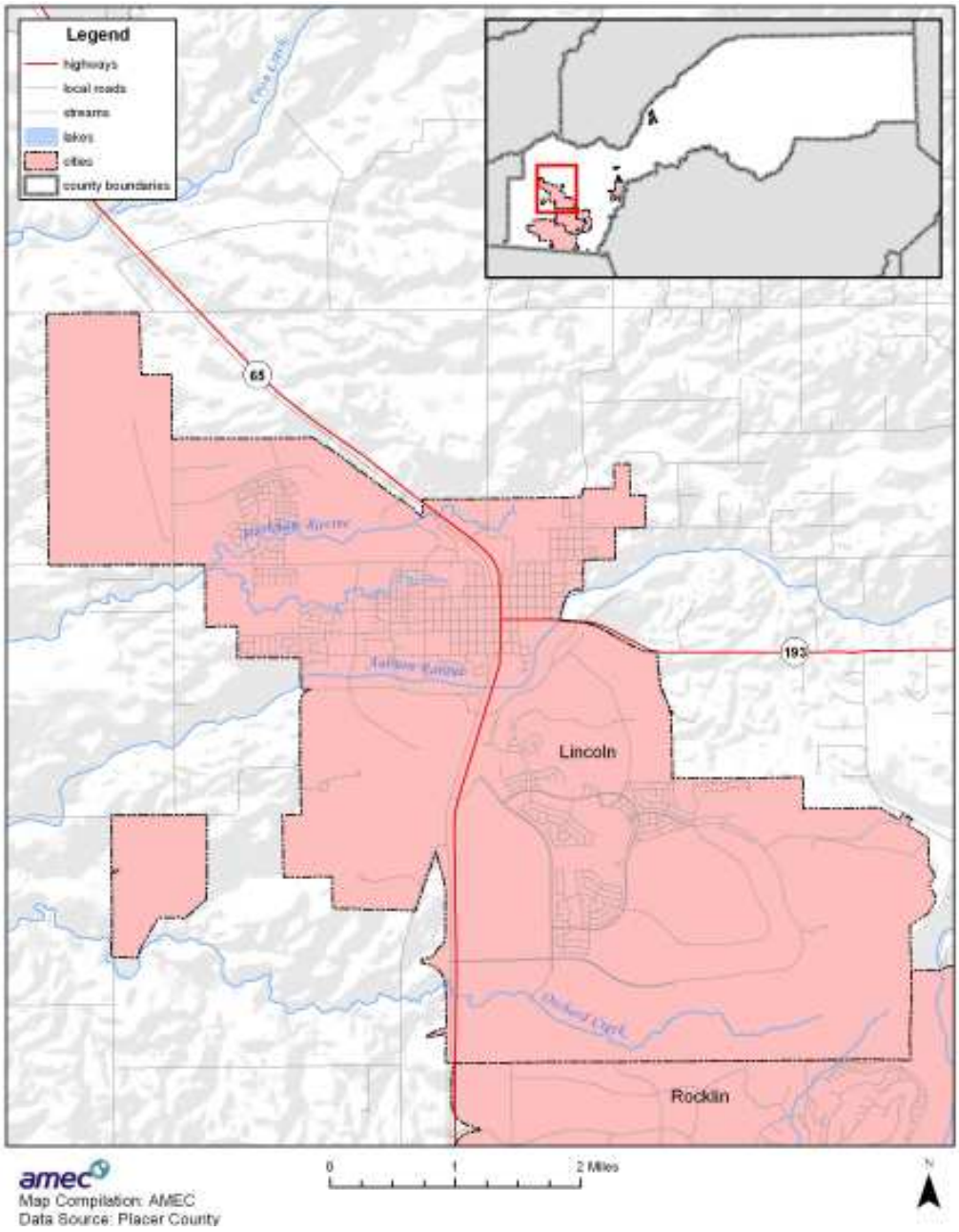
ANNEX C: CITY OF LINCOLN

C.1 Community Profile

Figure C.1 displays a map and the location within Placer County of the City of Lincoln.

Figure C.1. The City of Lincoln



C.1.1 Geography and Climate

The City of Lincoln is located in the Sacramento Valley, 25 miles northeast of the City of Sacramento. Lincoln is one of six cities in Placer County and is located on the eastern edge of the Sacramento Valley floor at the base of the Sierra Nevada foothills. The City is traversed by a number of waterways, including Markham Ravine, Auburn Ravine, Ingram Slough, Orchard and Rock Creek, Coon Creek and Doty Ravine are to the north within the proposed Sphere of Influence. The City of Lincoln is located just east of State Route 65 (SR 65), which connects to Interstate 80 (I-80) approximately ten miles east of the City and south of SR 193. Lincoln encompasses 19.3 square miles and is at a general elevation of 164 feet above sea level.

Average temperatures range from the high 80°F to high 90°F during the summer to the mid 30°F to high 50°F during the winter. Lincoln receives an average of 22.3 inches of rain and 0.2 inches of snow annually.

C.1.2 History

The City of Lincoln was named after Charles Lincoln Wilson, a real estate magnate who is largely credited with bringing the railroad to the area in 1861. The City was incorporated in 1890. Lincoln is the home of one of the County's oldest businesses, the Gladding McBean terra cotta clay manufacturing plant, which was established in 1875 when rich clay deposits of the Ione Formation were discovered nearby.

C.1.3 Economy

Most of the employment in Lincoln is related to either manufacturing or retail industries. Many Lincoln residents who have managerial and professional jobs commute to Roseville or Sacramento for work. Major employers include: Western Placer School District, City of Lincoln, Sierra Pacific Industries, Gladding McBean, Target, Lowes, Home Depot, and Robbjack.

According to the City of Lincoln Housing Element (based on 2000 census data), the City of Lincoln had 5,175 persons 16 years and older in the labor force. Of the total labor force population, approximately 27 percent were employed in sales and office occupations, while another 23 percent were employed in management, professional, and related occupations, followed by production, transportation, and material moving occupations. Lincoln's major industries include public sector, manufacturing, education, health and social services, and construction. Roughly one-half of the listed occupations in the Housing Element have mean annual wages in the very low and low income ranges as defined by the California Employment Development Department (EDD). Over the next five years, the city of Lincoln expects new employment to be concentrated in retail office industries, skilled industry, medical related fields and the food industry. Many of these jobs will pay wages in the low- and moderate-income ranges.

C.1.4 Population

In 2008, the total population for the City of Lincoln was estimated at 39,758; 2020 population is projected at 79,448, a 33.8 percent increase.

C.2 Hazard Identification and Summary

Lincoln's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Lincoln (see Table C.1). In the context of the plan's planning area, there are no hazards that are unique to Lincoln.

Table C.1. City of Lincoln—Hazard Summaries

Hazard	Frequency of Occurrence	Spatial Extent	Potential Magnitude	Significance
Agricultural	Unlikely	Limited	Negligible	Low
Avalanche	Unlikely	Limited	Negligible	Low
Dam Failure	Unlikely	Limited	Negligible	Low
Drought	Likely	Extensive	Limited	Medium
Earthquake	Occasional	Extensive	Catastrophic	Low
Flood (100-year)	Likely	Limited	Critical	High
Flood (stormwater)	Likely	Limited	Critical	High
Human Health Hazards				
Endemic/Pandemic				
West Nile Virus	Occasional	Extensive	Negligible	Low
Landslide	Unlikely	Limited	Negligible	Low
Seiches	Unlikely	Limited	Negligible	Low
Severe Weather:				
Extreme Cold/Freeze	Occasional	Extensive	Catastrophic	Medium
Extreme Heat	Occasional	Extensive	Catastrophic	Medium
Fog	Occasional	Extensive	Critical	Low
Snow	Occasional	Limited	Negligible	Low
Tornado	Unlikely	Extensive	Negligible	Low
Heavy Rain/ Thunderstorm/Hail/ Lightning/Wind	Highly Likely	Extensive	Limited	Low
Soil Hazards:				
Erosion	Unlikely	Limited	Negligible	Low
Expansive Soils	Unlikely	Limited	Negligible	Low
Volcano	Unlikely	Extensive	Catastrophic	Low
Wildfire	Highly Likely	Significant	Limited	Medium

Guidelines for Hazard Rankings

Frequency of Occurrence:
Highly Likely—Near 100 percent probability in next year
Likely—Between 10 and 100 percent probability in next year or at least one chance in ten years
Occasional—Between 1 and 10 percent probability in next year or at least one chance in next 100 years
Unlikely—Less than 1 percent probability in next 100 years

Spatial Extent:
Limited—Less than 10 percent of planning area
Significant—10-50 percent of planning area
Extensive—50-100 percent of planning area
Source: City of Lincoln

Potential Magnitude:
Catastrophic—More than 50 percent of area affected
Critical—25 to 50 percent
Limited—10 to 25 percent
Negligible—Less than 10 percent

Significance (subjective):
Low, Medium, High

C.3 Vulnerability Assessment

The intent of this section is to assess Lincoln's vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

C.3.1 Assets at Risk

This section identifies Lincoln's assets at risk, including values at risk, critical facilities and infrastructure, historic assets, economic assets, and growth and development trends.

Values at Risk

The following data from the Placer County Assessor's Office is based on the certified roll values for 2007. This data should only be used as a guideline to overall values in the City as the information has some limitations. The most significant limitation is created by Proposition 13. Instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is likely low and does not reflect current market value of properties. It is also important to note that in the event of a disaster, it is generally the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. Table A.2 shows the 2007 roll values (e.g., the values at risk) broken down by property type for the City of Lincoln.

Table C.2. 2007 Roll Values for the City of Lincoln by Property Type

Property Type	Units	Net Value
Residential	17,760	$6,033,090,999
Commercial	321	$327,535,144
Industrial	114	$170,395,352
Agricultural	21	$5,692,391
Total Value	**18,216**	**$6,536,713,886**

Source: 2007 Certified Roll Values, Placer County Assessor's Office

Assets directly owned and controlled by the City of Lincoln include a range of properties and equipment from each department. These may include city-owned property, critical facilities and infrastructure, cultural and natural resources and others. An inventory of key city assets is provided in Table C.3. Total value of these assets exceeds $225 million.

