Hazus: Earthquake Global Risk Report

Region Name: OakRidgeonshore

Earthquake Scenario: oakridgeonshoreellbg_m7p16_se

Print Date: April 23, 2024

Disclaimer:

Totals only reflect data for those census tracts/blocks included in the user's study region.

The estimates of social and economic impacts contained in this report were produced using Hazus loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

Hazus-MH is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency (FEMA) and the National Institute of Building Sciences. The primary purpose of Hazus is to provide a methodology and software application to develop multi-hazard losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from multi-hazards and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 12 county(ies) from the following state(s):

California

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 69,052.05 square miles and contains 5,570 census tracts. There are over 8,096 thousand households in the region which has a total population of 24,227,821 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 6,903 thousand buildings in the region with a total building replacement value (excluding contents) of (millions of dollars). Approximately 90.00 % of the buildings (and % of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 286,493 and 179,133 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 6,903 thousand buildings in the region which have an aggregate total replacement value of (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

In terms of building construction types found in the region, wood frame construction makes up 87% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

Hazus breaks critical facilities into two (2) groups: essential facilities and high potential loss facilities (HPL). Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 342 hospitals in the region with a total bed capacity of 63,377 beds. There are 7,739 schools, 1,376 fire stations, 459 police stations and 122 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

Within Hazus, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 1 and 2.

The total value of the lifeline inventory is over 465,626.00 (millions of dollars). This inventory includes over 12,274.56 miles of highways, 11,679 bridges, 258,124.35 miles of pipes.

Table 1: Transportation System Lifeline Inventory

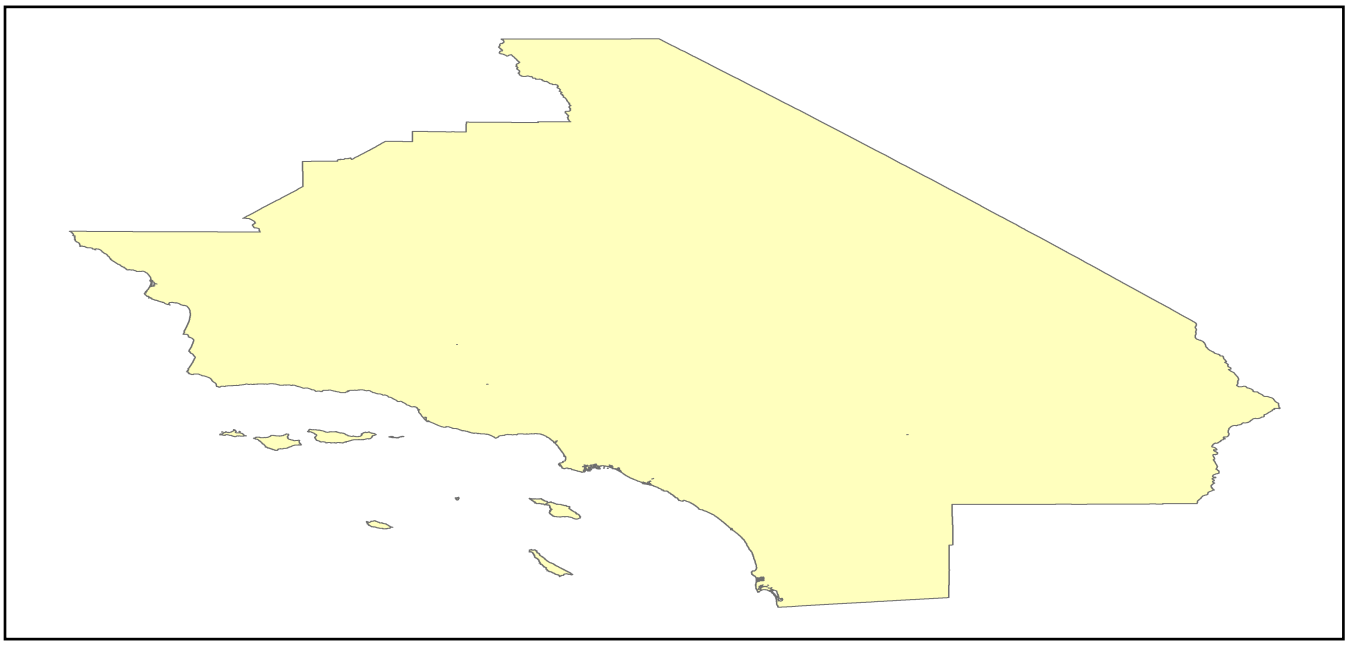
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	11,679	67279.7630
	Segments	10,050	125652.3893
	Tunnels	62	553.5147
		Subtotal	**193485.6670**
Railways	Bridges	1,771	10076.9900
	Facilities	113	300.9190
	Segments	1,872	65722.4287
	Tunnels	0	0.0000
		Subtotal	**76100.3377**
Light Rail	Bridges	51	13.2750
	Facilities	149	3200.8000
	Segments	8	5399.1047
	Tunnels	0	0.0000
		Subtotal	**8613.1797**
Bus	Facilities	45	97.2975
		Subtotal	**97.2975**
Ferry	Facilities	22	29.2820
		Subtotal	**29.2820**
Port	Facilities	354	1349.3930
		Subtotal	**1349.3930**
Airport	Facilities	161	4796.8463
	Runways	179	2021.1676
		Subtotal	**6818.0139**
		Total	**286,493.20**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	5126.4587
	Facilities	51	2003.9940
	Pipelines	0	0.0000
		Subtotal	**7130.4527**
Waste Water	Distribution Lines	NA	3075.8752
	Facilities	121	20806.1678
	Pipelines	0	0.0000
		Subtotal	**23882.0430**
Natural Gas	Distribution Lines	NA	2050.5835
	Facilities	44	1599.3257
	Pipelines	357	18649.1731
		Subtotal	**22299.0823**
Oil Systems	Facilities	68	8.0240
	Pipelines	0	0.0000
		Subtotal	**8.0240**
Electrical Power	Facilities	578	125759.6132
		Subtotal	**125759.6132**
Communication	Facilities	459	54.1620
		Subtotal	**54.1620**
		Total	**179,133.40**

Earthquake Scenario

Hazus uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.



Scenario Name	oakridgeonshoreellbg_m7p16_se
Type of Earthquake	User-defined
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	NA
Latitude of Epicenter	NA
Earthquake Magnitude	7.16
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 56,407 buildings will be at least moderately damaged. This is over 1.00 % of the buildings in the region. There are an estimated 1,501 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the Hazus technical manual. Table 3 below summarizes the expected damage by general occupancy for the buildings in the region. Table 4 below summarizes the expected damage by general building type.

Damage Categories by General Occupancy Type

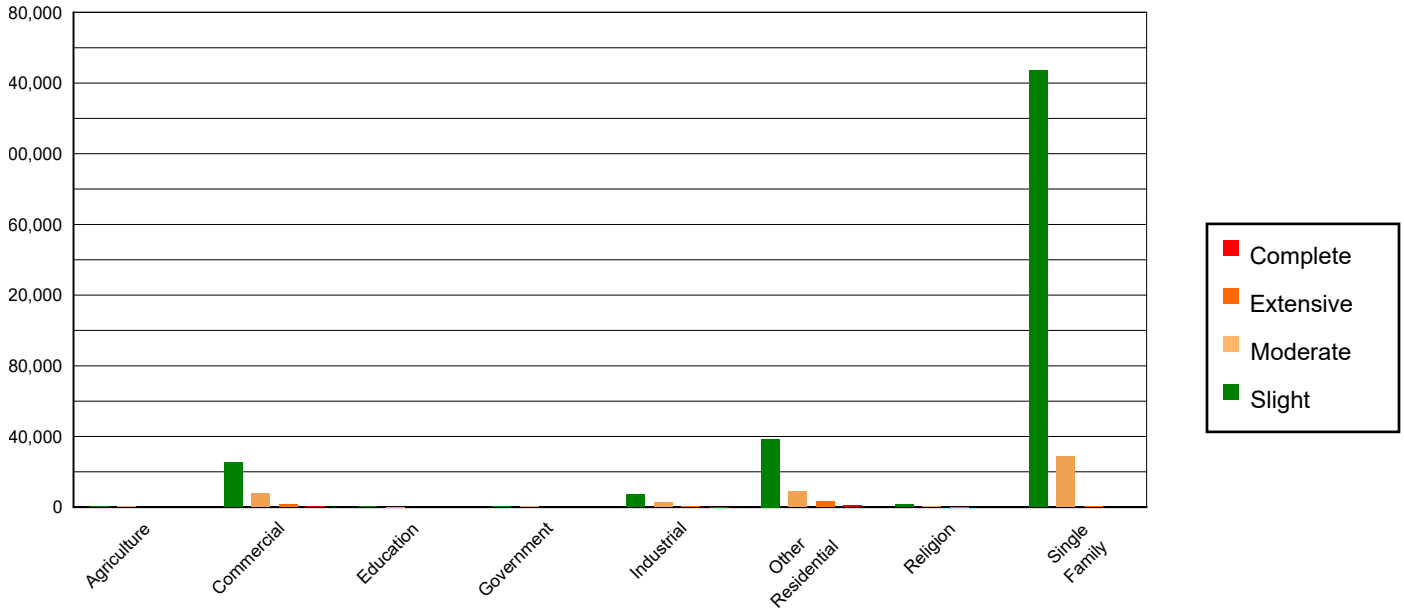


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	18142.00	0.28	472.86	0.15	229.33	0.46	52.25	0.96	9.56	0.64
Commercial	435095.87	6.67	25056.08	7.81	7879.92	15.94	1262.43	23.14	300.69	20.03
Education	12580.34	0.19	419.88	0.13	121.30	0.25	11.74	0.22	2.73	0.18
Government	34501.98	0.53	610.83	0.19	321.70	0.65	74.99	1.37	10.49	0.70
Industrial	112085.78	1.72	7042.94	2.20	2801.35	5.66	568.69	10.42	118.24	7.88
Other Residential	1018103.43	15.60	38646.45	12.05	9111.34	18.43	3090.66	56.65	1040.12	69.29
Religion	22251.41	0.34	1358.38	0.42	467.45	0.95	102.71	1.88	16.04	1.07
Single Family	4873608.49	74.68	247224.80	77.06	28517.93	57.67	292.53	5.36	3.24	0.22
Total	**6,526,369**		**320,832**		**49,450**		**5,456**		**1,501**	

