



**Safety**

## ***ELEMENT J*** **SAFETY**

***GOAL: Minimize the danger to life and property from man made and natural hazards, including fire hazards, flood hazards, non-seismic geologic hazards and air hazards.***

### **Description of Safety Element**

Community safety programs can reduce the potential for loss of life, injuries, and property damage associated with natural and man-induced hazards. These hazards include fire, floods, geologic hazards, and aircraft operations. This element provides guidelines for the protection of the community from these hazards. Both the Seismic and Safety Elements should be considered together in the planning process for the provision of a safe environment. Refer to the Seismic Element for identification of seismic hazards and policies to minimize them.

### **Existing Conditions**

The two primary civic agencies which respond to safety hazards are the police and fire departments. The City's main police facility is located in the City Hall. Additional satellite facilities may be established as needed. Booking and detention facilities are provided under an agreement with the County of Orange. The City has a contract with the Orange County Fire Authority for fire fighting services within the City. Please see Figure J-1 for the location of existing public safety facilities.

The potential hazards most prevalent in the City of Irvine are from fires, floods, geologic hazards, and aircraft operations.

The following is a brief summary of existing conditions and preventive measures for each hazard.

1. Fire. Fire hazards as depicted in Figure J-2 are probable in the City due to large quantities of combustible vegetation, poor access to fire hazard areas, and lack of water supply for fire protection in fire hazard areas. The very high fire severity zones depicted in Figure J-2 were established pursuant to recent state legislation, AB337. Development within these zones is regulated through the Uniform Building Code and Uniform Fire Code.

Requirements imposed as part of the development review process include fire lanes, fuel modification zones, fire retardant building materials, smoke detectors and automatic sprinkler systems, depending on the size and type of development.

Special fire protection consideration is given to industries handling hazardous materials,

multi-story buildings with high occupant levels, and large built-up areas with combustible roof coverings. High hazard areas are predominantly in the hilly portions of the City with volatile chaparral as the fuel source.

For urban areas within the City, the Orange County Fire Authority is able to satisfy fire and basic life safety goals by having a first due unit on scene within a five minute response time 80% of the time. Advanced life support response goals are within eight minutes 80% of the time. The service demand for areas considered suburban, rural, or undeveloped typically can expect increased response time goals of up to 15-20 minutes. In order to mitigate the impact of longer response times in these areas, certain building and fire codes are applied at time of development. Some of these may include automatic fire sprinklers, fire retardant building materials, and other special response enhancements unique to the development. The City's Uniform Building Code requires smoke detectors in all new residential developments.

2. Flood Figure J-3 depicts areas subject to the theoretical 100-year flood. Flood waters are expected to be shallow with depths that do not exceed three to four feet even in the case of a 100 year flood. Developed areas within the City are not subject to the 100 year flood as drainage measures, such as channels, drains, etc., have been put in place where structures would otherwise be threatened.

3. Geologic Hazard The City uses the U.S. Department of Agriculture classification of soils with respect to their suitability for urban development, resource conservation, and agriculture. Soil limitation ratings relate to the soil's capacity to support load and resist settlement. A rating of "slight" refers to soil

properties which are favorable for construction. A "moderate" rating means that some soil properties are unfavorable, but that they can be overcome or modified by special planning and design. Soils identified as having "severe" limitations are those so unfavorable and so difficult to correct as to require major soil reclamation or special design. It should be noted that these soil limitations are general. They are intended to be used as a planning aid to identify areas requiring specific site investigations to consign the existing conditions and recommend corrective measures necessary to reduce potential hazards.

Corrective engineering techniques are implemented during construction in order to reduce the risk caused by potential geologic problems.

4. Aircraft Operations John Wayne Airport is along the City's western border just south and west of Planning Area 36 (Irvine Business Complex). It provides commercial jet service and has a considerable amount of light aircraft traffic.

Former MCAS Tustin was located along the City's western border just north and west of Planning Areas 36 and 38. This facility was used for training helicopter pilots and was closed in 1999.

Former MCAS El Toro, located northwest of Planning Areas 32 and 35 (Irvine Industrial Complex East/Spectrum), had a full-size airfield for training jet-fighter pilots.

