ENVIRONMENTAL PLANNING ELEMENT

7.0 GOALS

1. Encourage the preservation of the paloverde-saguaro plant community to retain high value vegetation that also provides natural area habitat.

2. Strive to enhance and maintain regional and local air and water quality.

3. Guide growth away from known fissure areas to protect future development and mitigate existing developed areas where development has occurred.

4. Continue to enforce zoning code and building code provisions to protect life and property from wind and fire hazards.

5. Work with the Pinal County Flood Control District to minimize the risk and hazards associated with flooding on existing and future development and human life within the City's floodplains.

7.2 EXISTING CONDITIONS

7.1 PURPOSE

The Environmental Planning Element provides a comprehensive evaluation of the important natural conditions and forces that shape our ecosystem and built environment. This element provides guidance in conserving, maintaining, and enhancing the natural environment in a manner that minimizes direct and indirect hazards to property and life, excessive development costs and enhances quality of life.

7.2 EXISTING CONDITIONS

The Eloy Planning Area, is located within the Santa Cruz Valley. The geography of the Valley is characterized by a relatively flat alluvial valley floor surrounded by several mountainous areas. The minimal slope, historic drainage patterns and availability of groundwater have created conditions that have, and continue to, support the substantial agricultural use of the land. However, the presence of natural drainage watercourses, a low sloped terrain and lack of a regional drainage system have and continue to subject the City and its surrounding area to several natural hazards. In addition, climatic characteristics have and, will also impact the natural environment, thus affecting the built environment.

7.3 DISCUSSION

The concept of “layering” key environmental characteristics was fostered by Ian McHarg through his landmark book, Design with Nature. The premise of his book is that form must follow more than just function; it must also respect the natural environment in which it is placed. His approach was termed "McHarg's Method" and describes how, using a multidisciplinary analysis of a region's ecological sensitivity, natural characteristics can effectively be layered and combined geographically to determine suitability for different types of development and use. GIS allows for the identification of those areas that are least and most suitable for urban development. Its results

can then offer a guide for appropriate development away from such hazards, thus reducing development costs.

The Planning Area contains a host of important environmental features that influence the natural and built environment. The summary and analysis of these key features, includes:

- Topography
- Soils
- Land Subsidence/Fissures
- Vegetation and Wildlife
- Rivers, Streams and Canals
- Flood Hazards
- Water Quality
- Air Quality
- Climate

Topography

Nearly all of the existing land located within the incorporated boundaries of the City exhibit slopes less than ten (10) percent as shown on Figure E-1, Slope Map. A small portion of the remaining Eloy Planning Area (approximately five percent) contains lands which could be constrained by slope (exceeding ten (10) percent). Existing topography that exceeds ten percent can be more difficult and costly to develop. These excessive slope areas are located at the base of, and include portions of five mountain ranges (i.e. Neuman, Picacho, Silverbell, Sawtooth and Casa Grande) that are located along the perimeter of the Planning Area boundaries. Depending on location, the City may request a geological evaluation to be conducted on sites exhibiting a natural slope of ten (10) percent or more located within the City's boundaries.

Soils

Eloy has a strong heritage of agricultural production, due in large part to the high quality of the soil that has formed and the sediment that has been deposited within the Santa Cruz Basin. The characteristics of these soils (as shown on Figure E-2, Soils Map) can affect development, in terms of their shrink/swell potential, corrosivity and percolation. Shrink/swell is typically determined by the amount of clay materials in the soil. Corrosivity is determined by the naturally occurring chemical compounds of the soil that may be detrimental to exposure with building materials (i.e. steel, metal, etc.). Percolation is the ability of the soil to allow liquids to pass through. This is an important characteristic in determining areas for leach fields for septic tanks and natural infiltration of storm water after precipitation events.

Land Subsidence/Fissures

Land subsidence is a condition caused by a variety of natural and human-induced factors. Subsidence typically occurs when excessive amounts of groundwater have been withdrawn over long periods of time and where natural replenishment of the groundwater table has not occurred. Extensive groundwater withdrawal in the planning area for agricultural use and community development have created subsidence of the alluvium, thereby causing fissures to occur. These cracks in the earth may be visible as well as not visible in the landscape.