Table C.3. Asset Inventory- City of Lincoln

Name of Asset	Type	Replacement Value
Lincoln Fire Station 33	Critical	$4.5 M
Lincoln Fire Station 34	Critical	$4.5 M
Lincoln Fire Station 35	Critical	$4.5 M
Lincoln Police Operations	Critical	$2.5 M
Lincoln Police Department Headquarters	Critical	$7.5 M
Lincoln City Hall	Critical	$23 M
Railroad (private)	Critical	Unknown
Villa Del Rey Nursing Home (private)	Critical	$3.5 M
City Waste Water Treatment Facility	Critical	
Highway 65 (state)	Critical	Unknown
Natural gas pipeline (private)	Critical	Unknown
Wetlands (multiple ownership)	Natural	Unknown
Carnegie Library (city)	Historical	$1.75 M
Gladding McBean (private)	Economic	>$50 M
Sierra Pacific (private)	Economic	>$125 M

Source: City of Lincoln

Critical Facilities and Infrastructure

For purposes of this plan, a critical facility is defined as: "Those services and facilities necessary during a major emergency." This definition was refined by separating out three categories of critical facilities as further described in Section 4.3.1 of the base plan.

An inventory of critical facilities in the City of Lincoln from Placer County GIS is provided in Tables C.4 (summary table) and C.5 (detailed table) and illustrated in Figure C.2. Due to the volume of data, communication infrastructure points and hydrants are not mapped and are only included in the Summary Table.

Table C.4. City of Lincoln Critical Facilities: Summary Table

Facility Type	Count
Airports	1
CalARP Facilities	1
Communication Infrastructure	34
Dispatch Centers	1
Emergency Operations Centers	1
Fire Stations	3
Halls	1
Hazmat Facilities	3

Facility Type	Count
Hydrants	2,010
Medical Facilities	1
Police Stations	1
Public Utilities	2
Schools	12
	2,072

Source: City of Lincoln

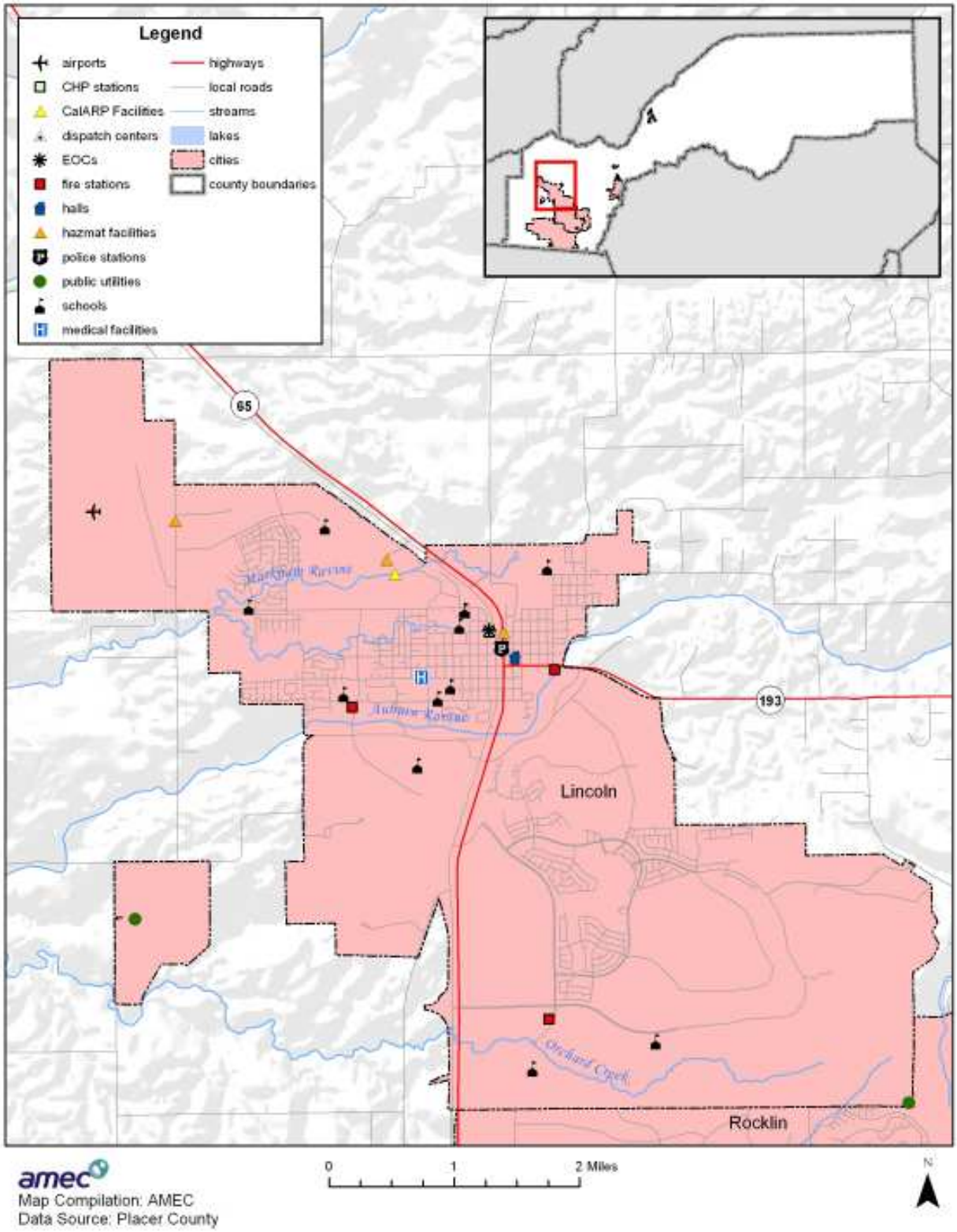
Table C.5. City of Lincoln Critical Facilities: Detailed Table

Type	Class	Name	Address
Airports	Class 2	Lincoln Municipal Airport	no data
CalARP Facilities	Class 2	Sierra Pacific Industries	1445 Highway 65
CHP Stations	Class 2	Lincoln Police	770 Seventh Street
Dispatch Centers	Class 1	Lincoln Police/Fire Department Dispatch	770 Seventh Street
Emergency Operations Centers	Class 1	City of Lincoln	770 7th St
Fire Stations	Class 2	Lincoln Fire Station	1525 E Lincoln Parkway
Fire Stations	Class 2	Lincoln Fire Station	First St & W. Joiner Parkway
Fire Stations	Class 2	Lincoln Fire Station	17 McBean Park Dr
Halls	Class 3	Womans Club of Lincoln	499 E. St.
Hazmat Facilities	Class 2	GLADDING MCBEAN	601 7TH ST.
Hazmat Facilities	Class 2	COLLEDGEWOOD INCORPORATED	1951 AVIATION BLVD.
Hazmat Facilities	Class 2	SIERRA PACIFIC INDUSTRIES	1445 HIGHWAY 65
Medical Facilities	Class 2	LINCOLN MANOR, INC	1550 3RD ST
Police Stations	Class 2	Lincoln Police	640 Fifth Street
Public Utilities	Class 3	Lincoln Wastewater Treatment Plant	1735 Fiddyment Rd
Public Utilities	Class 3	Sunset 10mg Tank	no data
Schools	Class 3	Lincoln Crossing Elementary School	635 Groveland Ln.
Schools	Class 3	Twelve Bridges Elementary School	2450 Eastridge Dr.
Schools	Class 3	Foskett Ranch Elementary School	1561 Joiner Pkwy.
Schools	Class 3	Phoenix High School (Continuation)	870 J St.
Schools	Class 3	Lincoln High School	790 J St.
Schools	Class 3	Glen Edwards Middle School	204 L St.
Schools	Class 3	First Street Elementary School	1400 First St.
Schools	Class 3	Carlin C. Coppin Elementary School	150 12th St.

Type	Class	Name	Address
Schools	Class 3	Creekside Oaks Elementary School	2030 First St.
Schools	Class 3	Horizon Charter School	2800 Nicolaus Rd., Ste. 100
Schools	Class 3	Twelve Bridges Middle School	770 Westview Dr.
Schools	Class 3	Lincoln Adult School	870 J St.

Source: Placer County GIS

Figure C.2. City of Lincoln Critical Facilities



Natural Resources

The City of Lincoln has a variety of natural resources of value to the community as identified in the Background Report to the General Plan, 2006:

- Two sensitive biological resources: Northern Hardpan Vernal Pools occurring in the western portion of the City and Foothill Riparian Woodland found along several of the larger watercourses (e.g., Auburn Ravine and Markham Ravine)
- Five special status plant species known to occur: the California Linderiella, Dwarf Downingia, Ahart's Dwarf Rush, Big-Scale Balsamroot, and Bogg's Lake Hedge-hyssop.
- One special status animal species known to occur: the Vernal Pool Fairy Shrimp
- Twenty-four special status plant species with the potential to occur
- Fifty-five special status animal species with the potential to occur

Historic Resources

The City of Lincoln has two registered federal historic sites:

- Lincoln Public Library – 590 Fifth Street
- Women's Club of Lincoln – 499 E Street

Economic Assets

Lincoln is the home of several major employers: Western Placer School District (613 employees), City of Lincoln (305 employees), Sierra Pacific Industries (300 employees), Gladding McBean (175 employees), Target (150 employees), Lowes (110 employees), Home Depot (100 employees) and Robbjack (97 employees). Loss of to these employers would have the net result of 1,850 displaced employees and loss of significant sales tax revenue for the city.

Growth and Development Trends

Since 2004, the City of Lincoln's population has grown by 69.8 percent from 23,410 to 39,758. Lincoln's growth rate is significantly higher than for unincorporated Placer County which is estimated at 4.6 percent for the same period. In comparison to other cities in the county, Lincoln's recent growth rate far exceeds the other communities, with the City of Roseville next with a growth rate of 10.9 percent.

The 2008 Lincoln Housing Element projects the city will grow by 146.86 percent between 2007 and 2035.

The number of households in the City of Lincoln increased from 2,514 in 1990 to 3,874 in 2000; this equates to a 54 percent increase. The 2008 Housing Element projects a dramatic increase in the number of households by 2035 (34,202 households or a 105.64 percent increase).