Table 4: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	5727313.17	87.76	278202.47	86.71	31872.99	64.45	411.53	7.54	15.17	1.01
Steel	114411.95	1.75	8271.79	2.58	3909.53	7.91	971.28	17.80	276.59	18.43
Concrete	112781.96	1.73	8564.12	2.67	2688.44	5.44	667.79	12.24	245.55	16.36
Precast	52830.98	0.81	3711.91	1.16	2154.15	4.36	350.48	6.42	32.37	2.16
RM	292167.13	4.48	10834.44	3.38	3437.25	6.95	435.51	7.98	12.18	0.81
URM	22934.17	0.35	6104.09	1.90	1857.82	3.76	219.00	4.01	185.13	12.33
MH	203929.94	3.12	5143.41	1.60	3530.15	7.14	2400.43	44.00	734.13	48.91
Total	**6,526,369**		**320,832**		**49,450**		**5,456**		**1,501**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 63,377 hospital beds available for use. On the day of the earthquake, the model estimates that only 59,897 hospital beds (95.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 98.00% of the beds will be back in service. By 30 days, 99.00% will be operational.

Table 5: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	342	5	0	330
Schools	7,739	147	5	7,428
EOCs	122	1	1	117
PoliceStations	459	8	1	441
FireStations	1,376	14	1	1,334

Transportation Lifeline Damage

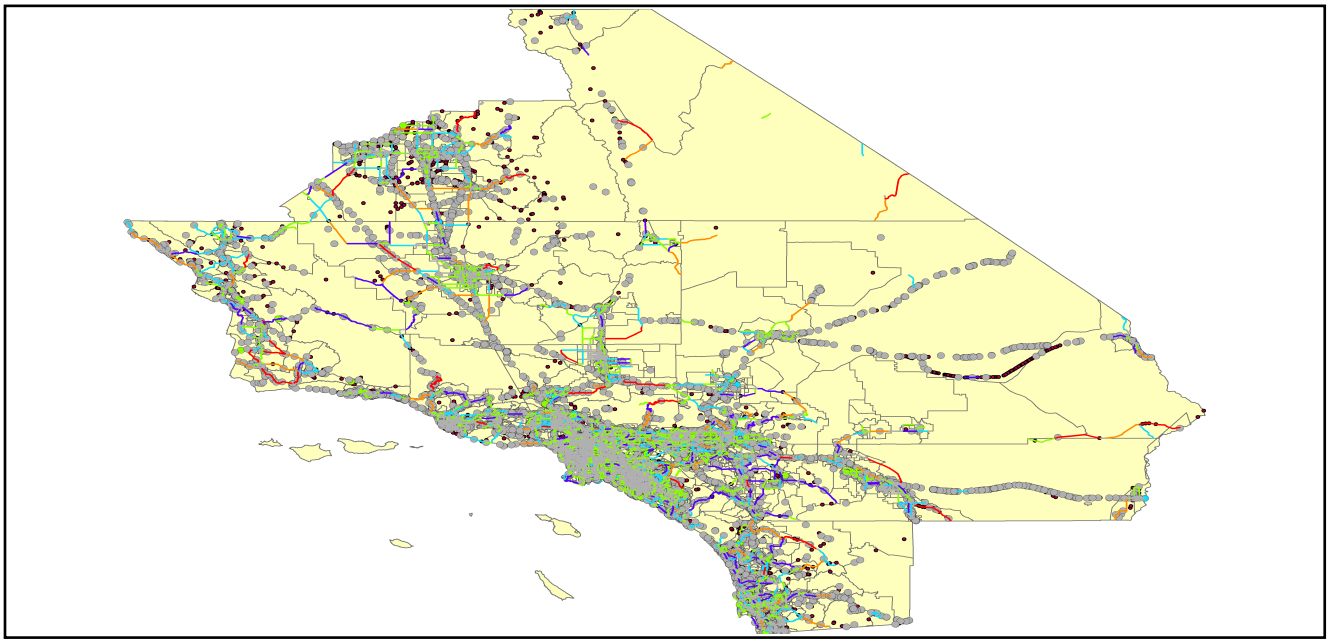


Table 6: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	10,050	0	0	10,050	10,050
	Bridges	11,679	32	2	11,653	11,670
	Tunnels	62	0	0	62	62
Railways	Segments	1,872	0	0	1,872	1,872
	Bridges	1,771	0	0	1,771	1,771
	Tunnels	0	0	0	0	0
	Facilities	113	2	0	113	113
Light Rail	Segments	8	0	0	8	8
	Bridges	51	0	0	51	51
	Tunnels	0	0	0	0	0
	Facilities	149	0	0	149	149
Bus	Facilities	45	1	0	45	45
Ferry	Facilities	22	0	0	22	22
Port	Facilities	354	0	0	354	354
Airport	Facilities	161	2	0	161	161
	Runways	179	0	0	179	179

Table 6 provides damage estimates for the transportation system.

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 7-9 provide information on the damage to the utility lifeline systems. Table 7 provides damage to the utility system facilities. Table 8 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, Hazus performs a simplified system performance analysis. Table 9 provides a summary of the system performance information.

Table 7 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	51	3	0	47	51
Waste Water	121	12	0	105	121
Natural Gas	44	6	0	38	44
Oil Systems	68	1	0	67	68
Electrical Power	578	19	0	564	576
Communication	459	19	0	447	459

Table 8 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	159,272	5437	1359
Waste Water	95,563	2731	683
Natural Gas	3,290	0	0
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	8,096,112	142,304	134,406	117,934	10,792	0
Electric Power		187,127	128,156	58,100	6,411	238

Induced Earthquake Damage

Fire Following Earthquake

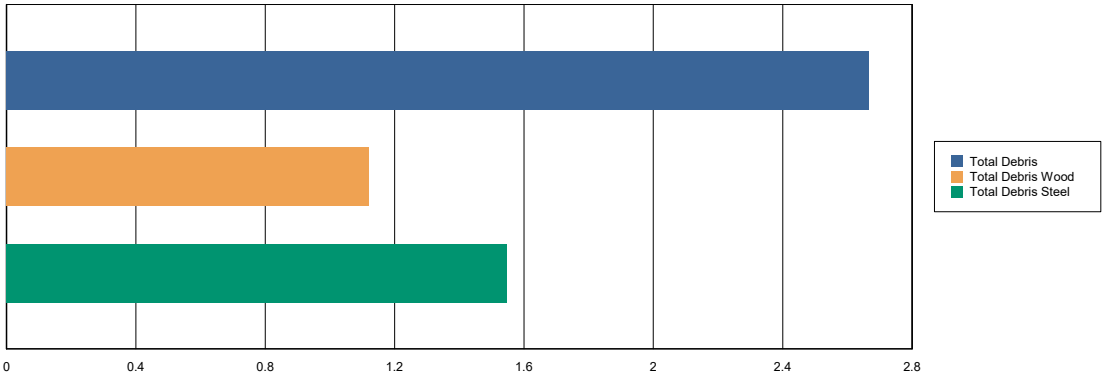
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 65 ignitions that will burn about 0.24 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 2,851 people and burn about 347 (millions of dollars) of building value.

Debris Generation

Hazus estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 2,666,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 42.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 106,640 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



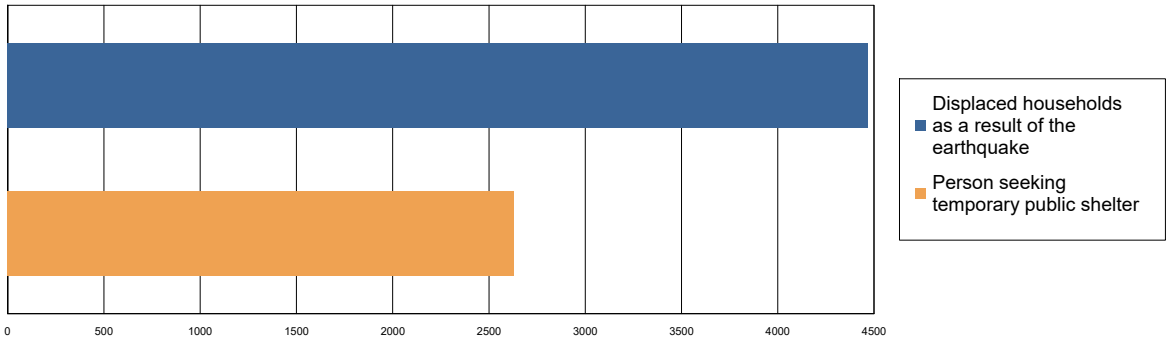
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
1.12	1.55	2.67	106,640 (@25 tons/truck)

Social Impact

Shelter Requirement

Hazus estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 4,469 households to be displaced due to the earthquake. Of these, 2,631 people (out of a total population of 24,227,821) will seek temporary shelter in public shelters.