The precedence of subsidence in the Eloy Planning Area correlates to a historical pattern of groundwater table declines. The center of this subsidence-caused bowl (which is located near

Downtown Eloy) has shifted in a southeastward direction in response to a similar decline of the water table relative to the presence of these fissures. However, the rate of subsidence has been reduced through the passage of the Arizona Groundwater Code in 1980 and the resulting reliance on only groundwater to an imported surface water source (i.e. Central Arizona Project (CAP). Also, communities located in the Pinal Active Management Area have actively conducted groundwater recharge of treated effluent and stormwater retention over many years and are utilizing their reclaimed wastewater for non-potable needs.

The presence of earth fissures pose a significant geologic hazard and may prove restrictive to improvements and construction. Proposed developments in the vicinity of documented fissures may be required to perform analyses to determine the magnitude of the hazard and the resulting risk associated with future development. Typical mitigation involves avoidance by means of a recommended setback from the fissure. A geotechnical analysis and review by the Arizona Geological Survey (AZGS) may need to be stipulated on those sites that are impacted by fissures.

In the update of the Pinal County Multi-Jurisdictional Hazard Mitigation Plan, it was identified that the City has been documented with a likely probability with limited magnitude/severity for its fissure hazard.

The location(s) of documented fissures have not been mapped in this general plan. As such, it is **strongly** recommended that interested parties contact the AZGS and access their online fissure database (http://www.azgs.az.gov/ EFC.shtml) to research and confirm the presence of fissures within the Eloy Planning Area.

Vegetation and Wildlife

Wildlife

Native wildlife common to the Eloy Planning Area includes songbirds, raptors, small and large mammals, and reptiles. Also, Roadrunners, Coyotes, Javelina, Rattlesnakes, Round-Tailed Squirrels, Black-Tailed Jackrabbits, and Desert Pocket Mice may still be found within the City.

There are several endangered or threatened species of animals within the Eloy Planning Area. It should be noted that proposed developments to be located within the FEMA 100-year floodplain may be required to show compliance with the Endangered Species Act.

Vegetation

The predominant native plant community that inhabits the Eloy Planning Area is the Lower Colorado River Subdivision-Sonoran Desert scrub. Species found in this area include Creosote Bush, Bursage, Palo Verde, Ocotillo, Mesquite, Brittlebush, and the Prickly Pear/Cholla Cacti. Areas to the east and south transition to the Arizona Upland Subdivision-Sonoran Desertscrub. Agricultural uses have and continue to include the growing of cotton, vegetable crops, orchards, melons as well as periodically leaving fields fallow. Approximately 2/3 of the Eloy Planning Area is, or has been, cultivated for agricultural use.

The Santa Cruz River supports vegetation that provides food, cover, and hunting opportunities for animal species, such as Javelina and Coyotes. Picacho Reservoir, located north of the Planning Area, is a primary waterfowl habitat and identified as a critical habitat area by the AGF department. Birds of many species flock to the reservoir to nest. This intermittent water body is

also known as a Blue Heron rookery and is a stopover for migratory birds, including the Glossy Ibis and White Pelican.

While the majority of the incorporated area lacks "critical habitat" as documented through the Arizona Game and Fish Department, several species within the planning area are currently protected by the Endangered Species Act (ESA). New development within the City of Eloy and within the Planning Area in general will need to take into account these endangered species. Developers should submit copies of applications to the State Game and Fish Department, who should in turn notify Eloy when a threatened, endangered, or sensitive species exists within the proposed development area.

The presence of critical species has not been mapped in this general plan. As such, it is **strongly** recommended that interested parties contact the AGF and access their online database (https://azhgis2.esri.com/) to research and confirm the presence of important vegetative and animal species and habitat within the Eloy Planning Area.

Rivers, Streams and Canals

Eloy's Planning Area surface water drainage patterns can be characterized as small ephemeral washes and streams and a major watercourse. The Santa Cruz River is considered a major watercourse and flows in a northwesterly direction from the southeast corner of the Planning Area to the Santa Cruz Flats. North of Nutt Road, the Santa Cruz River enters the Flats as an undefined channel. At that point, the floodwaters are not contained within a defined channel and spread in a braided manner across the flats. Some of that water also enters human-made channels within the Santa Cruz Flats.

Numerous small washes and ephemeral streams cross the northwest corner of the Planning Area. Some originate in the Casa Grande and Sawtooth Mountains and flow out onto the alluvial fans and the valley basin floor. These washes are not always clearly defined and have a tendency to meander. As a result, the exact floodplains are not easily identified. Picacho Reservoir, located to the northeast of the Planning Area, is the only intermittent surface water body.