The number of housing units increased from 9,964 in 2004 to 17,753 in 2008, a 178.2 percent increase. The City of Lincoln is experiencing a tremendous increase in population growth and housing unit construction compared to other cities in Placer County. An additional 2,063 housing units are projected to be needed by 2010 and another 11,815 housing units by 2020.

Table C.6 illustrates how the City has grown in terms of number of housing units from 1990 to 2008.

Table C.6. City of Lincoln Growth in Housing Units 1990-2008

1990 Housing Units	2000 Housing Units	2008 Housing Units	Percent Change 1990-2000	Percent Change 2000-2008	Percent Change 1990-2008
2,602	4,146	17,753	+59.3 percent	+328.2 percent	+582.3 percent

Source: City of Lincoln 2008 Housing Element; State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark. Sacramento, California, May 2008.

The 2008 City of Lincoln Housing Element estimates that there are approximately 878 acres of undeveloped residentially zoned land available within the City that has the potential to accommodate 4072 new units in various residential Zoning Ordinance and Specific Plan designations. Table C.7 below provides a summary of vacant land suitable for future development. Figure C.3 the current land use and circulation diagram for the City illustrates areas zoned for future development.

Table C.7. City of Lincoln Vacant Land Summary

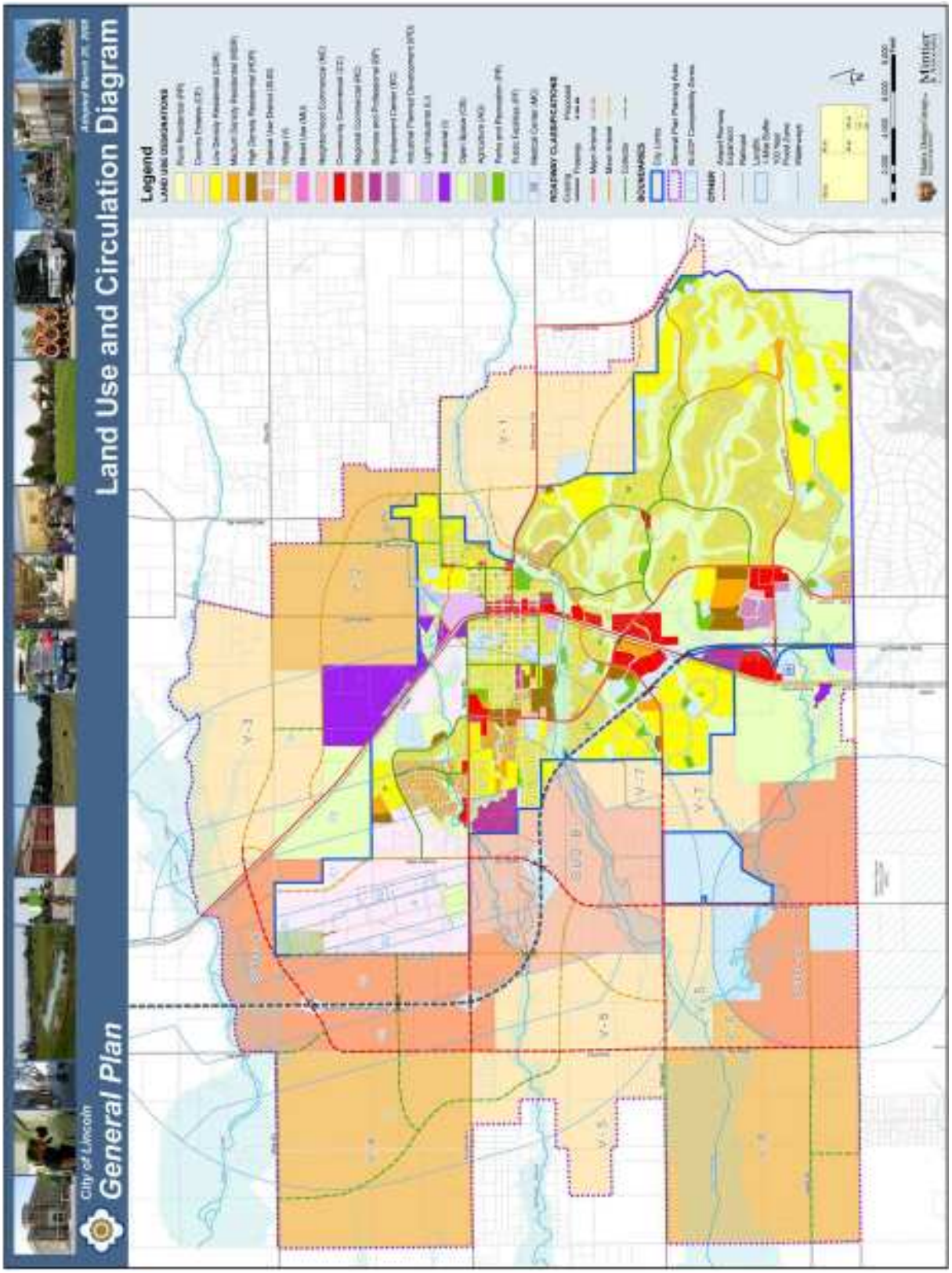
	APN	Zoning / General Plan	Address	Acres	Realistic Capacity
Low Density Parcels					
1	021-310-095-000	R-E/LD	2269 Nicolaus	4.5	2
2	021-310-096-000	R-E/LD	Unknown / Nicolaus	14.5	6
3	021-510-030-000	R-1/LD	Unknown / Virginatown	0.59	3
4	021-310-017-000	R-1/LD	Unknown / Nicolaus	2.51	12
5	021-510-026-000	R-1/LD	1095 Liberty Lane	1.27	6
6	021-231-004-000	R-1/LD	Unknown / McCourtney Road	1.1	5
7	008-261-015-000	R-1/LD	Unknown / H Street	0.15	1
8	008-024-016-000	R-1/LD	210 E Tenth Street	0.14	1
9	021-561-052-000	RD-5/LD	Unknown / Venture & Lakeside Drives	13.59	67
10	Por. 021-262-012-000	I/ LD & HD	Unknown / Waverly Drive	37.2	101
11	Por. 021-262-010-000	I/ LD & HD	Unknown / Waverly Drive	36.9	
12	Por. 008-010-038-000	R-1/LD	Unknown / East & Ninth Streets	13.8	133
13	Por. 008-010-041-000	R-1/LD	Unknown / East & Ninth Streets	44.3	
14	021-231-010-000	R-1/LD	1450 McCourtney Road	2.06	10
15	021-220-032-000	R-1/LDR	Unknown / McCourtney Road	4.09	20
16	021-274-023-000	LDR 3.5/ LDR	Unknown/ Oaktree Lane	26.49	100

	APN	Zoning / General Plan	Address	Acres	Realistic Capacity
17	Por. 329-010-001-000	LDR-5 / LD	Unknown/ E. Joiner Parkway	43.76	218
18	337-310-001-000 thru 337-310-075-000	LDR/ LD	Unknown/ Camino Verdera	21.53	75
19	021-231-011-000 & 021-231-017-000	R-1/ LD	Unknown/ Virginiatown Road	47.56	196
20	021-220-004-000	R-1/ LD	Unknown / Todd Lane	20.32	84
21	335-010-012-000	LDR-5/ LD	Unknown	27.5	71
22	021-340-040-000, 021-340-046-000, 021-340-039-000, 021-340-041-000, 021-340-044-000, 021-340-045-000, 021-340-038-000, 021-340-043-000, 021-340-047-000, 021-340-048-000	LDR/ LD	Unknown/ Sorrento Parkway	91.341	280
23	021-561-052-000	LDR/ LD	Unknown/ Lincoln Airpark Drive	13.59	67
				468.79	**1458**
Medium Density Parcels					
24	008-301-057-000	R-2/MD	Unknown / E. Eighth Street	4.4	52
25	021-310-077-000	RD-8/ MD	Unknown / Schellbach Drive & Joiner Parkway	5	40
26	Por. 021-262-012-000	I/ LD & HD	Unknown / Waverly Drive	37.2	129
27	Por. 021-262-010-000	I/ LD & HD	Unknown / Waverly Drive	36.9	
28	Por. 329-010-036-000	MDR/ MD	Unknown/ E. Joiner Parkway	60.24	467
29	008-290-084-000	PD RD-8/ MD	821 East Avenue	3.3	29
30	337-300-001-000 thru 337-300-019-000	MDR/ MD	Unknown/ Via Diablo	13.22	19
				160.26	**736**
High Density Parcels					
31	021-561-095-000	R-15/HD	Unknown / Lincoln Airpark Dr.	11.07	166
32	008-205-002-000	R-3/HD	755 A Street	0.31	6
33	021-321-046-000	RD-18/HD	Unknown / Third Street & Joiner Parkway	2.7	48
34	021-310-085-000	RD-20/HD	Unknown / Fifth Street & Joiner Parkway	2.4	48
35	021-310-084-000	RD-20/HD	Unknown / Fifth Street & Joiner Parkway	2.5	50
36	021-321-027-000	R-3/HD	182 O Street	0.66	92
37	021-321-028-000	R-3/HD	188 O Street	0.67	
38	021-321-029-000	R-3/HD	Unknown / S. O Street	0.67	
39	021-321-031-000	R-3/HD	198 O Street	0.68	
10	021-321-030-000	R-1/HD	Unknown / S. O Street	3.17	
41	Por. 021-262-012-000	I/ LD & HD	Unknown / Waverly Drive	37.2	113
42	Por. 021-262-010-000	I/ LD & HD	Unknown / Waverly Drive	36.9	
43	Por. 008-010-038-000	R-1/LD	Unknown / East Avenue & Ninth Street	13.8	137

	APN	Zoning / General Plan	Address	Acres	Realistic Capacity
44	Por. 008-010-041-000	R-1/LD	Unknown / East Avenue & Ninth Street	44.3	
45	Por. 329-010-031-000	HD-1/ HD	Unknown/ E. Joiner Parkway	28.68	379
46	Por. 329-010-036-000	HD-1/ HD	654 Bella Breeze Drive	18.87	249
47	Por. 329-010-036-000	HD-1/ HD	654 Bella Breeze Drive	26.31	347
48	021-340-042-000	HDR/ HD	Sorrento Parkway	5.9	90
49	021-321-078-000	HDR/ HD	Unknown/ Joiner Parkway	8.78	80
				245.57	**1805**
Commercial Parcels					
50	008-021-010-000	C	Unknown	0.29	3
51	008-021-006-000	C	Unknown	0.46	5
52	008-271-003-000	C	Unknown/ Third & E Streets	2.75	65
				3.5	**73**
Total					
				878.12	**4072**

Source: City of Lincoln

Figure C.3 City of Lincoln Land Use & Circulation Diagram



According to the City there are no significant environmental or infrastructure constraints on any of the undeveloped land shown Figure C.3 that would prevent these sites from being developed for residential use within the next five years. Water, sewer, and other necessary public facilities and services are either available, or can be readily expanded, to serve these underdeveloped sites.