Figure J-4 shows the aircraft crash hazard zone for former MCAS Tustin, as well as the clear zone for John Wayne Airport. For the former military aircraft facility and the existing civilian facility, these zones established areas where the risk of a crash for a certain unit of land area is approximately

four to five times as great in each successive impact zone. Thus, an acre of land in Zone A (Clear Zone), the zone of highest crash hazard, is expected to have approximately 4 to 5 times the risk of a crash as an acre of land in Zone B (APZ 1), and 16 to 20 times the risk of a crash as an acre of land in Zone C (APZ 2).

The risk of aircraft crashes is an important consideration in planning around airports. The size of the area affected by a crash and the ability to predict its impact and location varies with the type of aircraft. Most problems are expected to occur within normal flight patterns. However, a disabled aircraft may choose to take a straight-in approach to any runway.

## Trends

1. Fires The fire hazard areas are expected to remain dangerous until development encroaches in the Very High Fire Hazard Severity Zones and other brush covered areas. As development takes place, probable partial removal of the fuel source will decrease fire potential. However, the proposed densities for the fire hazard areas are low, requiring less grading of natural terrain than for higher densities. This means that while fire hazards are reduced, they will not be removed to the extent they are in the City's flatland areas.

2. Floods Historical documents show that damaging floods occurred in the Los Angeles Basin in 1884, 1916, 1927, 1937, 1938, 1969, and 1997. The last one included the inundation of the lowlands in the Santiago Hills, EL Toro, San Joaquin Marsh, and Upper Newport Bay areas. It is expected that future developments will be protected from 100-year floods by the continuation of measures which alleviate flood hazards, such as channels, retention basins, and drains.

3. Soils Soil types will remain virtually unchanged over time. It is expected that development will continue to incorporate engineering techniques to correct soil problems.

4. Aircraft Operations MCAS Tustin and MCAS El Toro were closed in 1999. The crash hazard potential at John Wayne Airport should remain constant as outlined in Existing Conditions unless the operations are changed. Long-term impacts are hard to ascertain due to the constantly changing technology of the aircraft industry.

### Identification of Issues

1. **How can the City reduce the risk to life and property associated with aircraft operations adjacent to the City?**
2. **How can the City reduce the probability of fire, non-seismic geologic, flood, and air operation hazards?**
3. **What actions can the City take to reduce the severity of hazards (i.e., reducing the loss of life and personal property) when natural disasters occur?**

## Response to Issues

The following objectives and policies have been formulated to respond to safety issues.

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### **OBJECTIVE J-1: HAZARD OCCURRENCE**

*Identify actions that the City, in concert with other jurisdictions, must take to reduce the probability of hazard occurrence.*

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*The following policies support Objective J-1:*

**Policy (a):** Regulate the type and intensity of development in areas associated with potential land use and air operational hazards through land use controls. Refer to Figures J-4 for guidance in determining locations of hazardous areas.

**Policy (b):** Apply appropriate standard conditions which require geologic testing and structural modification in areas with slope instability and landslide potential.

**Policy (c):** Establish criteria for land development in hillside areas with emphasis on fire retardant materials, minimization of exposure risk to wildfire and adjacent structure fires, provision of access for fire fighting personnel and equipment, and removal of combustible vegetation.

**Policy (d):** Use the most current available Airport Environs Land Use Plan (AELUP) as a planning resource for evaluating aircraft operations, land use compatibility and land use intensity.

**Policy (e):** Require development proposals to be reviewed by the Orange County Fire Authority to ensure adequate fire protection and precautions occur.

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### **OBJECTIVE J-2: DISASTER RESPONSE**

*Identify actions that the City, in conjunction with other jurisdictions, must take to reduce the severity of disasters.*

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*The following policies support Objective J-2:*

**Policy (a):** Ensure that developments will be properly served by police and fire service.

**Policy (b):** Ensure that each development will have adequate emergency ingress and egress.

**Policy (c):** Phase the timing of development in relation to the City's ability to provide police and fire service.

**Policy (d):** Continue to maintain and implement the City of Irvine's Emergency Plan.

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## ***OBJECTIVE J-3: INSURANCE PROGRAMS***