The CAP canal transects the Eloy Planning Area along its eastern perimeter on its way to delivering Colorado River water to Tucson. However, CAP water is diverted from the main canal to Casa Grande and Florence-Casa Grande Canals, the Santa Rosa Canal and CAP Central Main Canal on its way south to Tucson.

Flood Hazards

Due to relatively flat topography and lack of significant stormwater improvements, the City of Eloy is impacted by severe and extensive precipitation events-primarily during the monsoon season. As such, the Federal Emergency Management Agency (FEMA) prepares and periodically updates flood insurance rate maps (FIRM). FEMA has updated these FIRM maps and has preliminary mapping prepared (dated 6-23-2017). Areas located within the 100-year floodplain have a one-percent chance of sustaining major flooding within any given year. These water corridors may experience flooding during severe storm events. Restricting development within the floodplain area may help protect the community from loss of investment, property value and life due to flooding and erosion.

In the update of the Pinal County Multi-Jurisdictional Hazard Mitigation Plan, it was identified that the City has been documented with a highly likely probability with limited magnitude/severity for its flood hazard.

The locations of floodplain impacted lands have not been mapped in this general plan. As such, it is **strongly** recommended that interested parties contact the Pinal County Flood Control District and access their online FIRM database (http://www.pinalcountyaz.gov/PublicWorks/FloodControl/Pages /AmlinaFloodplain.aspx) to research and confirm the presence of flood hazards within the Eloy Planning Area.

Water Quality

The Arizona Department of Water Resources (ADWR) manages groundwater quality in the Eloy Sub-basin of the Pinal Active Management Area (AMA). The ADWR adopted changes and has published the draft of its fourth Management Plan which extends to 2020. The majority of the groundwater supplies in the AMA are of acceptable quality for most uses.

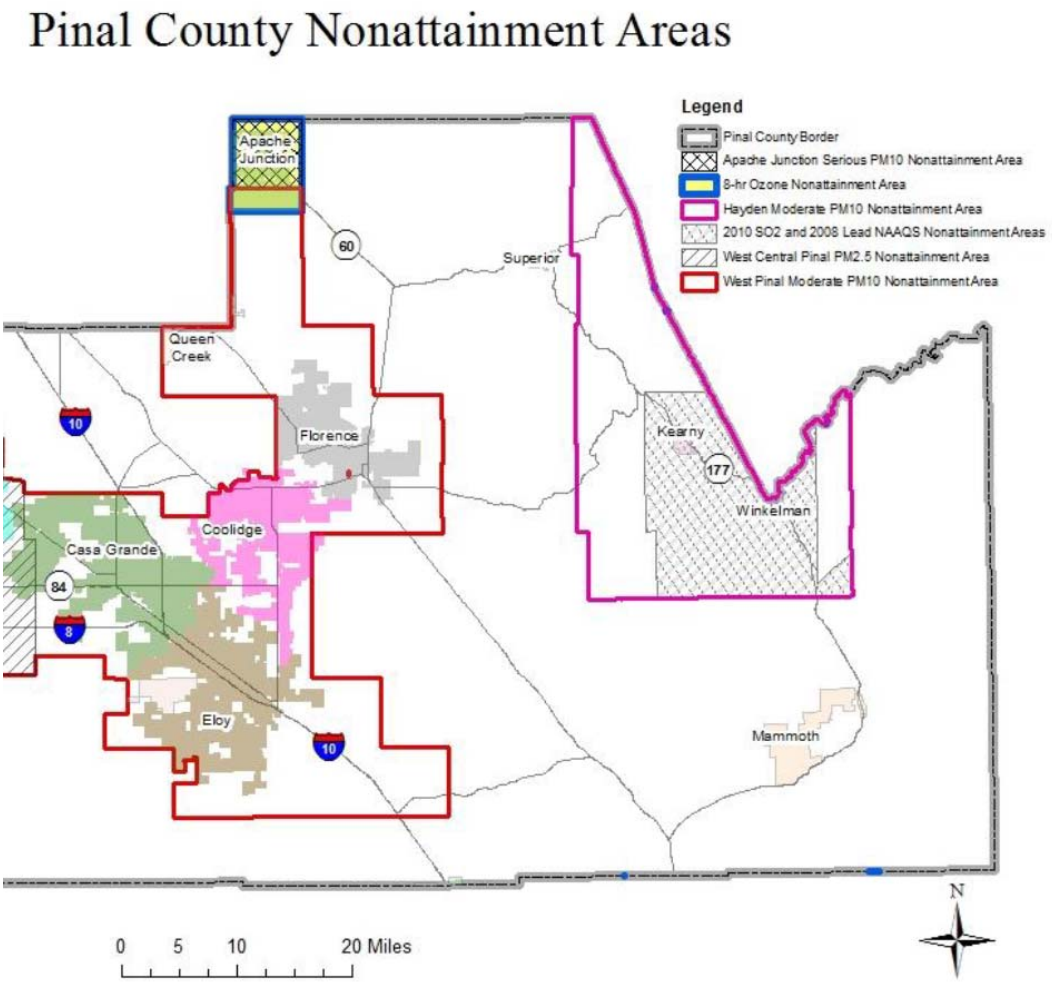
The quality of groundwater from the four operating City wells is generally satisfactory and secondary treatment is not required. The most recent (2017) Consumer Confidence Report on Water Quality identified that the City's system did not have any violations of water quality indicators. Although not a concern at the present time, there is a potential for migration of contaminants into aquifer systems, based on the fact that certain areas will continue to be dependent on groundwater pumping.