Also identified in the 2008 Housing Element is the future residential development potential within the City. The following is a description of the available vacant land in the City and the number of units that could potentially be accommodated in low, medium, and high-density districts.

- Lincoln has approximately 245 acres of land zoned for high-densities (13-20 units per acre) that could accommodate up to 1,805 new dwelling units. These high-density zoned lands are located in the City's Zoning Ordinance designations R-3, R-PD, RD-20; and in the Lincoln Airpark, and Twelve Bridges (HD) Specific Plan/Planned Development areas. The City has been able to accommodate housing affordable to low- and very low-income households at presently zoned densities in R-3 district, even at the typically lower densities at which housing has been constructed (13 to 19 units per acre).
- Lincoln has approximately 160 acres of land zoned for medium-densities (8-12.9 units per acre) that could accommodate up to 736 new dwelling units. These medium density zoned lands are located in the City's Zoning Ordinance designations RD-8, MDR, and R-2; and in Twelve Bridges (MD Specific Plan/Planned Development area.
- Lincoln has approximately 468 acres of land zoned for low-densities (0-5.9 units per acre) that could accommodate up to 1,458 new dwelling units. These low-density zoned lands are located in the City's Zoning Ordinance designations R-1, RE, and LDR-5; and in the Lincoln Crossing, Lincoln Airpark, Twelve Bridges (VLD and LD), Sorrento (Aitken Ranch) (LDR), Specific Plan/Planned Development areas.

More general information on growth and development in Placer County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Placer County Vulnerability and Assets at Risk of the main plan.

C.3.2 Estimating Potential Losses

Table C.2 above shows Lincoln's exposure to hazards in terms of number and value of total structures. Placer County's assessor's data was used to calculate the improved value of parcels. Generally, the most vulnerable structures are those in the floodplain or WUI areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern day building codes. Impacts of past events and vulnerability to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on Placer County).

Drought

The impact of a drought on the City of Lincoln is primarily one of water supply; however, the impact to natural resources in the area is also a concern. A multiple year drought can severely compromise the water supply within the district and adversely impact natural resources. Most recently, after 2 years of below-average rainfall and very low snow-melt run off, Governor Schwarzenegger, in June of 2008, declared a state of emergency for drought conditions statewide. The final California Department of Water Resources showed snowpack water content at only 67 percent of normal. With the unknowns of drought and globally changing climate conditions, the City continues to promote water conservation throughout the community.

Flood

Lincoln is traversed by several stream systems that collect and convey storm runoff to the west, towards the Cross Canal collection system, ultimately discharging into the Sacramento River near its confluence with the Feather River in Sutter County. The primary stream systems in the City include: Auburn Ravine (including Orchard Creek and Ingram Slough tributaries); Markham Ravine (including Clay Creek and Markham Ravine South, and Markham Ravine Central tributaries); and Coon Creek.

The City of Lincoln is at risk to both the 100-year flood as well as to localized stormwater flooding.

According to the Safety Element of Lincoln's General Plan, rainy season floods most commonly occur from November through April. Periods of prolonged, heavy rainfall create large runoff volumes and high peak stream flows. Flooding is more severe when previous rainfall has saturated the ground surface and subsurface. This is due to clay nature of the soils as well as the prevalence of an impermeable subsurface throughout most of the Lincoln area, which can result in some areas of standing water and localized flooding. Other localized flooding hazards are caused by obstacles to natural drainage flows, such as the railroad and highway bridges along SR 65 at the Auburn Ravine. During periods of high runoff, these structures tend to act as barriers, causing water to back up east of the highway into natural depressions and south between the railroad tracks and SR 65.

Cloudburst storms, sometimes lasting as long as three hours, can occur any time from the late fall to early spring, and may occur as an extremely severe sequence within a general winter rainstorm. These are high intensity storms that can produce peak flows equal or somewhat greater that those of general rainstorms in parts of the City. Flooding from cloudburst is characterized by high peak flow, short duration of flood flow, and a small volume of runoff.

A general lack of curbs and gutters in parts of the City and locally inadequate or incomplete storm drains results in standing water that is both a nuisance and a potential hazard.

Areas with the most significant flood hazards are the natural drainage channels of Auburn and Markham Ravines and their tributaries and localized areas due to inadequate surface flow. Recent flood history taken from the City of Lincoln General Plan Background Report includes:

Auburn Ravine: The City has recorded several flooding events in the recent past involving structures along the Auburn Ravine corridor and its tributaries in the City of Lincoln. In 1986, 1995 and 1997, the Auburn Ravine bridge structures at State Route 65 and State Route 193 were overtopped. The existing bridge at the Joiner Parkway crossing of Auburn Ravine did not flood in these events and would not be expected to flood in an event less than the 500-year. Downstream from the City of Lincoln, flooding was also noted at the Moore Road and Nelson Lane crossings. Several smaller private crossings overtop frequently. Along the south bank of Auburn Ravine, west of State Route 65, Moore Road parallels the creek and is known to flood often. This road was abandoned with the South Lincoln Master Drainage Plan (SLMP) improvements east of Joiner Parkway, and culvert improvements were made west of Joiner Parkway to improve conveyance capacity. Flooding of the roadway is still expected west of Joiner Parkway as a result of flood stages in Auburn Ravine greater than the 10-year event.

More recently, the New Year's Eve event of 2005/2006 did not result in overtopping of any of the main bridge structures along the ravine (SR 193, SR 65 and Joiner Parkway). Moore Road along the south bank was flooded both east and west of Joiner Parkway. The Moore Road and Nelson Lane crossings were reported as overtopped. The storm was estimated to be a 10-year event for Auburn Ravine and a lesser event in the tributaries.

In Orchard Creek, flooding of Fiddyment Road is expected in greater than the 5-year event. Flooding of private drives and agricultural fields is also noted in the SLMP floodplain analysis. Flooding at the Fiddyment Road crossing was not reported in the New Year's Eve 2005/2006 event.

At Ingram Slough, significant flooding of the field areas on each side of the slough was noted prior to the construction of the SLMP improvements. Also, reports from local residents indicated that in 1986 and 1995, flows from Auburn Ravine overtopped the southern bank and flowed via overland release into Ingram Slough. The SLMP designed for this issue by constructing a control weir at the south bank of Auburn Ravine, upstream of State Route 65, and an interconnection channel to convey the spillway flows safely to Ingram Slough. Downstream improvements in the SLMP increase conveyance capacity to accommodate the combined flows from Ingram Slough and the Auburn Ravine spills. Flooding has not been experienced in the Slough since the construction of the SLMP improvements began in 1988.

Markham Ravine: Flooding within Markham Ravine is known to occur mostly in the rural areas of the City, where culvert and bridge crossings do not provide adequate capacity. East of State Route 65, flooding occurs at Gladding Road and McCourtney Roads annually. West of State Route 65, flooding has occurred at the low areas of Nicolaus Road (not at the bridge location). At Nelson Lane flooding is expected annually. The SR 65 Bridge is expected to

overtop in storm events greater than the 10-year, and the Union Pacific Railroad Bridge is only expected to be overtopped in a 50-year or greater event. These estimates were supported by the New Year's Eve 2005/2006 event. Other private crossings of the Ravine are expected to overtop annually.

At the North Tributary, Clay Creek, shallow flooding in the remaining natural areas of the creek is still expected. The developed areas of the Creek are protected from flooding in the 100-year event.

At the southern tributary, 100-year protection is provided from Joiner Park, downstream to the City Limits. Shallow flooding beyond the stream banks is expected in flood events, in the natural stream areas downstream of Joiner Parkway. Upstream of Joiner Park, the existing channel and storm drain systems may not provide 100-year protection to the existing residential areas in the 5th-8th Street Corridor between H Street and Q Street.

Coon Creek: Very little is known about the flooding conditions of Coon Creek at this time. No detailed study of the watershed hydrology has been performed since the "Cross Canal Watershed Study" was performed by CH2MHILL in 1988. As part of an effort on the North Lincoln Master Drainage Plan (NLMDP), shed boundaries for the Coon Creek watershed were verified. Many issues with the watershed assumptions of the Cross Canal Study of 1988 were found. It was recommended that the City try to obtain County participation in producing a rectified hydrology study for the watershed, as part of the NLMDP efforts.

Values at Risk

The City of Lincoln uses FEMA's Flood Insurance Rate Map (FIRM) information to assess flood risk (100-and 500-year flood) and infrastructure mitigation. Based on analysis of FIRM map information and Placer County Assessor's data, Tables C.8 and C.9 summarize the values at risk in the City's floodplain. Table C.8 shows the parcel count and improvement value of parcels that fall in the 100-year flood zone, 500-year flood zone, and Zone X (all remaining areas outside of 100-year and 500-year floodplains) by property type.

