazard have been and continue to be addressed by private and public agencies at the federal, state or city levels. In cases such as fire prevention and control in Phoenix, city involvement is substantial; in other cases it is not.

The Safety element relates to and links with various topics and other elements of the General Plan. Land subsidence (sinkage) directly relates to water resources; flooding relates to public facilities, hazardous materials disposal and ground water pollution; noise relates to air and ground transportation as well as manufacturing; and areas of high exposure to natural hazards are related to all factors of land use planning.

FLOOD HAZARD

This topic is discussed in the Natural Resources Conservation element under Goal 1, Flood Protection.

GOAL 2 **SOIL AND GEOLOGIC HAZARD:** THE COMMUNITY SHOULD BE PROTECTED FROM RISK ASSOCIATED WITH SOIL CONTAMINATION, EROSION FAILURE AND GEOLOGIC INSTABILITY.

Hazards related to soil and geologic conditions in the Phoenix area include expansive soils (subject to shrink-and-swell behavior), soil contamination (caused by underground storage tank leakage or illegal dumping), and land subsidence associated with earth fissures, erosion and landslides. Continued removal of ground water will increase land subsidence. Expansion of the city into desert and hillside areas will increase the city's exposure to erosion, illegal dumping and landslide hazards as those areas are developed. Development in urban areas increases the city's exposure to soil contamination from previous property usage.

Because of the unique problems inherent in the development of land in hilly or mountainous areas, special review processes and standards have been included in city ordinances. In addition to grading, drainage and floodway regulations that may apply to hilly areas, the city has adopted subdivision regulations and zoning ordinance provisions that deal specifically with hillside areas.

The unique situations and special considerations that confront development in hillside areas include, but are not limited to, rock-fall hazards, landslides, storm water runoff, limited vehicular access and increased difficulty in providing public services and utilities. In general, as slopes become steeper and land becomes more rough and broken, the potential hazard increases. Access becomes more difficult and development is more limited.

The U.S. Soil Conservation Service has identified and mapped soil types for a large portion of the Phoenix area. As the city grows into areas beyond existing surveys, new areas should be surveyed and mapped. Studies of land subsidence and earth fissures, such as those conducted for the city in the Paradise Valley area, should continue, and, prior to development, efforts should be made to identify areas subject to fissures. Assessing environmental sites before project development will minimize liability and unforeseen construction cost to the city and developers, while reducing the cost of property damage that results from natural disasters.

Policies:

1. Identify and map areas with soil and geologic hazards and soil contamination.

2. Require development proposals to assess soils and geologic hazards such as shrink-swell potential, soil contamination, erosion, landslide and earth fissures from land subsidence.

3. Require prevention measures when locating public facilities in areas subject to soils or geologic hazards, in order to avoid extraordinary maintenance or replacement cost.

GOAL 3 **FIRE HAZARDS:** THE COMMUNITY SHOULD BE PROTECTED FROM BOTH MAN-MADE AND NATURAL FIRES, WITH AN EMPHASIS ON PUBLIC EDUCATION, FIRE PREVENTION, AND AUTOMATIC SYSTEMS TO CONTROL STRUCTURAL FIRES.

FIGURE 1 - Kids and Grownups Get to Try Out Fire Hoses and Check their Aim

The Phoenix area is subject to both urban and wild land fires. Fire is a unique hazard because it is both a natural and man-made phenomenon. Incidents of war or terrorism, accidents, acts of nature, and man-caused events can all significantly affect the risk of fire.

In urban areas of the city, the most serious concern, due to the larger concentration of buildings, people and hazardous materials, are fires in high-rise buildings, multi-family structures, and commercial and industrial buildings. Fires in single-family dwellings are more easily contained and are less likely to involve the combustion of hazardous materials. However, due to the higher occurrence rate, fires in single-family dwellings account for the largest number of fire fatalities and the largest single category of dollar loss due to fire.

Smoke alarms are required in all Phoenix residential structures. However, automatic sprinkler systems, which are the most effective fire-suppression devices, are not required in single-family or privately-owned multi-family dwellings, and not in all classes of commercial property.

Brush fires are a hazard in urban, wild land transition areas, desert and mountain areas, and in weed-covered lots within the urban areas. The proximity of people to weed-covered city lots and the recreational use of desert areas increase the potential for man-caused wild land fires that can threaten private property and endanger lives.

Policies:

1. Provide fire and life safety education to the community with special emphasis on high-risk populations.

2. Provide adequate access for emergency vehicles, particularly fire fighting equipment, as well as secure evacuation routes for inhabitants.

3. Encourage automatic sprinkler systems in all buildings. Consider requiring such systems in all large, multi-story, multi-family buildings and single-family dwelling units.

Recommendations:

A. Encourage automatic sprinkler systems in all buildings, including single-family dwellings.

B. Explore implementing property development incentives to reduce sprinkler system costs to developers. Consider requiring sprinkler systems in all large multi-story and multi-family buildings.