Displaced Households/ Persons Seeking Short Term Public Shelter



Displaced households as a result of the earthquake	Persons seeking temporary public shelter
4,469	2,631

Casualties

Hazus estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 10 provides a summary of the casualties estimated for this earthquake

Table 10: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	18.89	3.07	0.35	0.68
	Commuting	0.31	0.43	0.71	0.14
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.94	0.13	0.01	0.03
	Industrial	25.91	4.39	0.48	0.93
	Other-Residential	849.44	136.73	13.33	25.23
	Single Family	623.16	28.75	0.06	0.10
	Total	**1,519**	**174**	**15**	**27**
2 PM	Commercial	1280.11	210.18	23.96	46.49
	Commuting	2.81	3.87	6.38	1.24
	Educational	489.97	76.12	7.95	15.33
	Hotels	0.18	0.03	0.00	0.01
	Industrial	189.99	32.30	3.53	6.80
	Other-Residential	249.89	40.17	3.96	7.29
	Single Family	171.23	8.20	0.03	0.04
	Total	**2,384**	**371**	**46**	**77**
5 PM	Commercial	919.97	153.58	17.73	33.95
	Commuting	56.00	77.03	127.19	24.77
	Educational	84.96	10.40	0.72	1.37
	Hotels	0.28	0.04	0.00	0.01
	Industrial	118.74	20.19	2.20	4.25
	Other-Residential	316.36	51.93	5.28	9.73
	Single Family	228.11	10.94	0.04	0.05
	Total	**1,724**	**324**	**153**	**74**

Economic Loss

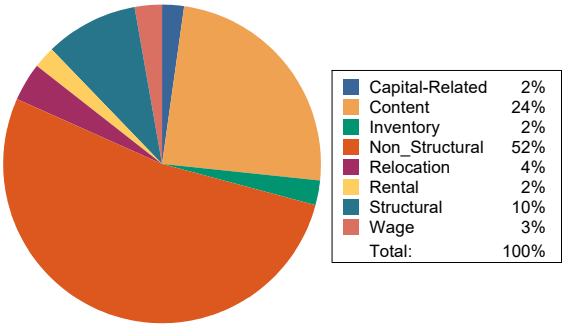
The total economic loss estimated for the earthquake is 32,658.14 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 24,356.44 (millions of dollars); 11 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 47 % of the total loss. Table 11 below provides a summary of the losses associated with the building damage.

Earthquake Losses by Loss Type ($ millions)



Earthquake Losses by Occupancy Type ($ millions)

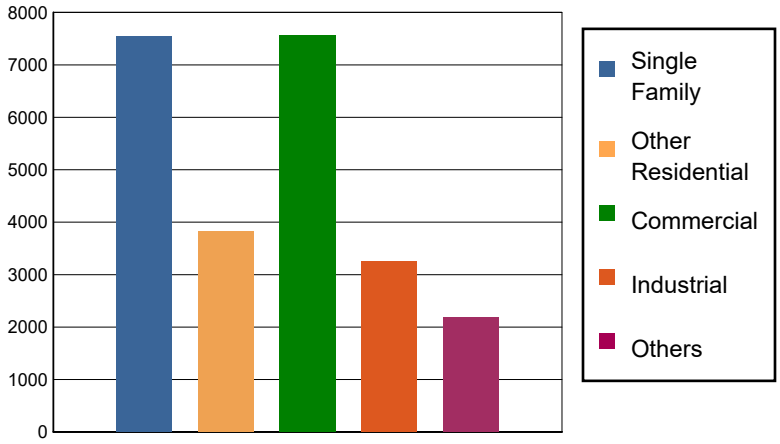


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	57.1602	526.7828	29.1632	51.7290	664.8352
	Capital-Related	0.0000	24.3049	473.9609	18.1010	14.8132	531.1800
	Rental	66.4330	165.1909	285.3581	17.4972	24.2606	558.7398
	Relocation	204.6008	112.5363	373.9649	80.9690	175.6867	947.7577
	Subtotal	**271.0338**	**359.1923**	**1660.0667**	**145.7304**	**266.4895**	**2702.5127**
Capital Stock Losses							
	Structural	725.2412	339.3459	723.0350	298.1758	235.2692	2,321.0671
	Non_Structural	4752.4634	2428.7245	3027.3292	1526.7932	1050.7197	12,786.0300
	Content	1788.4989	694.0851	1802.7584	1103.1387	577.0690	5,965.5501
	Inventory	0.0000	0.0000	345.5723	178.8911	56.8201	581.2835
	Subtotal	**7266.2035**	**3462.1555**	**5898.6949**	**3106.9988**	**1919.8780**	**21653.9307**
	Total	**7537.24**	**3821.35**	**7558.76**	**3252.73**	**2186.37**	**24356.44**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, Hazus computes the direct repair cost for each component only. There are no losses computed by Hazus for business interruption due to lifeline outages. Tables 12 & 13 provide a detailed breakdown in the expected lifeline losses.

Table 12: Transportation System Economic Losses
(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	125652.3893	0.0000	0.00
	Bridges	67279.7630	210.2742	0.31
	Tunnels	553.5147	0.4154	0.08
	Subtotal	**193485.6670**	**210.6896**	
Railways	Segments	65722.4287	0.0000	0.00
	Bridges	10076.9900	22.8750	0.23
	Tunnels	0.0000	0.0000	0.00
	Facilities	300.9190	12.8909	4.28
	Subtotal	**76100.3377**	**35.7659**	
Light Rail	Segments	5399.1047	0.0000	0.00
	Bridges	13.2750	0.0003	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	3200.8000	112.7380	3.52
	Subtotal	**8613.1797**	**112.7383**	
Bus	Facilities	97.2975	3.2806	3.37
	Subtotal	**97.2975**	**3.2806**	
Ferry	Facilities	29.2820	1.1615	3.97
	Subtotal	**29.2820**	**1.1615**	
Port	Facilities	1349.3930	53.9672	4.00
	Subtotal	**1349.3930**	**53.9672**	
Airport	Facilities	4796.8463	219.4806	4.58
	Runways	2021.1676	0.0000	0.00
	Subtotal	**6818.0139**	**219.4806**	
	Total	**286,493.17**	**637.08**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	2003.9940	69.0912	3.45
	Distribution Lines	5126.4587	24.4680	0.48
	Subtotal	**7130.4527**	**93.5592**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	20806.1678	670.6361	3.22
	Distribution Lines	3075.8752	12.2909	0.40
	Subtotal	**23882.0430**	**682.9270**	
Natural Gas	Pipelines	18649.1731	0.0000	0.00
	Facilities	1599.3257	51.6870	3.23
	Distribution Lines	2050.5835	4.2108	0.21
	Subtotal	**22299.0823**	**55.8978**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	8.0240	0.1104	1.38
	Subtotal	**8.0240**	**0.1104**	
Electrical Power	Facilities	125759.6132	6830.4154	5.43
	Subtotal	**125759.6132**	**6830.4154**	
Communication	Facilities	54.1620	1.7008	3.14
	Subtotal	**54.1620**	**1.7008**	
	Total	**179,133.38**	**7,664.61**	

Appendix A: County Listing for the Region

Inyo,CA

Kern,CA

Kings,CA

Los Angeles,CA

Orange,CA

Riverside,CA

San Bernardino,CA

San Diego,CA

San Luis Obispo,CA

Santa Barbara,CA

Tulare,CA

Ventura,CA

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
California					
	Inyo	19,016	2,951	1,970	4,921
	Kern	909,235	87,567	59,168	146,736
	Kings	152,486	13,719	7,861	21,581
	Los Angeles	10,014,009	950,697	566,995	1,517,692
	Orange	3,186,989	363,381	176,806	540,188
	Riverside	2,418,185	281,482	137,249	418,731
	San Bernardino	2,181,654	225,045	152,557	377,602
	San Diego	3,298,634	375,834	193,238	569,072
	San Luis Obispo	282,424	41,720	20,896	62,616
	Santa Barbara	448,229	49,971	28,481	78,452
	Tulare	473,117	43,262	31,210	74,472
	Ventura	843,843	99,299	52,072	151,371
Total Region		**24,227,821**	**2,534,928**	**1,428,503**	**3,963,434**

Oak Ridge onshore

Building Inspection Tagging (Counts)

Inspected		Restricted		Unsafe	
Residential	37.6K	Residential	3.38K	Residential	1.04K
Commercial	7.88K	Commercial	1.26K	Commercial	301
Industrial	2.8K	Industrial	569	Industrial	118
Agricultural	229	Agricultural	52.3	Agricultural	9.56
Educational	121	Educational	11.7	Educational	2.73
Government	322	Government	75	Government	10.5
Religious	467	Religious	103	Religious	16

Total Economic Loss

Total: $24.4B

Top Counties	State	Total
Ventura	CA	$13.4B
Los Angeles	CA	$10.4B
Orange	CA	$318M
Santa Barbara	CA	$165M
Kern	CA	$32.2M
San Bernardino	CA	$26.7M
Riverside	CA	$5.64M

Injuries & Fatalities

Total Day: 2.88K
Total Night: 1.73K

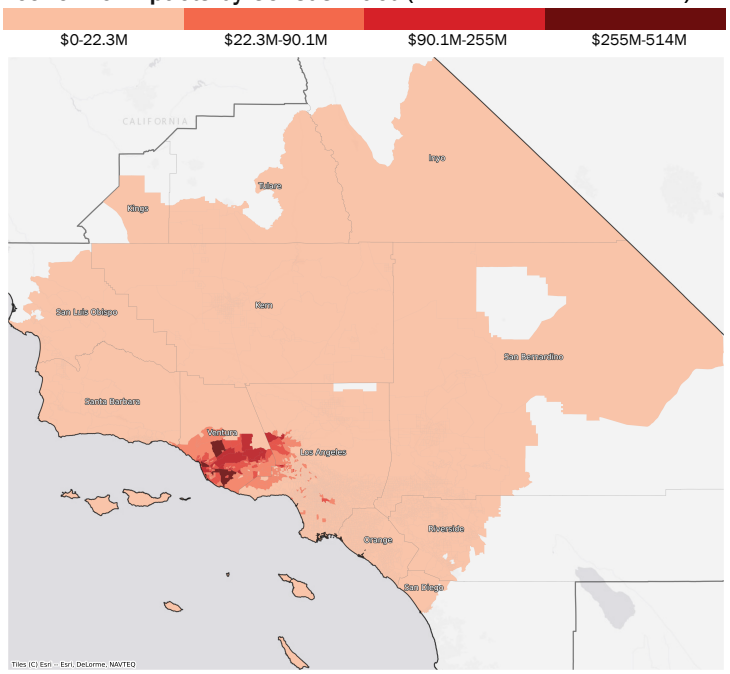
Top Counties	State	Injuries (day/night)	Fatalities (day/night)
Ventura	CA	2.06K/1.17K	76.1/26.9
Los Angeles	CA	718/520	1.08/0.248
Orange	CA	12.2/9.11	0.00239/0.000646
Santa Barbara	CA	6.11/4.6	0.00111/0.000304
Kern	CA	1.2/1.07	0.000318/0.000112
San Bernardino	CA	0.546/0.671	0.000182/0.000102
Riverside	CA	0.0885/0.111	0.000026/0.000025