Table C.8. Number and Structure Value of Parcels in Floodplain by Type of Flood—City of Lincoln

	100-year flood		500-year flood		Zone X	
Property Type	# of parcels	structure value	# of parcels	structure value	# of parcels	structure value
Agriculture	-	-	-	-	11	$0
Commercial	2	$196,820	1	$0	311	$351,934,836
Industrial	6	$8,059,390	-	-	111	$56,963,469
Miscellaneous	20	$0	21	$0	830	$60,513
Open Space	17	$0	9	$0	125	$4,421,100

	100-year flood		500-year flood		Zone X	
Residential	78	$26,915,879	525	$164,757,662	16,821	$4,048,206,444
Total	**123**	**$35,172,089**	**556**	**$164,757,662**	**18,209**	**$4,461,586,362**

Sources: 2007 Certified Roll Values, Placer County Assessor's Office; Digital Flood Insurance Rate Map Placer County, California and Incorporated Areas, 2007, FEMA
*Includes Zones A, AE, AH, and AO
**Includes Shaded Zone X (500-year) and all 100-year flood zones

Based on this analysis, the City of Lincoln has significant risk to the 100-year and greater floods. 123 improved parcels are located within the 100-year floodplain with a structure value of over $35 million. An additional 556 parcels valued at roughly $164 million fall within the 500-year floodplain, though there is significantly lower probability of occurrence for flooding of this magnitude.

Table C.9 shows the number of parcels, structure value, contents value and total loss estimate for a 100-year flood, 500-year flood, and 100-year and 500-year flood zones combined. The loss estimate is derived by assuming 20 percent of total value (structure value plus contents value) will be lost in the event of flooding impacts.

Table C.9. Flood Loss Estimates—City of Lincoln

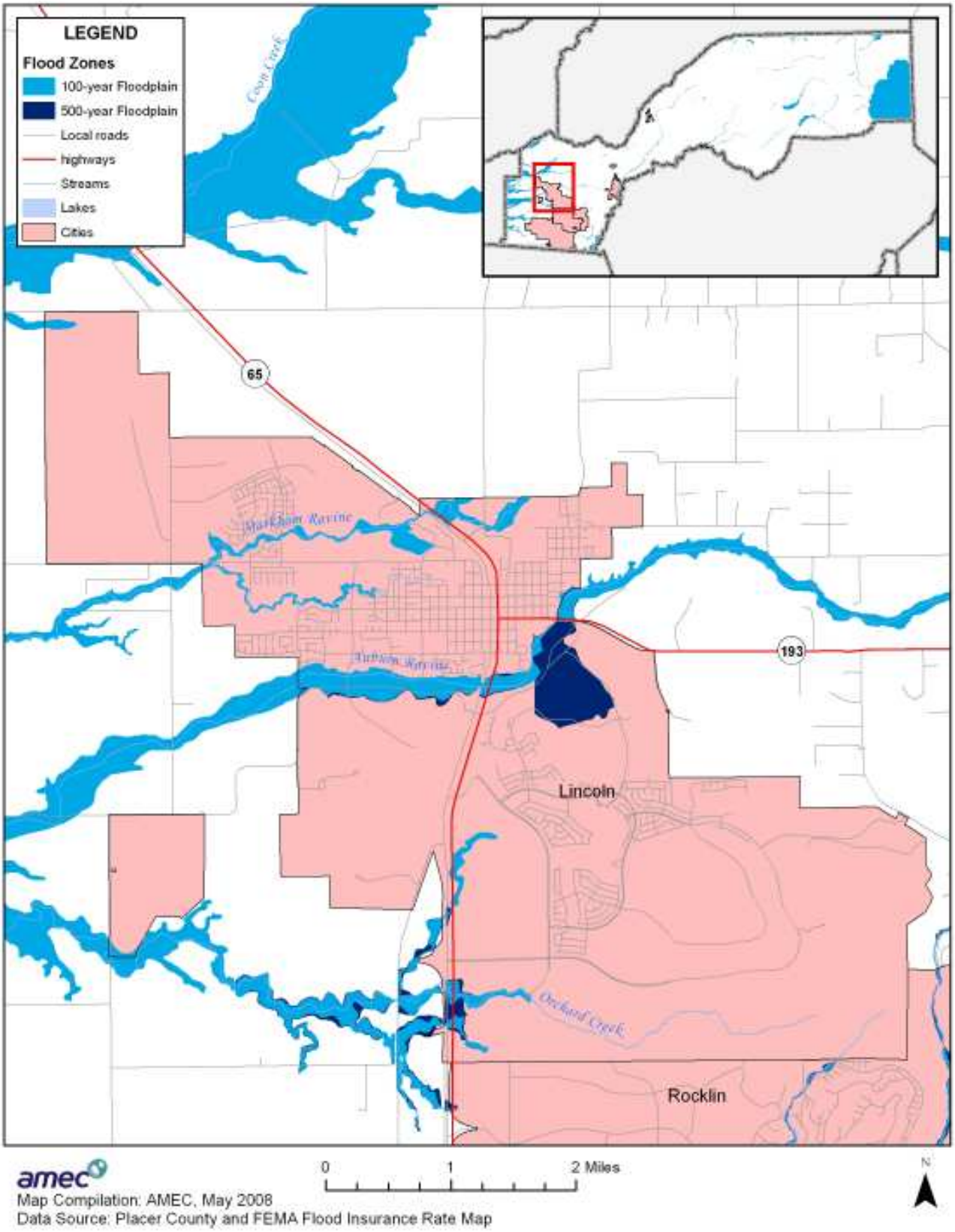
	Number of parcels	Structure Value	Estimated Contents Value	Total Value	Loss Estimate
100-year flood	123	$35,172,089	$17,586,045	$52,758,134	$10,551,627
500-year flood	556	$164,757,662	$82,378,831	$247,136,493	$49,427,299
Total*	679	$199,929,751	$99,964,876	$299,894,627	$59,978,925

Sources: 2007 Certified Roll Values, Placer County Assessor's Office; Digital Flood Insurance Rate Map Placer County, California and Incorporated Areas, 2007, FEMA
*Includes 500-year and all 100-year flood zones

After applying the 20 percent damage factor as previously described in Section 4.3.2, there is a 1.0 percent chance in any given year of a 100-year flood causing roughly $10.5 million in damage in the City of Lincoln and a .2 percent chance in any given year of a 500-year flood causing roughly $60 million in damage (combined damage from both floods). The limitation of this model is that it may include structures in the floodplains that are elevated at or above the level of the base-flood elevation, which would likely lessen the actual flood damage. Regarding the accuracy of source data, the assessed values are well below the actual market values. Thus, the actual value of assets at risk may be significantly higher than those included herein.

Figure C.4 shows areas of Lincoln potentially affected by 100-year or 500-year floods.

Figure C.4. City of Lincoln 100-Year and 500-Year Floodplains



Population at Risk

Based on information from HAZUS-MH (Census 2000) and the digital flood insurance rate map, the City of Lincoln has 443 persons residing in 100-year flood zones, or 1.0 percent of the City's population. An additional 23 persons reside in the 500-year floodplain, or roughly 0.05 percent of the City's population.

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. Table C.10 lists the critical facilities in the City's 100- and 500-year floodplains, and Figure C.5 illustrates their locations. The impact to the community could be great if these critical facilities are damaged or destroyed during a flood event.

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. Table C.10 lists the critical facilities in the City's 100- and 500-year floodplains. There is only one critical facility in the City's 100-year floodplain and none in the 500-year floodplain.

Table C.10. Critical Facilities in the 100 and 500 year Floodplains: City of Lincoln

LINCOLN	
100-year Floodplain	
CalARP Facility	Sierra Pacific Industries

Source: Placer County GIS

Insurance Coverage, Claims Paid, and Repetitive Losses

The City of Lincoln joined the National Flood Insurance Program (NFIP) on February 3, 1983. The City does not participate in the Community Rating System (CRS). Table C.11 identifies the existing FIRM maps within the city limits.

Table C.11. FIRMs for NFIP Community #06061C0—City of Lincoln

Map Number	Effective Date
06061C0382F	06/08/1998
06061C0400F	06/08/1998
06061C0401F	06/08/1998
06061C0403F	06/08/1998
06061C0404F	06/08/1998
06061C0411F	06/08/1998
06061C0412F	06/08/1998

Source: FEMA

NFIP Insurance data indicates that as of October 30, 2007, there were 92 flood insurance policies in force in the City with $27,388,800 of coverage. Of the 92 policies, 90 were residential and 2 were nonresidential; nine of the policies were in A zones (the remaining 83 were in B, C, and X zones).

There have been 5 historical claims for flood losses totaling $65,571; two were in A zones and three were standard policies located in B, C or X zones. Two of these were for pre-FIRM structures; three were for post-FIRM structures. NFIP data further indicates that there are two repetitive loss (RL) buildings in the community. There have been a total of 5 RL losses. One of the RL buildings is located in the A zone, the other RL building is located outside of the 100-and 500-year floodplain in the B, C, or X zones.

Localized Flooding/Severe Weather Areas

Flooding and other issues caused by severe weather events-primarily heavy rains and thunderstorms-can often pose a risk to the community. Primary concerns include impacts to infrastructure which provides a means of ingress and egress throughout the community. Table C.12 identifies known and past occurrences of such areas and the associated problems encountered. This list is an initial inventory of key problem areas and is not intended to be a complete inventory of all problems and locations associated with severe weather events and localized flooding in the City of Lincoln.

Table C.12. City of Lincoln Localized Flooding Problem Areas

Road Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
Gladding Road	X			X			
Moore Road	X			X			
McCourtney Road	X			X			

Source: City of Lincoln

Severe Weather: Extreme Temperatures

Temperature extremes, whether extreme heat or extreme cold/freezing temperatures, tend to occur on an annual basis in Lincoln. Health impacts are the primary concern with this hazard, though economic impacts are also an issue. The elderly and individuals below the poverty level are the most vulnerable to extreme temperatures. Nursing homes and elder care facilities are especially vulnerable to extreme heat events if power outages occur and air conditioning is not available. In addition, individuals below the poverty level may be at increased risk to extreme heat if use of air conditioning is not affordable. Risk of exposure is a possibility for homeless persons during periods of extreme cold, though this is less common than extreme heat in western Placer County.