Air Quality

Currently, the Division of Air Quality Control and the Department of Health and Human Resources in Pinal County monitor and implement air quality standards and regulations. Pinal County's air quality management efforts serve four different functions: monitoring, planning, permitting, and field inspection/complaints. Eloy is located within the West Pinal Moderate PM^{10} non-attainment area, which includes all of the city's incorporated area and the majority of its planning area.

Seasonal winds, unpaved roads and shoulders and agriculture and ranching operations all present challenge for the area's particulate matter (PM^{10}) levels. The standard for PM^{10} measures the County for three criteria pollutants, specifically carbon monoxide, ozone, and particulate matter (PM^{10}). The Clean Air Act (CAA) and its subsequent amendments charge the EPA with the responsibility to administer national ambient air quality standards. Pinal County currently operates a PM^{10} air-quality monitoring station located at the Eloy County Complex in Downtown Eloy.

The Arizona Department of Environmental Quality (ADEQ) recommends paving or providing a topical treatment on dirt roads when they exceed 250 trips per day to reduce PM^{10} conditions. The Environmental Planning Element seeks to mitigate this condition by proactively discouraging new development that will place extensive traffic burdens on dirt roads. Objectives of the Land Use Element and the Environment Planning Element should focus on reducing single occupant vehicle trips that increase carbon monoxide levels. Trail systems have been proposed in the Parks, Trails and Open Space Element in an effort to decrease automobile trips. In addition, the inclusion of transit service in the City would also improve air quality by reducing the number of vehicle trips between key community originations and destinations.



Climate

The average for temperatures within the planning area range from near freezing for short durations during the winter to well over 100 degrees Fahrenheit during the hottest days of the summer. Precipitation varies during the winter/spring and summer seasons. During the winter and spring, storm systems originate in the Pacific Ocean and cross Arizona as mild precipitation events in the lower elevations and snowstorms in the higher elevations. During the summer, rainfall typically begins in early July and extends through September. This is when the North American Monsoon is active, capable of producing intense thunderstorms of excessive winds, dust, rain and hail.

In the update of the Pinal County Multi-Jurisdictional Hazard Mitigation Plan, it was identified that the City has been documented with a highly likely probability with critical magnitude/severity for its wind hazard.

7.4 OBJECTIVES

The objectives within this Element provide the City with directions for future growth, development, and revitalization in areas where the environmental characteristics are suitable.

1. Verify floodplain hazard delineation and research alternatives to minimize hazards to persons, structures and to minimize erosion and elevated flood height risks.
2. Verify fissure hazard delineation and research alternatives to minimize hazards to persons and structures.
3. Protect and conserve the quality and quantity of surface and groundwater resources.
4. Promote long-term conservation of potable water resources.
5. Continue to treat effluent water to quality levels that will allow groundwater recharge.
6. Maintain and enhance air quality within the Planning Area of Eloy.
7. Identify, manage, and protect endangered and threatened species and species of special concern.
8. Preserve the natural aesthetic quality of the Sonoran Desert in developed areas through the use and preservation of the palo verde-saguaro plant community.
9. Develop appropriate regulations and procedures with the Pinal County Flood Control District to minimize flood hazards and loss of life.