Displaced Households & Short-Term Shelter Needs

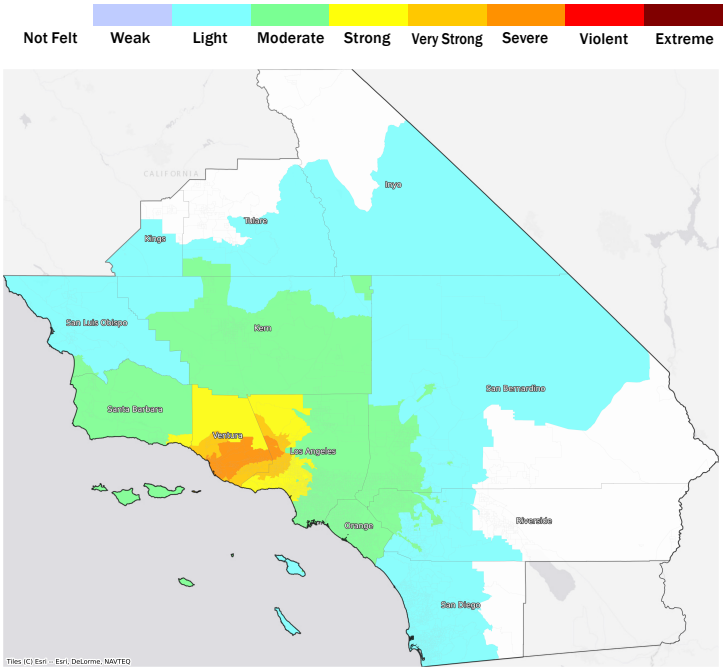
Total Displaced: 4.47K
Total Needing Shelter: 2.63K

Top Counties	State	Displaced	Needing Shelter
Ventura	CA	4.1K	2.43K
Los Angeles	CA	371	197
Santa Barbara	CA	1.19	0.565
Orange	CA	0.342	0.241
Kern	CA	0.0312	0.0254
Inyo	CA	0	0
Kings	CA	0	0

Economic Impacts by Census Tract (4.5K Tracts with Losses)



Ground Shaking



Debris

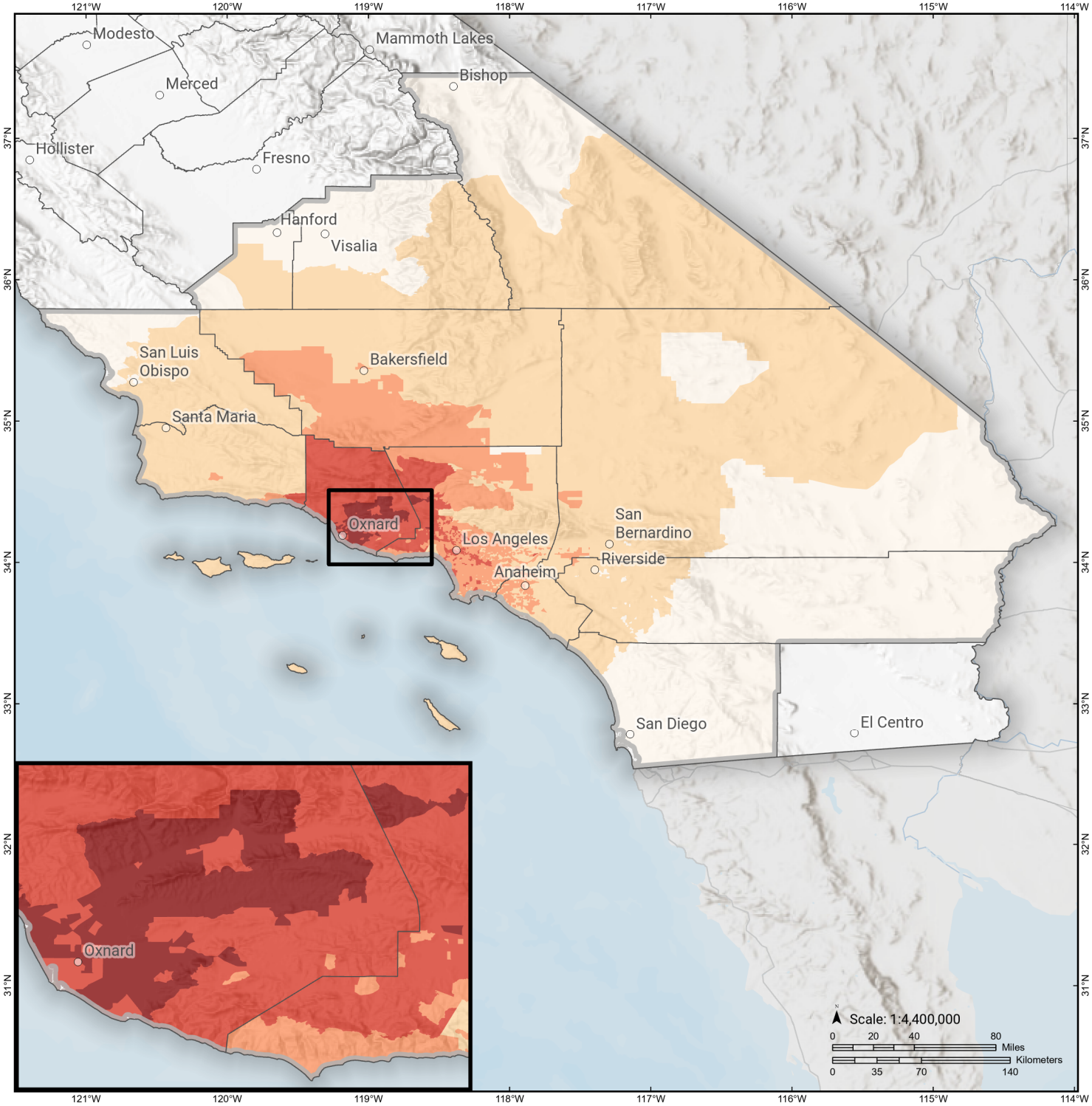
Total Tons: 2.67M
Total Truckloads: 107K

Type	Tons
Brick, Wood, and Other	1.12M
Concrete & Steel	1.54M

Oak Ridge (Onshore)

Debris Generated by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oak Ridge (Onshore)
Scenario: oakridgeonshoreellbg_m7p16_se

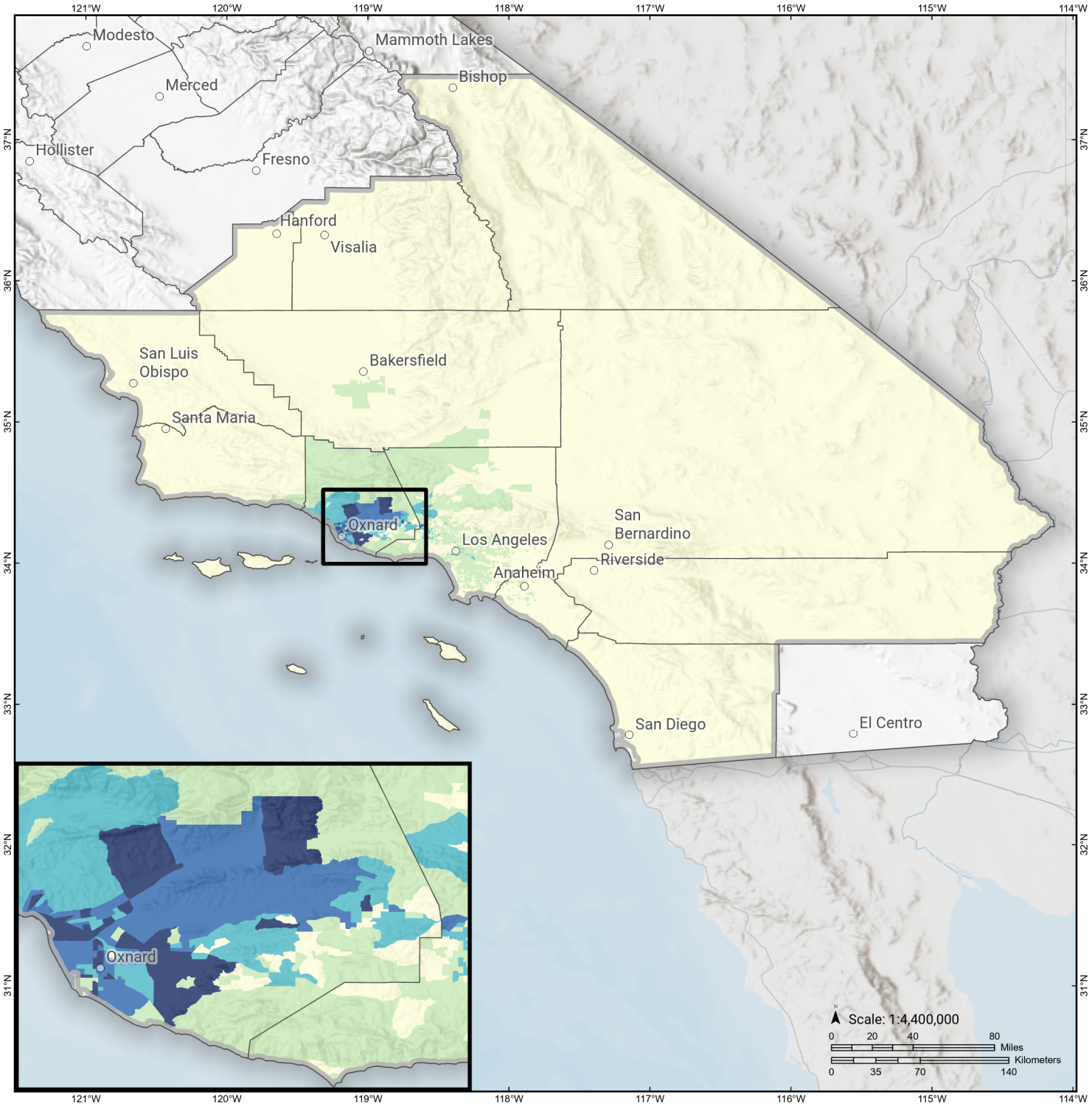
Debris Generated *(in tons)*

- 0
- >0 - 20
- >20 - 500
- >500 - 10,000
- >10,000 - 117,000

Oak Ridge (Onshore)