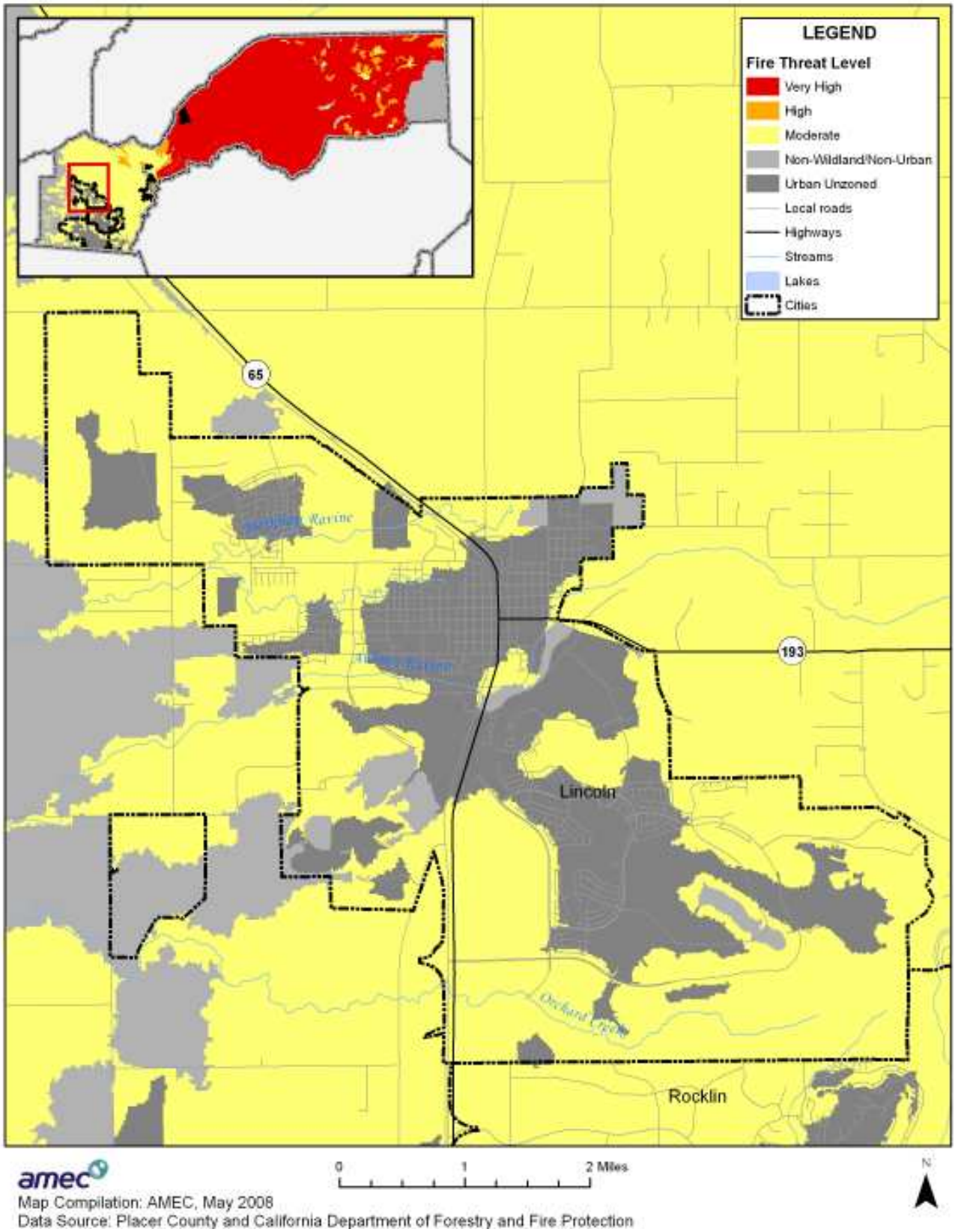
Weather data specific to the City of Lincoln is limited, but generally corresponds with temperature patterns of other cities in its vicinity, including Roseville, Rocklin and Loomis. Typical patterns for area cities are 85-90 days per year with high temperatures higher than or equal to 90 degrees and 40-45 days with low temperatures below 32 degrees.

Wildfire

The wildland fire season in the Sierra foothills typically lasts mid-June through early-October, although drought years or unusual weather may extend the period. Extreme weather conditions during periods of low humidity, low fuel moisture, and high winds also contribute to the severity of any potential wildfires. Fires occurring during these times typically burn hot and fast, and are difficult to control unless initial suppression occurs immediately. Lincoln has a significant amount of dry range grass that is susceptible to wildland fires that can move quickly if accompanied by a stiff breeze. In addition, there is a great potential for wildland fires in the more open hillside areas in the eastern part of the City.

Following the methodology described in Section 4.3.2 Vulnerability of Placer County to Specific Hazards, a wildfire map for the City of Lincoln was created (see Figure C.5). In general, the wildfire threat level is moderate in the outlying areas of the City.

Figure C.5. City of Lincoln Wildfire Threat



Values at Risk

Once the number of parcels and their values were determined, contents values were estimated (based on 50 percent of the assessed value) to determine total values at risk by hazard zone. Overlaying the fire hazard severity zone map with the County parcel layer, it is evident that the City of Lincoln has significant assets at moderate risk to wildfire as detailed in Tables C.13 and C.14. Of the 18,888 total parcels, 3,323 or 18 percent are unimproved and thus do not have structures that would be damaged. This analysis indicates that no parcels are located in high or very high wildfire threat areas.

Table C.13. Values at Risk from Wildfire by Fire Hazard Severity Zone—City of Lincoln

	Moderate		Urban Unzoned		Non-Wildland / Non-Urban	
Property Type	parcels	structure value	parcels	structure value	parcels	structure value
Agriculture	5	$0	4	$0	2	$0
Commercial	73	$194,994,563	227	$135,246,453	14	$21,890,640
Industrial	83	$27,127,753	34	$37,895,106	-	-
Miscellaneous	428	$0	349	$60,513	94	$0
Open Space	72	$21,100	74	$4,400,000	5	$0
Residential	7,158	$1,756,161,556	9,877	$2,448,892,051	389	$34,826,378
Total	**7,819**	**$1,978,304,972**	**10,565**	**$2,626,494,123**	**504**	**$56,717,018**

Source: Placer County and California Department of Forestry and Fire Protection; data analysis AMEC

Table C.14. Total Values at Risk from Wildfire—City of Lincoln

Wildfire Threat	Parcels	Structure Value	Estimated Contents Value	Total Value
Moderate	7,819	$1,978,304,972	$989,152,486	$2,967,457,458
High	-	-	-	-
Very High	-	-	-	-
Urban Unzoned	10,565	$2,626,494,123	$1,313,247,062	$3,939,741,185
Non-Wildland/Non-Urban	504	$56,717,018	$28,358,509	$85,075,527

Source: Placer County and California Department of Forestry and Fire Protection; data analysis AMEC

Populations at Risk

Wildfire risk is of greatest concern to populations residing in the moderate, high, and very high wildfire hazard zones. Following the methodology described in Section 4.3.2 Vulnerability of Placer County to Specific Hazards, Table C.15 provides an estimate of populations residing within the various wildfire hazard severity zones.

Table C.15. Populations at Risk to Wildfire: City of Lincoln

	Moderate	High	Urban- unzoned	Non-wildland / Non-urban	Totals
Lincoln	2,152	0	9,019	66	11,238

Source: Placer County and California Department of Forestry and Fire Protection; data analysis AMEC

Critical Facilities at Risk

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. There are no critical facilities in either the High or Very High Hazard zones

Other Hazards

Although ranked of lower planning significance relative to other hazards, the following information about earthquake hazards should still be noted:

Earthquake

Placer County is traversed by a series of northwest trending-faults that are related to the Sierra Nevada uplift. As previously discussed in Section 4.2.11 of the main plan, several active faults are located within the vicinity of Placer County and the City of Lincoln. The Cleveland Hills Fault is the closest active fault to the City, located over 40 miles north. The nearest mapped fault trace to the City is the Willow Fault. The northwest-southeast trending pre-Quaternary Willows fault zone, is located approximately 15 miles southwest of Lincoln; however, it is considered inactive for planning purposes.

According to the Safety Element, throughout recorded history, no major earthquakes have been recorded within the City. It further states that earthquakes on various active and potentially active San Francisco Bay Area fault systems could produce a wide range of groundshaking intensities within the vicinity of the City. However, the impacts to the City resulting from such an event would likely be less severe than those experienced closer to the source.

The greatest ground shaking in the immediate area occurred on April 21, 1892. The epicenter was between Winters and Vacaville in Yolo County. No fatalities occurred in the City and only minor structural damages resulted from the earthquake.

C.4 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; mitigation outreach and partnerships; and other mitigation efforts.

C.4.1 Regulatory Mitigation Capabilities

Table C.16 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the City of Lincoln.

Table C.16. City of Lincoln Regulatory Mitigation Capabilities

Regulatory Tool	Y/N	Comments
General plan	Yes	
Zoning ordinance	Yes	
Subdivision ordinance	Yes	
Growth management ordinance	No	
Floodplain ordinance	Yes	
Other special purpose ordinance (stormwater, steep slope, wildfire)	Yes	Stormwater
Building code	Yes	Title 24
BCEGS Rating	Yes	
Fire department ISO rating	Yes	
Erosion or sediment control program	Yes	
Stormwater management program	Yes	
Site plan review requirements	Yes	
Capital improvements plan	Yes	
Economic development plan	Yes	
Local emergency operations plan	Yes	
Other special plans	Yes	South Lincoln Master Drainage Plan
Flood insurance study or other engineering study for streams	Yes	
Elevation certificates	Yes	
Other		

Source: City of Lincoln

As indicated above, the City has several programs, plans, policies, codes, and ordinances in place and/or that they follow. The General Plan for the City of Lincoln is the most comprehensive. The following section provides an overview of the General Plan and identifies specific policies related to hazard mitigation that are included in the plan.

The City of Lincoln General Plan, 2008

The City of Lincoln General Plan serves as the blueprint for future growth and development and provides comprehensive planning for the future. It encompasses what the City is now, and what it intends to be, and provides the overall framework of how to achieve this future condition (see the discussion in Section 4.3.1 Growth and Development Trends).

The general plan includes a Safety Element that focuses on safety issues to be considered in planning for the present and future development of the Lincoln planning area. Identified hazards

include geologic/seismic, air quality, human-made, flooding, fires, public safety, and noise. Applicable mitigation-related goals, policies, and actions are presented below.