***Qualify for the national flood and other disaster insurance programs.***

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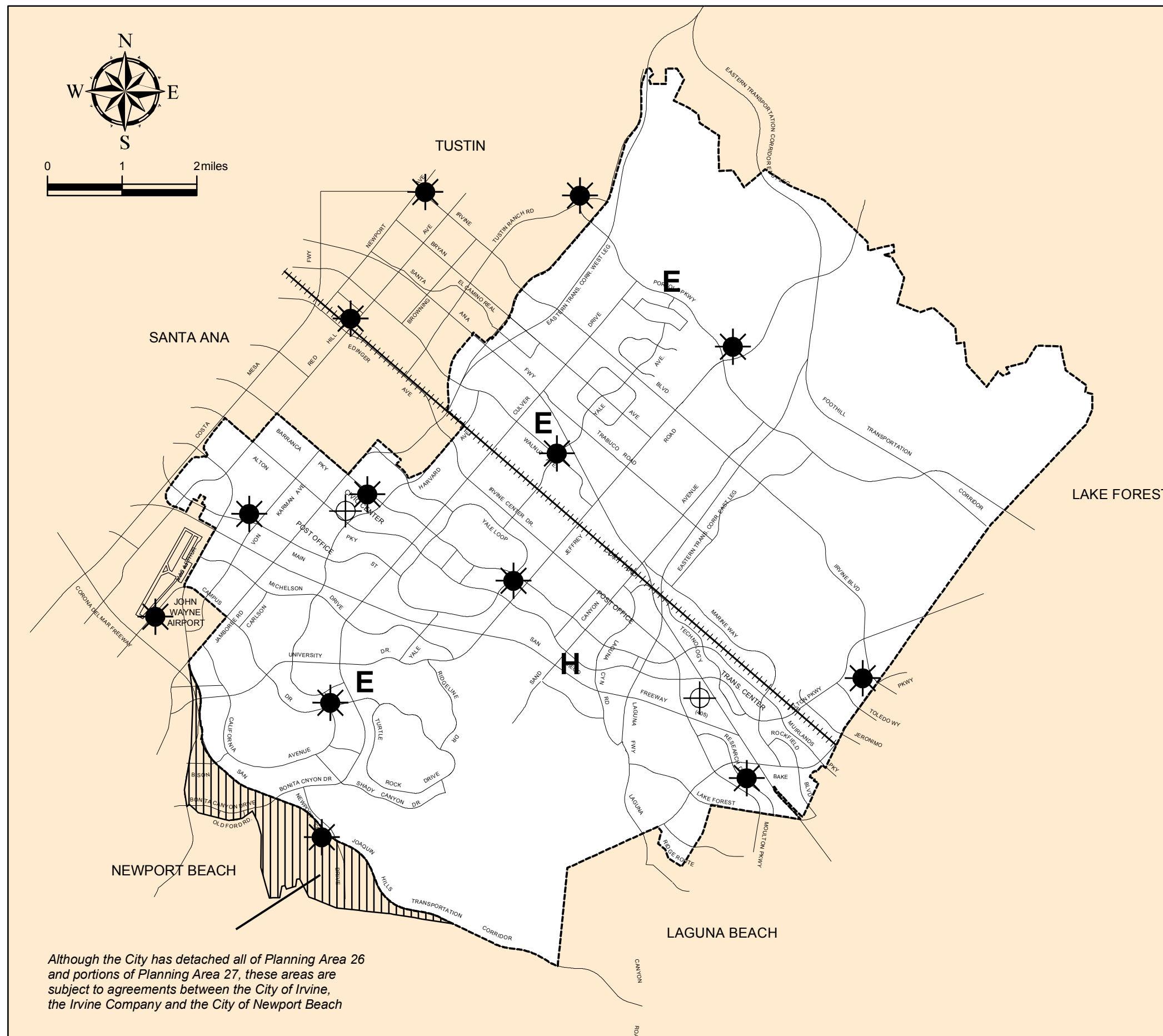
*The following policies support Objective J-3:*

***Policy (a):*** Support legislation and tax measures which tie disaster insurance and tax rates to hazard reduction measures.