Displaced Households by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oak Ridge (Onshore)
Scenario: oakridgeonshoreellbg_m7p16_se

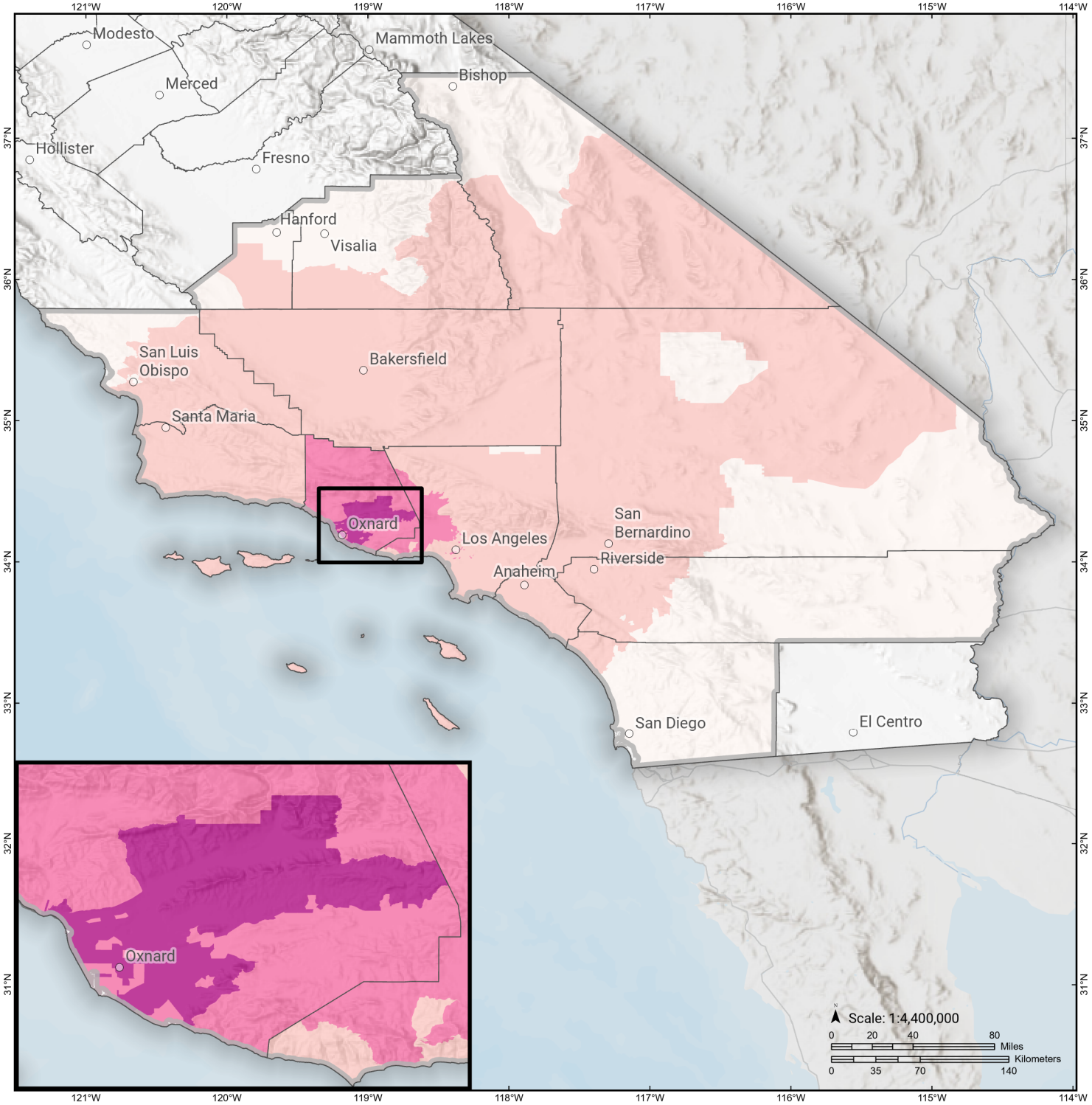
Displaced Households

- 0
- 1
- 2 - 10
- 11 - 50
- 51 - 125

Oak Ridge (Onshore)

Loss Ratio by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oak Ridge (Onshore)
Scenario: oakridgeonshoreellbg_m7p16_se

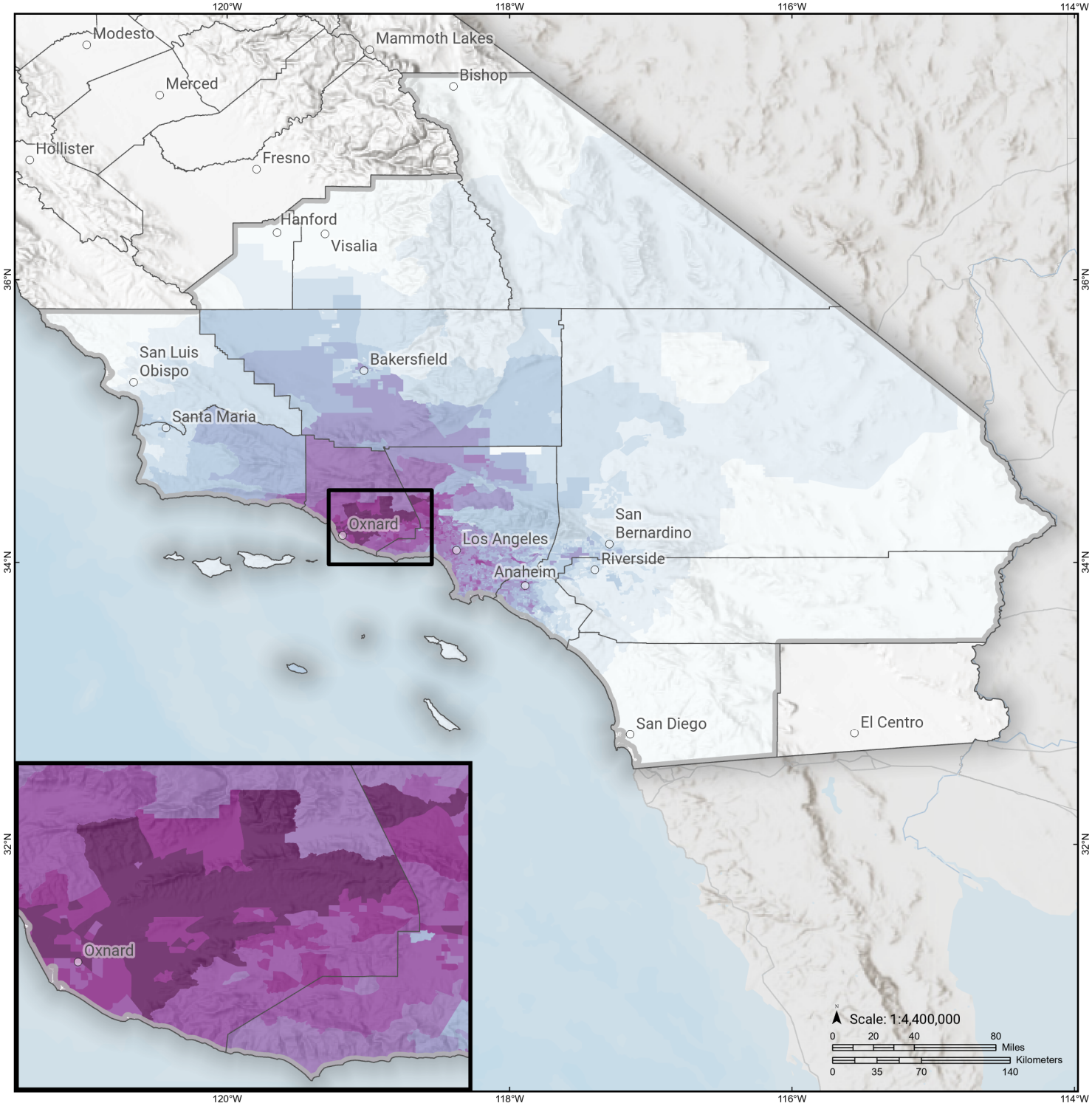
Loss Ratio *(ratio of building related economic loss to exposed value of buildings)*

- 0
- >0 - 1%
- >1 - 10%
- >10 - 35%

Oak Ridge (Onshore)

Total Building Related Economic Loss by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oak Ridge (Onshore)
Scenario: oakridgeonshoreellbg_m7p16_se

Economic Loss *(in thousands of USD $)*

0	>800 - 3,000
>0 - 10	>3,000 - 10,000
>10 - 50	>10,000 - 40,000
>50 - 200	>40,000 - 100,000
>200 - 800	>100,000 - 514,500