Table C.17 Lincoln General Plan Mitigation Related Goals and Policies

General - Goal HS-1:	**To minimize the danger of natural and Human-Made hazards and to protect residents and visitors from the dangers of earthquake, fire, flood other natural disasters, and man-made dangers.**
Policy HS-1.1:	Engineering Analysis of Potential Hazards: The City shall require engineering analysis of new development proposals in areas with possible soil instability, flooding, earthquake faults, or other hazards, and to prohibit development in high danger areas.
Geologic and Seismic Hazards Goal HS-2:	**To minimize exposure of persons and property to damage resulting from geologic and seismic hazards.**
Policy HS-2.1:	Seismic Safety of Structures: The City shall require that new structures intended for human occupancy are designed and constructed to minimize risk to the safety of occupants due to groundshaking.
Policy HS-2.2:	Limit Hillside Development: To limit development in areas with severe slopes.
Policy HS-2.3:	Development in Areas Subject to Geologic Hazards: The City shall discourage incompatible land uses from being located in areas subject to geologic or seismic hazards
Policy HS-2.4:	California Building Standard Code: The City shall continue to require that alterations to existing buildings and all new buildings be built according to the seismic requirements of the California Building Standard Code.
Flood Hazards Goal HS- 6:	**To minimize the risk of life and property of the City's residents from flood hazards.**
Policy HS-6.1:	Flood Protection: The City shall ensure that adequate flood protection is provided throughout the community.
Policy HS-6.2:	Drainage and Flood Control Facilities: The City will continue to cooperate and coordinate efforts with the Placer County Flood Control and Water Conservation District for the construction, operation, and maintenance of drainage and flood control facilities and where feasible provide for their joint use. This includes cooperation with Placer County, cities within Placer County, and Sutter County and special districts to provide regional flood control protection.
Policy HS-6.3:	Master Drainage Plans: The City shall require master drainage plans as a condition of approval for large development projects.
Policy HS-6.4:	New Residential Construction: The City shall require new residential construction to have its lowest habitable floor elevated above the base flood level elevation, determined by FEMA standards
Policy HS-6.5:	Stream Channels: The City shall prohibit development along stream channels that would reduce the stream capacity, increase erosion, or cause deterioration of the channel.
Policy HS-6.6:	Flood Insurance Program: The City shall continue to participate in the National Flood Insurance Program.
Urban and Wildland Fire Hazards Goal HS-7	**To minimize the risk of life and property to from urban and wildland fires.**
Policy HS-7.1:	Enforce Code/Ordinances: The City shall enforce the City building code, fire code, and ordinances in regard to fire safety and fire protection.
Policy HS-7.2:	Educate Residents of Fire Hazards: The City shall educate residents of urban and wildland fire hazards and safety measures.
Policy HS-7.3:	Wildland Fire Management Plans: The City shall require the development of wildland fire

	management plans for projects adjoining significant areas of open space that may have high fuel loads.
Policy HS-7.4:	Buffer Zones for Fire Protection: The City shall require new development to incorporate additional greenbelts, fuel breaks, fuel reduction and buffer zones around communities to minimize potential fire loses.
Policy HS-7.5:	Weed Abatement: The City shall maintain a weed abatement program to ensure clearing of dry brush areas. Weed abatement activities shall be conducted in a manner consistent with all applicable environmental regulations.
Emergency Response Goal HS-9	**To ensure the maintenance of the Emergency Response Plan in order to maintain its effectiveness in preparing and responding to a natural or human-made disaster.**
Policy HS-9.1	Emergency Response Plan: The City shall ensure that the Emergency Response Plan meets current federal, state, and local emergency requirements.
Policy HS-9.2	Coordinate Emergency Response Services with Local Agencies: The City shall continue to coordinate emergency response services with Placer County, other cities within Placer County, special districts, service agencies, voluntary organizations, and state and federal agencies.
Policy HS-9.3	Educate Public on Emergency Response: The City shall conduct training programs for staff in disaster preparedness.
Policy HS-9.4	Coordinate with Placer County: The City will strive to work with other local agencies including Placer County and cities within the County to develop coordinated geographical information systems (GIS) planning for emergency response services.
Policy HS-9.5	Sitting of Critical Emergency Responses: The City shall ensure that the sitting of critical emergency response facilities such as hospitals, fire stations, police offices, substations, emergency operations centers, and other emergency service facilities and utilities have minimal exposure to flooding, seismic and geological effects, fire, and explosions.

General Plan, Appendix H: Drainage and Surface Water Impacts and Constraints

As part of the General Plan Update process, Lincoln performed a detailed review of the proposed land use scenario as well as an impact analysis of the development expansion areas to the local and regional drainage systems. Appendix H of the General Plan contains a list of drainage related constraint issues, identifies hydraulically sensitive areas, and provides proposed guidelines for developing within and around those areas.

South Lincoln Master Drainage Plan/North Lincoln Master Drainage Plan

Regional master plans identify the needs of a watershed or portion thereof and formulate plans, programs, and policies for effective stormwater management. The plans coordinate facilities and policies, and help assure that all effects of watershed changes are identified, including especially the cumulative effects of many small-scale changes. These plans play an important role in a developing region by providing critical information and criteria for the coordinated planning and design of development projects in the watershed. In addition, appropriate on-site flood control facilities may be required, and offsite facilities are identified for which developers may be charged shares.

C.4.2 Administrative/Technical Mitigation Capabilities

Table C.18 identifies the personnel responsible for activities related to mitigation and loss prevention in Lincoln.

Table C.18. City of Lincoln Administrative and Technical Mitigation Capabilities

Personnel Resources	Yes/No	Department/Position
Planner/Engineer with knowledge of land development/land management practices	Yes	Community Development, Public Works
Engineer/Professional trained in construction practices related to buildings and/or infrastructure	Yes	Community Development, Public Works
Planner/Engineer/Scientist with an understanding of natural hazards	Yes	Community Development, Public Works
Personnel skilled in GIS	Yes	Community Development, Public Works
Full time building official	Yes	Community Development
Floodplain Manager	Yes	Engineer, Public Works
Emergency Manager	Yes	City Manager
Grant writer	Yes	Economic Development
Other personnel	Yes	Code Enforcement
GIS Data – Hazard areas	Yes	Public Works
GIS Data - Critical facilities	Yes	Public Works
GIS Data – Building footprints	No	
GIS Data – Land use	Yes	Community Development
GIS Data – Links to Assessor's data	Yes	Community Development
Warning Systems/Services	Yes	Lincoln Police Department

Source: City of Lincoln

C.4.3 Fiscal Mitigation Capabilities

Table C.19 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table C.19. City of Lincoln Fiscal Mitigation Capabilities

Financial Resources	Accessible/Eligible to Use (Yes/No)
Community Development Block Grants	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activities	Yes

Financial Resources	Accessible/Eligible to Use (Yes/No)
Withhold spending in hazard prone areas	Yes

Source: City of Lincoln

C.4.4 Mitigation Outreach and Partnerships

The City of Lincoln works cooperatively with the State Regional Board, the Central Valley Regional Water Quality Control Board, the Placer County Flood Control and Water Conservation District, and the neighboring jurisdictions of Rocklin, Roseville, Auburn, and Placer County.

C.4.5 Other Mitigation Efforts

The City of Lincoln has many other ongoing mitigation efforts that include the following:

- public awareness and information programs specific to emergency preparedness that include: e-mail bulletins, fire prevention events, police department events, police Community Services Officer conducts neighborhood meetings and writes newspaper articles, mailings with reminders on weed abatement for fire safety;
- implementation of the city's stormwater management program with public outreach (e-mail bulletins, newspaper articles, posters, and elementary school activities), regular inspections, and enforcement activities;
- adoption of new building code requirements with stricter fire construction standards;
- new Specific Plans/Planned Developments are required to prepare Wildfire Management Plans to identify responsibilities, funding, and ongoing methods to reduce potential damage and threat of wildfires;
- enforcement of existing Wildfire Management Plans and assisting private Homeowner Associations (HOAs) with their fuel reduction programs; and,
- implementation of fuel reduction methods identified in Open Space Management Plans for existing open spaces.

C.5 Mitigation Strategy

C.5.1 Mitigation Goals and Objectives

The City of Lincoln adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

C.5.2 NFIP Mitigation Strategy

The City is in the process of updating the Flood Plain Ordinance with stricter floodplain construction and protection requirements. The update is anticipated to be completed in 2009-2010.

Need input as to what the city is doing to comply now with the NFIP and what are the plans (1-5 years) to ensure continued compliancy with the NFIP and CRS program See item above.

C.5.3 Mitigation Actions

The planning team for the City of Lincoln identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included.

1. Fire Prevention and Fuels Management Plan

Hazards Addressed: Wildland Urban Interface and Open Space within the City of Lincoln's jurisdiction.

Issue/Background: The City of Lincoln has adopted a General Plan that will carry the City's growth and planning into the year 2050. The new General Plan calls for a balance of development and open space with the recommendation of maintaining 40 percent open space. This presents some significant maintenance and fire suppression challenges. Additionally it increases the fire prevention workload to monitor and provide for abatement. Access, abatement, fuels management, and staffing to address the increased incidents are just some of the problems forecasted in order to implement the new General Plan policies.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Currently the City of Lincoln has several fuels management plans in place for specific areas within the existing boundaries. Bringing forth a comprehensive plan to ensure continuity within the City's jurisdiction would aid in planning. Additionally, a funding mechanism would have to be developed in order to provide for adequate abatement and fuels modification which the Public Works and Fire Departments have not been able to provide.

Responsible Office: City of Lincoln Public Works and Fire Departments

Cost Estimate: Unknown, but would have to partially or fully rely on consultant services due to limited department staffing.

Benefits (Losses Avoided): Responses to such areas would be quicker with proper access. Incidents could be reduced in magnitude under normal environmental conditions (not including high fire danger weather events) by reducing fuel load. A comprehensive citywide plan would provide greater public safety without loss of desirable open space features. A comprehensive plan would provide higher protection for housing, commercial, and recreational components that border such areas.

Potential Funding: Grants, cooperation with other jurisdictions that have developed plans of this type.