### **Related Objective Numbers**

The following objectives are related to the Safety Element:

Land Use Element - A-6  
Circulation Element - B-1, B-3, B-4  
Housing Element - C-2  
Seismic Element - D-2  
Public Facilities Element - G-1  
Integrated Waste Management Element – H-1  
Parks and Recreation Element - K-3  
Conservation and Open Space Element - L-2, L-4, L-6



# City of Irvine General Plan



Figure J-1

## PUBLIC SAFETY FACILITIES

### LEGEND

----- City Sphere of Influence

★ Fire Station \*

⊕ Police Station \*\*

H Irvine Medical Center Hospital

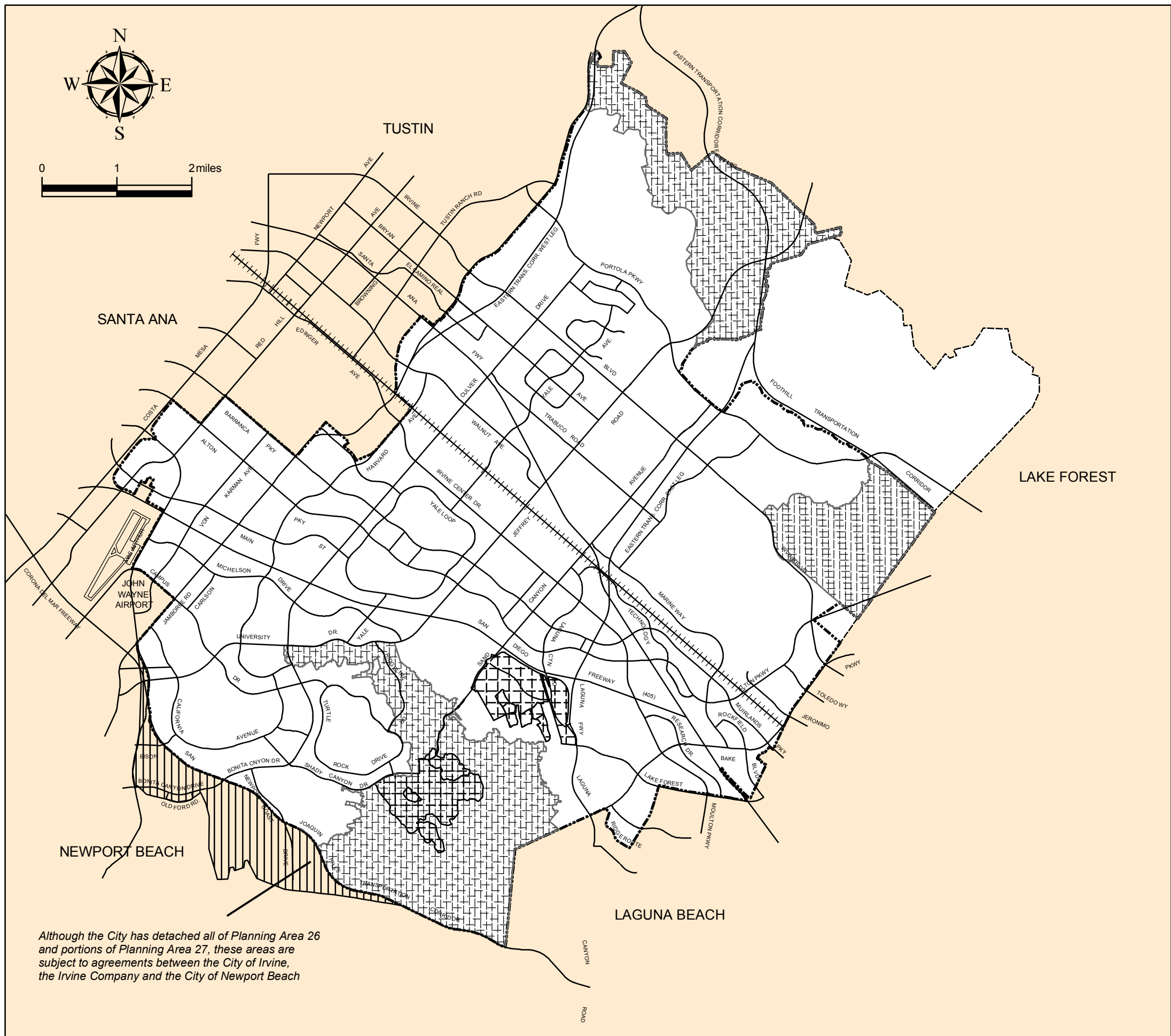
E Potential Emergency Shelter Location (High Schools)

#### NOTES:

*Elementary Schools may also be designated as Emergency Shelters.*

*\* Some fire station locations are outside the City boundary. These are shown for planning purposes because they may respond to calls within Irvine.*

*\*\* In addition to the police station shown on the diagram, the Public Safety Department may establish temporary satellite facilities as required to respond to community needs.*