Building Damage by Count by General Occupancy

RiskMAP
Increasing Resilience Together

April 23, 2024

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
California						
Inyo						
Agriculture	32	0	0	0	0	32
Commercial	721	0	0	0	0	721
Education	41	0	0	0	0	41
Government	101	0	0	0	0	101
Industrial	257	0	0	0	0	257
Religion	57	0	0	0	0	57
Other Residential	4,050	0	0	0	0	4,050
Single Family	4,446	0	0	0	0	4,446
Kern						
Agriculture	4,625	18	1	0	0	4,645
Commercial	15,519	45	3	0	0	15,567
Education	462	0	0	0	0	462
Government	442	1	0	0	0	443
Industrial	6,026	20	1	0	0	6,047
Religion	1,518	6	0	0	0	1,524
Other Residential	54,117	375	28	0	0	54,520
Single Family	204,930	209	0	0	0	205,139
Kings						

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Agriculture	306	0	0	0	0	306
Commercial	2,318	0	0	0	0	2,318
Education	103	0	0	0	0	103
Government	72	0	0	0	0	72
Industrial	555	0	0	0	0	555
Religion	210	0	0	0	0	210
Other Residential	4,342	0	0	0	0	4,342
Single Family	36,245	0	0	0	0	36,245
Los Angeles						
Agriculture	1,781	196	50	5	0	2,032
Commercial	168,395	18,493	3,811	157	4	190,861
Education	5,207	236	42	1	0	5,486
Government	2,733	249	48	1	0	3,031
Industrial	47,617	4,419	1,036	53	1	53,126
Religion	9,546	922	175	8	0	10,651
Other Residential	453,154	25,133	3,166	215	4	481,671
Single Family	1,667,011	130,819	5,286	23	1	1,803,140
Orange						
Agriculture	1,123	11	1	0	0	1,135
Commercial	67,730	571	38	0	0	68,340
Education	1,886	4	0	0	0	1,890
Government	642	7	0	0	0	650
Industrial	18,590	190	15	0	0	18,795
Religion	2,035	21	2	0	0	2,057
Other Residential	84,469	1,168	81	0	0	85,718

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Single Family	*703,927*	*2,279*	*6*	*0*	*0*	*706,212*
Riverside						
Agriculture	*1,713*	*0*	*0*	*0*	*0*	*1,713*
Commercial	*46,353*	*4*	*0*	*0*	*0*	*46,357*
Education	*990*	*0*	*0*	*0*	*0*	*990*
Government	*7,175*	*0*	*0*	*0*	*0*	*7,175*
Industrial	*6,408*	*1*	*0*	*0*	*0*	*6,409*
Religion	*1,319*	*0*	*0*	*0*	*0*	*1,319*
Other Residential	*122,771*	*27*	*1*	*0*	*0*	*122,799*
Single Family	*605,439*	*15*	*0*	*0*	*0*	*605,455*
San Bernardino						
Agriculture	*1,813*	*2*	*0*	*0*	*0*	*1,815*
Commercial	*40,009*	*30*	*1*	*0*	*0*	*40,041*
Education	*985*	*0*	*0*	*0*	*0*	*985*
Government	*1,237*	*1*	*0*	*0*	*0*	*1,238*
Industrial	*9,467*	*7*	*0*	*0*	*0*	*9,474*
Religion	*2,318*	*2*	*0*	*0*	*0*	*2,320*
Other Residential	*98,623*	*190*	*8*	*0*	*0*	*98,821*
Single Family	*525,247*	*119*	*1*	*0*	*0*	*525,367*
San Diego						
Agriculture	*2,190*	*0*	*0*	*0*	*0*	*2,190*
Commercial	*62,369*	*0*	*0*	*0*	*0*	*62,369*
Education	*1,932*	*0*	*0*	*0*	*0*	*1,932*
Government	*20,924*	*0*	*0*	*0*	*0*	*20,924*
Industrial	*14,313*	*0*	*0*	*0*	*0*	*14,313*

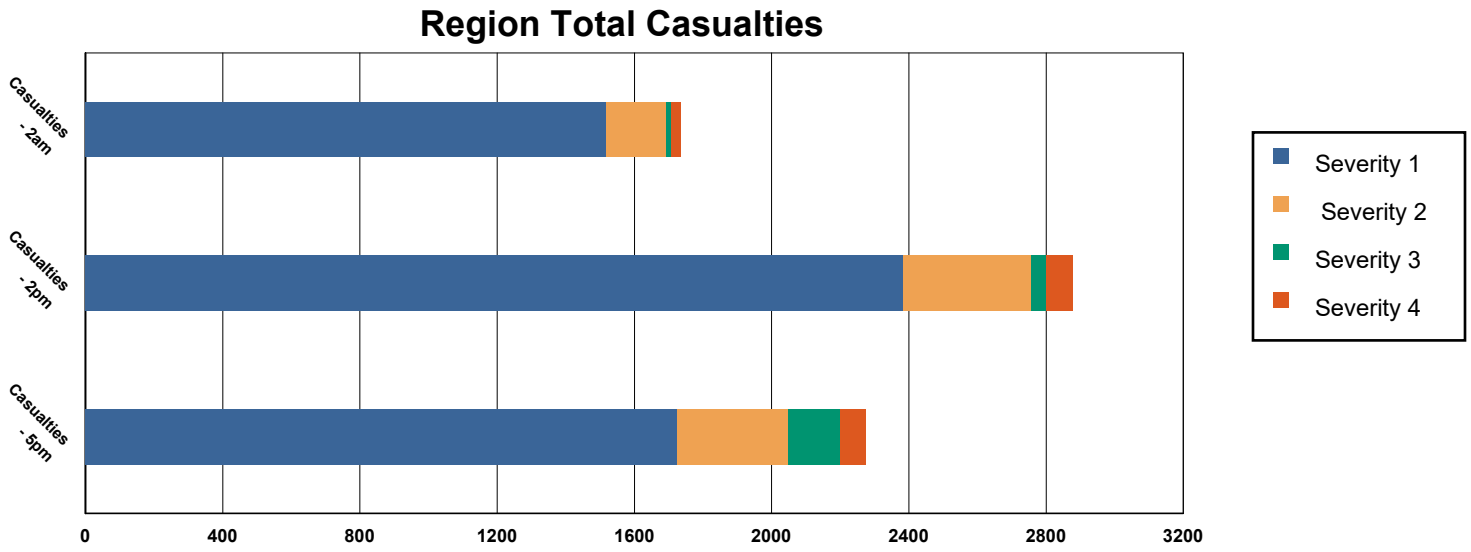
	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Religion	*3,063*	*0*	*0*	*0*	*0*	*3,063*
Other Residential	*127,559*	*0*	*0*	*0*	*0*	*127,559*
Single Family	*763,020*	*0*	*0*	*0*	*0*	*763,020*
San Luis Obispo						
Agriculture	*421*	*0*	*0*	*0*	*0*	*421*
Commercial	*9,375*	*0*	*0*	*0*	*0*	*9,375*
Education	*182*	*0*	*0*	*0*	*0*	*182*
Government	*185*	*0*	*0*	*0*	*0*	*185*
Industrial	*2,556*	*0*	*0*	*0*	*0*	*2,556*
Religion	*360*	*0*	*0*	*0*	*0*	*360*
Other Residential	*20,212*	*3*	*0*	*0*	*0*	*20,216*
Single Family	*85,639*	*0*	*0*	*0*	*0*	*85,639*
Santa Barbara						
Agriculture	*454*	*9*	*1*	*0*	*0*	*464*
Commercial	*9,536*	*254*	*29*	*1*	*0*	*9,820*
Education	*296*	*2*	*0*	*0*	*0*	*299*
Government	*234*	*4*	*0*	*0*	*0*	*239*
Industrial	*2,745*	*82*	*13*	*0*	*0*	*2,840*
Religion	*607*	*13*	*2*	*0*	*0*	*621*
Other Residential	*23,177*	*807*	*126*	*2*	*0*	*24,111*
Single Family	*97,612*	*1,357*	*13*	*0*	*0*	*98,982*
Tulare						
Agriculture	*3,555*	*0*	*0*	*0*	*0*	*3,555*
Commercial	*8,873*	*0*	*0*	*0*	*0*	*8,873*
Education	*269*	*0*	*0*	*0*	*0*	*269*

		# of Buildings					
		None	Slight	Moderate	Extensive	Complete	Total
	Government	*461*	*0*	*0*	*0*	*0*	*461*
	Industrial	*2,148*	*0*	*0*	*0*	*0*	*2,148*
	Religion	*827*	*0*	*0*	*0*	*0*	*827*
	Other Residential	*20,021*	*1*	*0*	*0*	*0*	*20,022*
	Single Family	*112,034*	*0*	*0*	*0*	*0*	*112,034*
Ventura							
	Agriculture	*129*	*236*	*175*	*47*	*9*	*598*
	Commercial	*3,898*	*5,657*	*3,997*	*1,105*	*297*	*14,953*
	Education	*228*	*177*	*79*	*11*	*3*	*497*
	Government	*296*	*348*	*273*	*73*	*10*	*1,001*
	Industrial	*1,404*	*2,324*	*1,737*	*515*	*117*	*6,097*
	Religion	*392*	*396*	*288*	*95*	*16*	*1,187*
	Other Residential	*5,607*	*10,943*	*5,703*	*2,874*	*1,036*	*26,163*
	Single Family	*68,058*	*112,427*	*23,211*	*269*	*3*	*203,968*
Total		**6,526,369**	**320,832**	**49,450**	**5,456**	**1,501**	**6,903,609**
Region Total		**6,526,369**	**320,832**	**49,450**	**5,456**	**1,501**	**6,903,609**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Casualties Summary Report