4. Continually review the Phoenix Fire Code and revise as necessary, to take advantage of life safety-enhancing material, product, and process improvements.

5. Regulate the storage of flammable and explosive materials and strongly encourage the proper transportation of such materials.

6. Construct all new development, at a minimum, to the standards of the city of Phoenix Fire Code, Building Code, and other regulations.

7. Continually review the changing fire service needs of the community. As the city expands and ages, paramedic service assumes a larger role, and hazardous materials become more prevalent, equipment and the location and size of fire facilities need to change in response.

8. Collaborate with the business community to establish partnerships in fire prevention efforts.

GOAL 4 **EMERGENCY MEDICAL SERVICE:** THE COMMUNITY SHOULD BE PROTECTED BY AN EFFECTIVE EMERGENCY MEDICAL RESPONSE SYSTEM THAT INCLUDES ON-SCENE EMERGENCY CARE AND TRANSPORTATION SERVICES.

Rapid intervention is a critical factor in emergency medical incidents involving trauma, heart attacks, drownings and other life-threatening emergencies. Providing on-scene stabilization and timely transport to appropriate medical facilities are critical to patient survivability.

Deploying fire resources in strategic locations throughout the city provides effective bases for emergency medical services. Integrating fire and emergency medical services into one emergency response system, served by dual-role personnel, provides an efficient, cost-effective service.

Policies:

1. Locate and staff additional fire stations so they can provide a rapid-response to fire and medical emergencies.

2. Provide paramedic-level services from each fire station.

   Recommendation:

   A. Plan and train to respond to major medical and disaster incidents.

3. Keep up with technological advances in emergency medical treatment and fire fighting/life safety operations.

   Recommendation:

   A. Collaborate with the medical community in evaluating the effectiveness of the emergency medical system.

4. Educate the public on injury prevention.

   Recommendation:

   A. Collaborate with private and public health agencies to promote health and injury prevention, as prevention strategies.

5. Enhance the effectiveness of the emergency response system by connecting people with appropriate non-emergency agencies.

GOAL 5 HAZARDOUS MATERIALS: THE COMMUNITY SHOULD BE EDUCATED ABOUT THE INHERENT RISKS OF HAZARDOUS MATERIAL WITHIN THEIR HOMES, THEIR BUSINESSES, AND THE TRANSPORTATION SYSTEM THAT MOVES HAZARDOUS MATERIALS.

Community training should be provided on how to manage these risks and what to do in case of an emergency, including emergencies that involve weapons of mass destruction (WMD). Education and training should be directed to the use, storage and handling of hazardous materials, recognizing that the use of such substances is an integral part of our society and economy.

The term "hazardous materials" encompasses a large number of substances, including toxic metals, chemicals, and gases; flammable and/or explosive liquids, solids and gases; erosive materials; infectious substances; and radioactive materials. The transport, distribution, storage, use and disposal of materials is of extreme concern to the community. There is a potential for catastrophe as well as for the slow and insidious pollution of our environment. The city has a Hazardous Materials Program at the Fire Department. See discussion on city's Household Hazardous Waste Program in the Environmental element under Goal 10, Solid Waste, Household Hazardous Waste Program.

Policies:

1. Cooperate with other government agencies in developing standards for the proper storage, transporting and disposal of hazardous materials.

   Recommendations:

   A. Collaborate with other regulatory agencies to assist people with their concerns and needs related to the use, storage, handling, and safe disposal of hazardous materials (See Environmental element, Goal 3).

   B. Implement educational seminars, community exercises, emergency response drills, and policy changes to meet the above goal and policies.

2. Support state and federal legislation that strengthens safety requirements for transporting hazardous materials.

3. Prepare strategies and plans for evacuating inhabitants and handling emergencies involving hazardous materials.

Recommendation:

A. Prepare strategies that focus on the health and welfare of the community during hazardous materials emergencies, including the mitigation and post-recovery process. Direct this effort to the community's physical, emotional and property needs.

GOAL 6 **POLICE AND CRIME:** KEEP PACE WITH THE GROWTH OF THE CITY, NEW ENFORCEMENT CHALLENGES AND CHANGES IN TECHNOLOGY.

FIGURE 2 - Policemen on Bikes Meet the Public

The Police Department is continually striving to improve services to the people of Phoenix and to enhance community-based policing philosophies and efforts. These programs include a more structured approach to identifying community issues, improving communications between the Police Department and the growing culturally diverse community, improving city publications on police issues, and continuing to use technology as a tool in to combat crime.

Policies:

1. Communicate with and provide service for the growing diverse population of the city.

   Recommendation:

   A. Increase staff effectiveness by focusing resources to provide better customer service, additional and better methods to suppress crime, and to improve internal communications.

   B. Encourage more use of volunteer services.

2. Keep up with technology and technological crimes.

   Recommendation:

   A. Acquire state-of-the-art technological equipment.

3. Maintain response times for areas in the far north and south areas of the city.

   Recommendation:

   A. Hire additional police officers and support personnel.

4. Improve current services so people are safe and feel safe in their community.

Noise impacts are addressed in the Environmental element, Goal 8, Noise Mitigation, except for airport noise, which is covered in the Land Use element under Incompatible Land Uses Goal 8, Policies 1 and 2, Recommendations A through C, Figures 11 and 12.