Schedule: Continuous as the General Plan is implemented and the City of Lincoln realizes additional growth and development.

2. Flood Warning Program – System Implementation and Utilization

Issue/Background Statement: Purchase and install necessary software, rainfall and stream gages, training and tools to monitor precipitation and creek flood flows. Transmit preset warning parameters to City EMS systems. Add additional gauges.

Other Alternatives Considered (including No Action): No action. City would continue to respond to emergencies and flood warning based on citizen notifications.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): High

Cost Estimate/Potential Source of Funding: City has programmed $30,000 for funding period from 2004 to 2009. Grant funding is to be pursued for ongoing operation.

Cost Benefit: Early warning of flood conditions could assist in prioritizing emergency response, and prevent damage, and reduce risk of injury to citizens with flood fighting.

Schedule: Software Acquisition began in 2004. Schedule of current programming would continue through 2009.

3. State Route 65: Auburn Ravine Bridge - Reconstruct Bridge

Issue/Background Statement: The present bridge structure crossing SR 65 is antiquated and does not pass the 100-year storm event. In fact flooding of the roadway has occurred in storm events smaller than the 10-year. This is a major entryway to the City, and road closures at this location represent a serious risk to health, safety, and emergency services. Replacement of the bridge structure will involve adding capacity and raising roadway elevations to meet current design standards.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: Although this is a State highway project, the City's participation is estimated at $5.5 million.

Cost Benefit: The main benefit would be for the safety and welfare of the citizens of the City of Lincoln. State Route 65 south of Lincoln is one of three entry and exit points to the downtown area of the City. All three entry and exit points are projected to flood in the 100-year event,

which results in isolation of the downtown areas. Auburn Ravine also bisects the historical areas of the City from the newly developing South Lincoln Master Plan area. Roadway closures at this location would prevent emergency services from being able to provide service across this waterway.

Schedule: 2006 to 2008.

4. State Route 193: Auburn Ravine Bridge - Additional 110' Span

Issue/Background Statement: The existing State Route 193 Bridge at Auburn Ravine does not meet City requirements for freeboard in the 100-year design storm event. A new bridge span of 110 feet located in the overbank areas would provide additional conveyance capacity, but roadway elevations at SR-193 would also need to be raised.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: The estimated $5,500,000 for the project is anticipated to be budgeted in 2011-2012. Much of the roadway elevating at the existing structure was performed by a previous CAL Trans project.

Cost Benefit: This project is necessary for health and safety issues relating to emergency service accessibility during a major flood event. This is also one of three major access points to the historical downtown Lincoln area.

Schedule: 2011-2012.

5. Lakeview Farms Regional Volumetric Mitigation Facility

Issue/Background Statement: Newly developing areas of the Markham Ravine and Coon Creek watersheds, which are a part of the current general plan, and which have not previously been studied for potential peak flow and volumetric impacts will require the development of mitigation facilities.

Other Alternatives Considered (including No Action): Require project by project mitigation or No Action which would result in downstream impacts.

Responsible Office/Person: City of Lincoln Public Works Department**.**

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $4,000,000: Combination of City and Development Fees.

Cost Benefit: Reduces the potential for development impact at known flooding areas downstream of the City at Sutter County and the Cross Canal areas.

Schedule: Construction of future phases will be determined by development.

6. Gladding Parkway, State Route 65, McCourtney Road - Stream Restoration And Culvert Improvement

Issue/Background Statement: Project improvements include new culverts at Gladding Road at Markham Ravine, raising roadway elevations at the north/south stretch of Gladding Road and local storm drainage improvements for the streets.

Other Alternatives Considered (including No Action): Required by adapted master plan.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $1,840,000: Combination of City and Development Fees.

Cost Benefit: This project is necessary for health and safety issues relating to emergency service accessibility during a major flood event.

Schedule: Construction 2009-2010.

7. "O" Street Drainage Improvements

Issue/Background Statement: Modifications to the south tributary of Markham Ravine channel as it meanders through the City will be necessary to reduce flooding potential in the adjacent subdivisions. We are recommending that the invert be lowered to provide additional capacity to reduce flood elevations by zero to three feet.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $485,000: Combination of City and Development Fees.

Cost Benefit: An analysis of the existing storm drainage systems in the area shows that there is a potential of structural flooding and roadway flooding in a 100-year event.

Schedule: Construction 2010.

8. 7th Street Drainage Improvements

Issue/Background Statement: Significant surface flooding is known to occur in the area. An additional Storm drainage trunk pipeline is planned for 7th Street to extend storm drain service along this corridor and to relieve other existing systems which ultimately pick up this drainage area. The proposed system would bring the storm drainage protection to City Standards.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $915,000: Combination of City and Development Fees, grants.

Cost Benefit: Many of the roadways along this corridor flood during normal rainfall events, and access to the high school and residences is restricted. Several residents have complained that they fear the flood waters and have witnessed encroachment of floodwater in their yards, which may encroach into their structures in larger storms.

Schedule: Construct as funds available.

9. Auburn Ravine at State Route 193 Bridge

Issue/Background Statement: Significant sediment and debris accumulate at the "chevron" style piers and abutments. Full bridge capacity needs to be restored for flood protection

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $90,000: Re-occuring item is programmed $10,000 in permits and $35,000 in work every 4 years. Currently programmed through 2009. Ongoing operation and maintenance monitoring.

Cost Benefit: Improvements would reduce flood frequency upstream of SR 193 and increase flood protection back to the intended installation of the bridge structure.

Schedule: Ongoing.

10. Auburn Ravine at State Route 65 Bridge

Issue/Background Statement: Significant sediment and debris accumulate at the invert and abutments of the bridge. Full bridge capacity needs to be restored for flood protection. The

accumulation of sediment in this location also results in a significant sediment accumulation issue upstream.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): H

Cost Estimate/Potential Source of Funding: $90,000: Re-occurring item is programmed $10,000 in permits and $35,000 in work every 4 years. Currently programmed through 2009. Ongoing operation and maintenance monitoring.

Cost Benefit: Improvements would reduce flood frequency upstream of SR 65 and increase flood protection back to the intended installation of the bridge structure.

Schedule: Ongoing.

11. Ingram Slough - Orchard Creek Return Channel

Issue/Background Statement: This project is located east of the Lincoln Crossings Development at the Nader Property. The Construction of the channel provides a gravity release for the new channels constructed through the Lincoln Crossings development and reduces floodplain elevations and floodplain inundation areas.

Ot**her Alternatives Considered (including No Action**): No action would result in a large shallow overspill area with limited development potential.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): M

Cost Estimate/Potential Source of Funding: $1,568,946: Combination of City and Development Fees.

Cost Benefit: The construction of the channel would bring 100-year flood elevations within Ingram Slough at the Lincoln Crossing development to City Standard Freeboard requirements, however, the interim operation would not be expected to cause any structural damages.

Schedule: Dependent on Nader Ranch/Village 7 development.

12. Markham Ravine - Updated FEMA Analysis And Mapping

Issue/Background Statement: Detailed mapping and analysis will be performed for the Markham Ravine watershed. Evaluation and updating of existing FEMA mapping will be accomplished.

Other Alternatives Considered (including No Action): Required by master plan.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): M

Cost Estimate/Potential Source of Funding: $180,000 Development Fees.

Cost Benefit: Precise definition of 100 years flood allows for construction to be set at required criteria. Verification of base flood data will help to determine if any flood protection deficiencies exist in this system.

Schedule: Completion 2012.

13. Markham Ravine Drainage Improvements - Union Pacific Railroad & State Route 65 Crossings

Issue/Background Statement: Modification of the existing UPRR and SR 65 crossings at Markham Ravine will be necessary to provide 100-year protection at these structures.

Other Alternatives Considered (including No Action): No action.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): M

Cost Estimate/Potential Source of Funding: $402,000 Development Funds.

Cost Benefit: The main benefit would be the safety and welfare of the citizens of the City of Lincoln. State Route 65 north of Lincoln is one of three entry and exit points to the downtown area of the City. All three are projected to flood in the 100-year event, which results in isolation of the downtown areas.

Schedule: 2012, dependent on SR6 5 reversion to city.

14. Auburn Ravine Stream Restoration Projects (Analysis and Repairs)

Issue/Background Statement: Auburn Ravine is one of the three major watercourses in the City. The previously defined streambed may have been altered by improper encroachment into the floodplain, which changed sediment loading conditions, or acts of nature, resulting in changes to the flow regimes. This task will analyze and recommend specific areas of improvement.

Other Alternatives Considered (including No Action): Leaving stream unrepaired results in erosion potential, and the potential of additional deposition downstream of the City, which reduces conveyance capacity.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): L

Cost Estimate/Potential Source of Funding: $400,000: Combination of City and Development Fees, grants.

Cost Benefit: Creek restoration improvements to include restoring the channel's cross section for maximum flow, efficient transportation of sediment, and restoration of the ecosystem.

Schedule: As funding becomes available.

15. Markham Ravine Streambed Restoration Projects (Analysis Only)

Issue/Background Statement: The existing streambed of Markham Ravine must be evaluated to determine what is necessary to restore the creek section to optimum capacity for flow of water and sediment transport.

Other Alternatives Considered (including No Action): This stream is extremely sensitive to the large amounts of attenuation currently present. Changes in the sediment loading of this system could reduce the storage capacity of the system and result in significant increases to peak flow rates and flooding potential.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): L

Cost Estimate/Potential Source of Funding: $90,000: Combination of City and Development Fees, grants.

Cost Benefit: Determination can be made of deficiencies

Schedule: As funding becomes available.

16. Coon Creek Streambed Restoration Projects (Analysis Only)

Issue/Background Statement: The existing streambed of Coon Creek must be evaluated to determine what is necessary to restore the creek section to optimum capacity for flow of water and sediment transport.

Other Alternatives Considered (including No Action): Identification of potential problems can lead to solutions.

Responsible Office/Person: City of Lincoln Public Works Department.

Priority (H, M, L): L

Cost Estimate/Potential Source of Funding: $90,000: Combination of City and Development Fees, grants.

Cost Benefit: Determination of deficiencies can lead to solutions.

Schedule: As funding comes available.