April 23, 2024



	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Inyo					
Casualties - 2am					
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Other-Residential	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Inyo					
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Kern					
Casualties - 2am					
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Other-Residential	1	0	0	0	1
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2am	**1**	**0**	**0**	**0**	**1**
Casualties - 2pm					
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commercial	1	0	0	0	1
Industrial	0	0	0	0	0
Total Casualties - 2pm	**1**	**0**	**0**	**0**	**1**
Casualties - 5pm					
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**1**	**0**	**0**	**0**	**1**
Kings					
Casualties - 2am					
Industrial	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Kings					
Casualties - 2am					
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Commercial	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Single Family	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commercial	0	0	0	0	0
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Los Angeles					
Casualties - 2am					
Hotels	1	0	0	0	1
Industrial	6	0	0	0	6
Educational	0	0	0	0	0
Single Family	242	5	0	0	247
Commuting	0	0	0	0	0
Other-Residential	247	12	0	0	260
Commercial	6	0	0	0	6
Total Casualties - 2am	**501**	**18**	**0**	**0**	**520**
Casualties - 2pm					
Industrial	43	3	0	0	46
Other-Residential	74	4	0	0	78
Commercial	372	25	0	1	398
Commuting	0	0	0	0	1
Educational	121	7	0	0	128

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Los Angeles					
Casualties - 2pm					
Single Family	66	1	0	0	67
Hotels	0	0	0	0	0
Total Casualties - 2pm	**676**	**41**	**1**	**1**	**719**
Casualties - 5pm					
Other-Residential	92	5	0	0	96
Industrial	27	2	0	0	29
Commuting	4	6	9	2	21
Single Family	87	2	0	0	89
Commercial	249	17	0	1	267
Hotels	0	0	0	0	0
Educational	28	2	0	0	30
Total Casualties - 5pm	**487**	**33**	**10**	**3**	**533**
Orange					
Casualties - 2am					
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Industrial	0	0	0	0	0
Other-Residential	5	0	0	0	5
Commercial	0	0	0	0	0
Single Family	4	0	0	0	4
Total Casualties - 2am	**9**	**0**	**0**	**0**	**9**
Casualties - 2pm					
Industrial	1	0	0	0	1
Other-Residential	1	0	0	0	1
Commuting	0	0	0	0	0
Commercial	6	0	0	0	6
Single Family	1	0	0	0	1
Hotels	0	0	0	0	0
Educational	2	0	0	0	2
Total Casualties - 2pm	**12**	**0**	**0**	**0**	**12**
Casualties - 5pm					
Hotels	0	0	0	0	0
Educational	0	0	0	0	1
Commuting	0	0	0	0	0
Single Family	1	0	0	0	1
Commercial	4	0	0	0	4
Other-Residential	2	0	0	0	2
Industrial	1	0	0	0	1
Total Casualties - 5pm	**9**	**0**	**0**	**0**	**9**

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Riverside					
Casualties - 2am					
Industrial	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Commuting	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
San Bernardino					
Casualties - 2am					
Hotels	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Other-Residential	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2am	**1**	**0**	**0**	**0**	**1**
Casualties - 2pm					
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Other-Residential	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Bernardino					
Casualties - 2pm					
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Total Casualties - 2pm	**1**	**0**	**0**	**0**	**1**
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Commercial	0	0	0	0	0
Single Family	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
San Diego					
Casualties - 2am					
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Hotels	0	0	0	0	0
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Diego					
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
San Luis Obispo					
Casualties - 2am					
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Industrial	0	0	0	0	0
Single Family	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Single Family	0	0	0	0	0
Educational	0	0	0	0	0
Other-Residential	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Commercial	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Hotels	0	0	0	0	0
Educational	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Santa Barbara					
Casualties - 2am					
Industrial	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	2	0	0	0	3
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	2	0	0	0	2
Hotels	0	0	0	0	0
Total Casualties - 2am	**4**	**0**	**0**	**0**	**5**
Casualties - 2pm					
Commercial	3	0	0	0	3

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Santa Barbara					
Casualties - 2pm					
Single Family	1	0	0	0	1
Other-Residential	1	0	0	0	1
Commuting	0	0	0	0	0
Educational	1	0	0	0	1
Hotels	0	0	0	0	0
Industrial	1	0	0	0	1
Total Casualties - 2pm	**6**	**0**	**0**	**0**	**6**
Casualties - 5pm					
Other-Residential	1	0	0	0	1
Single Family	1	0	0	0	1
Commercial	2	0	0	0	2
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 5pm	**4**	**0**	**0**	**0**	**4**
Tulare					
Casualties - 2am					
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Commercial	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Tulare					
Casualties - 5pm					
Educational	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Ventura					
Casualties - 2am					
Educational	0	0	0	0	0
Commuting	0	0	1	0	1
Single Family	375	24	0	0	399
Hotels	0	0	0	0	1
Industrial	20	4	0	1	25
Commercial	13	3	0	1	17
Other-Residential	594	124	13	25	756
Total Casualties - 2am	**1,002**	**155**	**15**	**27**	**1,199**
Casualties - 2pm					
Industrial	145	29	3	7	184
Educational	366	69	8	15	458
Commuting	3	4	6	1	13
Hotels	0	0	0	0	0
Other-Residential	174	36	4	7	221
Commercial	898	185	24	46	1,153
Single Family	104	7	0	0	110
Total Casualties - 2pm	**1,689**	**329**	**45**	**76**	**2,139**
Casualties - 5pm					
Commuting	52	71	118	23	264
Other-Residential	222	47	5	10	284
Commercial	664	136	17	33	851
Hotels	0	0	0	0	0
Educational	56	9	1	1	67
Single Family	139	9	0	0	148
Industrial	91	18	2	4	115
Total Casualties - 5pm	**1,223**	**290**	**143**	**72**	**1,728**
Region Total	NA	NA	NA	NA	NA

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Debris Summary Report

April 23, 2024

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
California			
Inyo	0	0	0
Kern	1	0	2
Kings	0	0	0
Los Angeles	519	329	848
Orange	9	6	14
Riverside	0	0	0
San Bernardino	1	0	1
San Diego	0	0	0
San Luis Obispo	0	0	0
Santa Barbara	5	5	10
Tulare	0	0	0
Ventura	588	1,202	1,790
Total	**1,124**	**1,543**	**2,667**
Region Total	**1,124**	**1,543**	**2,667**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Study Region : OakRidgeonshore

Scenario : oakridgeonshoreellbg_m7p16_se

Direct Economic Losses For Buildings

April 23, 2024

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
California										
Inyo	0	0	0	0	0.00	0	0	0	0	0
San Bernardino	900	15,760	8,286	1,292	0.00	98	84	103	202	26,724
Riverside	112	3,352	1,947	170	0.00	7	12	11	28	5,638
Kings	0	4	3	1	0.00	0	0	0	0	7
San Luis Obispo	6	202	123	17	0.00	0	1	1	2	352
Tulare	2	75	54	21	0.00	0	0	0	0	153
Santa Barbara	9,390	91,436	48,695	7,293	0.13	2,426	1,403	1,694	2,257	164,593
Kern	1,626	18,274	9,567	1,871	0.01	207	165	192	252	32,154
Ventura	1,451,516	6,850,507	3,015,048	327,682	5.48	666,575	349,145	442,051	329,516	13,432,039

Study Region : OakRidgeonshore

Scenario : oakridgeonshoreellbg_m7p16_se

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Orange	13,590	182,202	100,988	10,820	0.04	1,937	2,338	2,645	3,295	317,815
San Diego	0	3	1	0	0.00	0	0	0	0	4
Los Angeles	843,925	5,624,216	2,780,838	232,118	0.43	276,507	178,032	218,140	223,189	10,376,965
Total	**2,321,067**	**12,786,030**	**5,965,550**	**581,284**	**0.51**	**947,758**	**531,180**	**664,836**	**558,740**	**24,356,445**
Region Total	**2,321,067**	**12,786,030**	**5,965,550**	**581,284**	**0.51**	**947,758**	**531,180**	**664,836**	**558,740**	**24,356,445**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Direct Economic Loss For Transportation

April 23, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
California								
Inyo								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	6	6
Total	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**6**
Kern								
Segments	0	0	0					0
Bridges	131	0	0					131
Tunnels	0	0	0					0
Facilities		180	0	83	0	0	1,084	1,346
Total	**131**	**180**	**0**	**83**	**0**	**0**	**1,084**	**1,477**
Kings								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	0	0

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Los Angeles								
Segments	0	0	0					0
Bridges	51,312	632	0					51,944
Tunnels	403	0	0					403
Facilities		6,217	111,767	2,041	29,253	421	188,728	338,427
Total	**51,714**	**6,848**	**111,768**	**2,041**	**29,253**	**421**	**188,728**	**390,773**
Orange								
Segments	0	0	0					0
Bridges	619	2	0					621
Tunnels	0	0	0					0
Facilities		456	0	0	707	51	5,055	6,270
Total	**619**	**458**	**0**	**0**	**707**	**51**	**5,055**	**6,891**
Riverside								
Segments	0	0	0					0
Bridges	2	0	0					2
Tunnels	0	0	0					0
Facilities		103	0	107	0	0	553	762
Total	**2**	**103**	**0**	**107**	**0**	**0**	**553**	**765**
San Bernardino								
Segments	0	0	0					0
Bridges	123	0	0					123
Tunnels	0	0	0					0
Facilities		464	0	62	0	0	2,700	3,226

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**123**	**464**	**0**	**62**	**0**	**0**	**2,700**	**3,348**
San Diego								
Segments	0	0	0					0
Bridges	3	0	0					3
Tunnels	0	0	0					0
Facilities		23	971	2	440	4	1,029	2,470
Total	**3**	**23**	**971**	**2**	**440**	**4**	**1,029**	**2,473**
San Luis Obispo								
Segments	0	0	0					0
Bridges	1	0	0					1
Tunnels	0	0	0					0
Facilities		31	0	5	33	0	164	233
Total	**1**	**31**	**0**	**5**	**33**	**0**	**164**	**234**
Santa Barbara								
Segments	0	0	0					0
Bridges	151	7	0					158
Tunnels	0	0	0					0
Facilities		656	0	82	1,816	80	1,879	4,513
Total	**151**	**663**	**0**	**82**	**1,816**	**80**	**1,879**	**4,671**
Tulare								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	0	0