GOAL 7 **AIRCRAFT AND AIRPORT SAFETY:** THE COMMUNITY SHOULD BE PROTECTED FROM THE HAZARDS OF AIRCRAFT ACCIDENTS.

FIGURE 3 - Sky Harbor Control Tower

Phoenix Sky Harbor International Airport, Goodyear Airport, and the Deer Valley Airport offer both convenience and economic benefits to the community. However, an urban location increases the potential hazard to both aircraft passengers and adjacent landowners. Airport noise impacts are discussed under Goal 8, Incompatible Land Uses, in the Land Use element. Helistops and heliports are covered in the Circulation element, under Goal 8B Heliports and Helistops. Airports as a transportation system are addressed in the Circulation element under Goal 5A, Airports.

Policies:

1. Continue to precisely implement and enforce regulations that assist in determining potential obstructions to our airport airspace.

2. Obtain and use aeronautical studies of obstructions to determine their effect on the safe and efficient use of airspace.

Recommendation:

A. The Aviation Department should work cooperatively with the Federal Aviation Administration, state agencies, other airports, and city departments to identify and update potential obstructions, operational concerns, and technological advances.

3. Continue to carefully monitor and evaluate all future land uses surrounding the airports, to protect the airport from encroaching development that could pose a safety hazard to aircraft passengers, or to individuals living or residing in those areas. Additionally, ensure that future land uses within the Sky Harbor Center area will be compatible with the safe operation of Sky Harbor International Airport.

Recommendation:

A. The Aviation Department should review all development plans for projects on or near Phoenix airport sites to ensure that the proposed development is a compatible use.

4. Continue to limit development within airport clear zones in accord with Federal Aviation Administration rules and regulations.

5. Continually reevaluate the operational and development plans for all city-owned airports, as well as other airports that impact the Phoenix area, to keep abreast of changing needs and demands, technological changes and land use considerations.

6. Discourage land use changes or projects that may increase wildlife hazards at our airports or within our airport airspace, which may adversely impact aircraft operations or pose a possible aircraft hazard.

7. Update, practice, and use all airport-related safety and contingency plans, established to ensure safe operations of aircraft and ensure the utmost safety to those individuals residing near our airports.

Recommendation:

A. Hold an airport emergency drill annually to practice the cooperative effort in Policy 8.

8. Encourage cooperation between all airport and emergency personnel, including fire, police, FAA, airlines, airport personnel, FBI, the National Transportation Safety Board, and emergency support organizations.

GOAL 8 GROUND TRANSPORTATION SYSTEMS SAFETY: A SAFE AND EFFICIENT TRANSPORTATION SYSTEM SHOULD BE PLANNED TO SERVE THE NEEDS OF THE CITY AND MEET THE DEMANDS OF OTHER PUBLIC SAFETY AND HEALTH SERVICES.

A safe, efficient ground transportation system is essential to public safety. Street and highway design affects the safe operation of motor vehicles. The safe transport of hazardous materials, and efficient fire and police protection, paramedic services, public utilities and refuse collection, all depend on an adequate transportation system. As the major ground transportation system in the Phoenix metropolitan area, streets and highways must allow for safe and efficient movement of people and materials by day and night in all weather conditions.

Policies:

1. Continue to provide a safe and convenient street and highway transportation system within the existing physical constraints.

2. Continually review the city's transportation system and evaluate new transportation systems for possible application within Phoenix.

GOAL 9. EMERGENCY RESPONSE PROGRAMS: MAINTAIN A HIGH LEVEL QUALITY RESPONSE TO NATURAL OR MAN-MADE CATASTROPHES WITHIN, OR IMPACTING, THE CITY.

Policies:

1. Ensure adequate resources and training for critical staff positions.

Recommendation:

A. Provide effective staff training in crisis management and recovery.

2. Apply effective strategies to crisis management and the effective response of city resources.

Recommendations:

A. Review each city department's resources, plans and staff to ensure effective support of the city Emergency Response and Recovery Plan.

B. Conduct a timely review to ensure an effective update of the city's Emergency Response and Recovery Plan to reflect current risk/threat awareness.

3. Effectively coordinate response of city staff and apply city resources to rapidly restore order and begin the process of recovery.

4. Ensure clear, accurate and timely communication of critical information regarding events, safety and assistance.

5. Establish an effective relationship with federal, state and local agencies designed to support the community in times of emergency.

Recommendation:

A. Maintain positive interaction with federal, state and local government and private agencies to support the city's Emergency Response and Recovery Plan.

6. Ensure planned land development and building codes are designed to reduce avoidable property damage from storms/flooding and other natural events.

Recommendation:

A. Promote community awareness of reasonable mitigation practices, in order to reduce avoidable property damage and personal injury as the result of man-caused or natural catastrophes.