*City of Irvine*  
*General Plan*



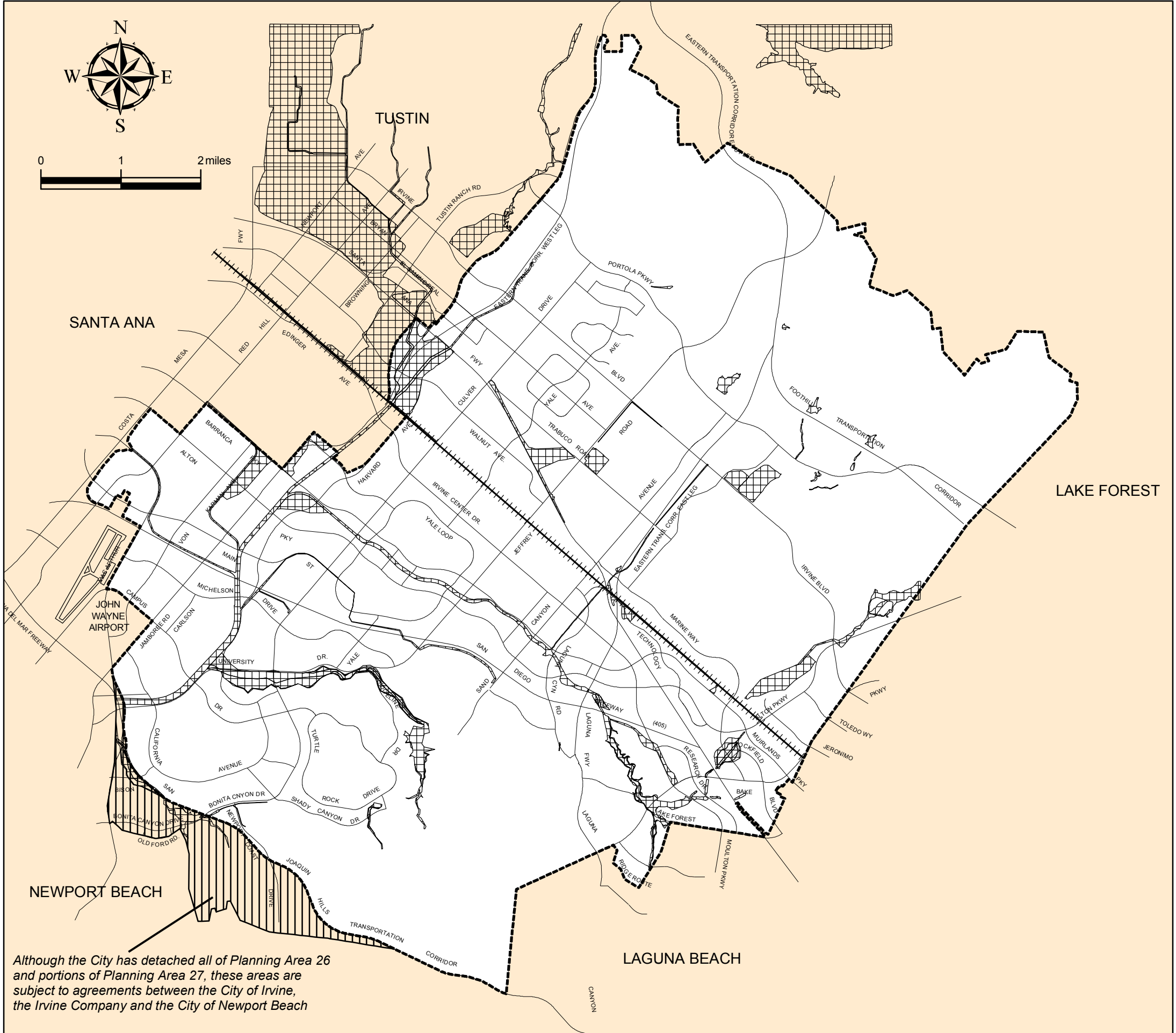
*Figure J-2*

***FIRE HAZARD  
AREAS***

**LEGEND**

- City Sphere of Influence
- City Boundary
- High Fire Severity Rating & Open Space with Fire Potential
- Conditional Exclusion Developed Areas





*City of Irvine*  
*General Plan*



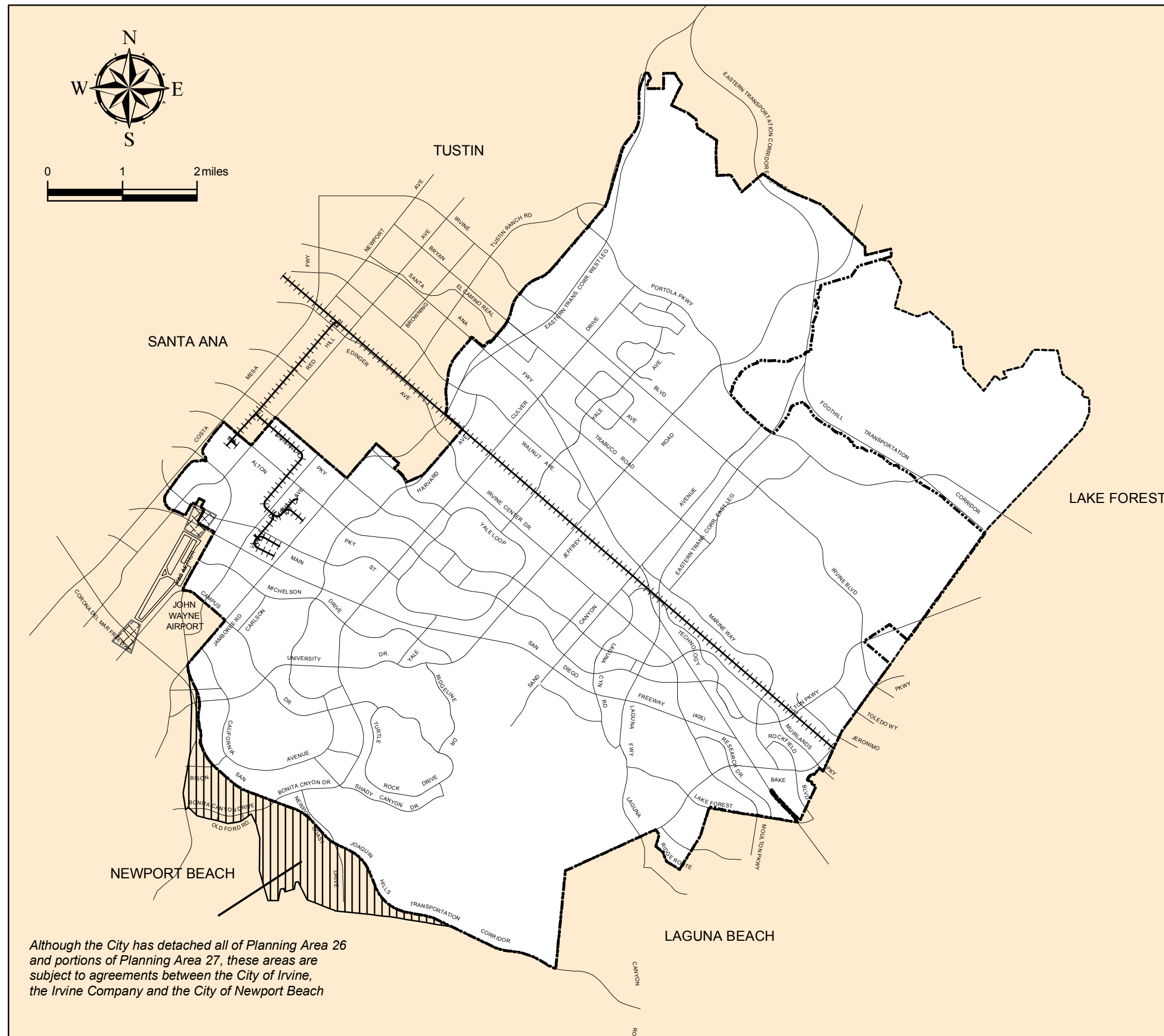
*Figure J-3*

***FLOOD HAZARD  
AREAS***

**LEGEND**

- City Sphere of Influence
- Flood Hazard Areas (theoretical 100-year flood area as designated by Federal Emergency Management Agency FEMA)

NOTE: Planning Area 51 has not been mapped by FEMA




# City of Irvine General Plan



Figure J-4

## CLEAR AND ACCIDENT POTENTIAL ZONES

### LEGEND

- City Sphere of Influence
-  John Wayne Airport Clear Zones