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Ventura								
Segments	0	0	0					0
Bridges	157,932	22,234	0					180,166
Tunnels	13	0	0					13
Facilities		4,761	0	899	21,718	605	18,283	46,267
Total	**157,945**	**26,996**	**0**	**899**	**21,718**	**605**	**18,283**	**226,446**
Total	**210,690**	**35,766**	**112,738**	**3,281**	**53,967**	**1,161**	**219,481**	**637,084**
Region Total	**210,690**	**35,766**	**112,738**	**3,281**	**53,967**	**1,161**	**219,481**	**637,084**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Direct Economic Loss For Utilities

April 08, 2024

All values are in thousands of dollars

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
California							
Inyo							
Facilities	0	0	0	0	20	0	20
Pipelines	22	11	0	0			33
Total	22	11	0	0	20	0	53
Kern							
Facilities	112	369	1	291	430,157	18	430,949
Pipelines	554	278	0	0			832
Total	666	647	1	291	430,157	18	431,781
Kings							
Facilities	0	0	0	0	8	0	8
Pipelines	44	22	0	0			66
Total	44	22	0	0	8	0	74
Los Angeles							
Facilities	26,068	124,488	79	35,083	4,635,689	361	4,821,768

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Pipelines	5,338	2,682	0	0			8,020
Total	31,407	127,170	79	35,083	4,635,689	361	4,829,788
Orange							
Facilities	84	3,909	0	739	28,640	4	33,377
Pipelines	418	210	0	0			629
Total	503	4,119	0	739	28,640	4	34,005
Riverside							
Facilities	253	1,475	0	75	10,350	2	12,155
Pipelines	153	77	0	0			230
Total	407	1,552	0	75	10,350	2	12,385
San Bernardino							
Facilities	112	1,598	0	150	75,075	6	76,942
Pipelines	357	179	0	0			536
Total	469	1,778	0	150	75,075	6	77,478
San Diego							
Facilities	1	428	0	3	1,418	0	1,850
Pipelines	73	37	0	0			110
Total	75	465	0	3	1,418	0	1,960
San Luis Obispo							
Facilities	1	261	0	0	12,707	0	12,970
Pipelines	97	49	0	0			146

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Total	98	310	0	0	12,707	0	13,116
Santa Barbara							
Facilities	0	23,319	1	2,285	13,274	66	38,946
Pipelines	177	89	0	0			266
Total	177	23,408	1	2,285	13,274	66	39,212
Tulare							
Facilities	0	0	0	0	2,482	0	2,482
Pipelines	37	19	0	0			56
Total	37	19	0	0	2,482	0	2,538
Ventura							
Facilities	42,459	514,788	29	13,061	1,620,595	1,243	2,192,175
Pipelines	17,196	8,638	0	0			25,834
Total	59,655	523,426	29	13,061	1,620,595	1,243	2,218,009
Total	**93,559**	**682,927**	**110**	**51,687**	**6,830,415**	**1,701**	**7,660,400**
Region Total	**93,559**	**682,927**	**110**	**51,687**	**6,830,415**	**1,701**	**7,660,400**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Direct Economic Loss For Utilities

April 23, 2024

All values are in thousands of dollars

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
California							
Inyo							
Facilities	0	0	0	0	20	0	20
Pipelines	22	11	0	0			33
Total	22	11	0	0	20	0	53
Kern							
Facilities	112	369	1	291	430,157	18	430,949
Pipelines	554	278	0	0			832
Total	666	647	1	291	430,157	18	431,781
Kings							
Facilities	0	0	0	0	8	0	8
Pipelines	44	22	0	0			66
Total	44	22	0	0	8	0	74
Los Angeles							
Facilities	26,068	124,488	79	35,083	4,635,689	361	4,821,768

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Pipelines	5,338	2,682	0	0			8,020
Total	31,407	127,170	79	35,083	4,635,689	361	4,829,788
Orange							
Facilities	84	3,909	0	739	28,640	4	33,377
Pipelines	418	210	0	0			629
Total	503	4,119	0	739	28,640	4	34,005
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Facilities	253	1,475	0	75	10,350	2	12,155
Pipelines	153	77	0	0			230
Total	407	1,552	0	75	10,350	2	12,385
San Bernardino							
Facilities	112	1,598	0	150	75,075	6	76,942
Pipelines	357	179	0	0			536
Total	469	1,778	0	150	75,075	6	77,478
San Diego							
Facilities	1	428	0	3	1,418	0	1,850
Pipelines	73	37	0	0			110
Total	75	465	0	3	1,418	0	1,960
San Luis Obispo							
Facilities	1	261	0	0	12,707	0	12,970
Pipelines	97	49	0	0			146

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Total	98	310	0	0	12,707	0	13,116
Santa Barbara							
Facilities	0	23,319	1	2,285	13,274	66	38,946
Pipelines	177	89	0	0			266
Total	177	23,408	1	2,285	13,274	66	39,212
Tulare							
Facilities	0	0	0	0	2,482	0	2,482
Pipelines	37	19	0	0			56
Total	37	19	0	0	2,482	0	2,538
Ventura							
Facilities	42,459	514,788	29	13,061	1,620,595	1,243	2,192,175
Pipelines	17,196	8,638	0	0			25,834
Total	59,655	523,426	29	13,061	1,620,595	1,243	2,218,009
Total	**93,559**	**682,927**	**110**	**51,687**	**6,830,415**	**1,701**	**7,660,400**
Region Total	**93,559**	**682,927**	**110**	**51,687**	**6,830,415**	**1,701**	**7,660,400**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	7.60 - 30.20
	Building Contents	1.20 - 4.60
	Business Interruption	1.40 - 5.40
Infrastructure	Lifelines Damage	
	Total	12.20 - 48.70

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	285,900	25,100	9,200	320,200
Minor	37,600	7,900	3,700	49,200
Major	3,400	1,300	810	5,510
Destroyed	1,000	300	160	1,460
Total	327,900	34,600	13,870	376,370

Estimated Casualties : Night Time

Severity Level	Description	# Persons
Level 1	Medical Aid	800 - 3,000
Level 2	Hospital Care	90 - 300
Level 3	Life-threatening	10 - 30
Level 4	Fatalities	10 - 50

Estimated Shelter Needs

Type	Households	People
Displaced Households	2,000 - 9,000	5,000 - 22,500
Public Shelter	1,050	2,630

Comments :

**Hazus damage estimates are presented using FEMA Preliminary Damage Assessment (PDA) categories. These estimates should be used for planning purposes and may not reflect actual observed damages from the PDA process.*

Disclaimer:

The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, goetechnical, and observed ground motion data.

Earthquake Information

Location :

Origin Time:

Magnitude : 7.16

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 24,227,821

Building Exposure : ($ Millions)

Residential	
Commercial	818,688
Other	609,820
Total	

Counties : See Appendix

Major Metro Area :

Time of report: April 23, 2024 1:52 pm

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	7.60 - 30.20
	Building Contents	1.20 - 4.60
	Business Interruption	1.40 - 5.40
Infrastructure	Lifelines Damage	
	Total	12.20 - 48.70

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	285,900	25,100	9,200	320,200
Minor	37,600	7,900	3,700	49,200
Major	3,400	1,300	810	5,510
Destroyed	1,000	300	160	1,460
Total	327,900	34,600	13,870	376,370

Estimated Casualties : Day Time

Severity Level	Description	# Persons
Level 1	Medical Aid	1,200 - 5,000
Level 2	Hospital Care	190 - 700
Level 3	Life-threatening	20 - 90
Level 4	Fatalities	40 - 150

Estimated Shelter Needs

Type	Households	People
Displaced Households	2,000 - 9,000	5,000 - 22,500
Public Shelter	1,050	2,630

Comments :

**Hazus damage estimates are presented using FEMA Preliminary Damage Assessment (PDA) categories. These estimates should be used for planning purposes and may not reflect actual observed damages from the PDA process.*

Disclaimer:

The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, goetechnical, and observed ground motion data.

Earthquake Information

Location :

Origin Time:

Magnitude : 7.16

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 24,227,821

Building Exposure : ($ Millions)

Residential	
Commercial	818,688
Other	609,820
Total	

Counties : See Appendix

Major Metro Area :

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	7.60 - 30.20
	Building Contents	1.20 - 4.60
	Business Interruption	1.40 - 5.40
Infrastructure	Lifelines Damage	
	Total	12.20 - 48.70

Preliminary Damage Assessment (PDA) Estimates

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Minor	37,600	7,900	3,700	49,200
Major	3,400	1,300	810	5,510
Destroyed	1,000	300	160	1,460
Total	327,900	34,600	13,870	376,370

Estimated Casualties : Commute Time

Severity Level	Description	# Persons
Level 1	Medical Aid	900 - 3,000
Level 2	Hospital Care	160 - 600
Level 3	Life-threatening	80 - 300
Level 4	Fatalities	40 - 150

Estimated Shelter Needs

Type	Households	People
Displaced Households	2,000 - 9,000	5,000 - 22,500
Public Shelter	1,050	2,630

Comments :

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Earthquake Information

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Population and Building Exposure

Population: 24,227,821

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Residential	
Commercial	818,688
Other	609,820
Total	

Counties : See Appendix

Major Metro Area :

Time of report: April 23, 2024 1:54 pm

HAZUS™

FEMA

RiskMAP
Increasing Resilience Together

Shelter Summary Report

April 23, 2024

	# of Displaced Households	# of People Needing Short Term Shelter
California		
Inyo	0	0
Kern	0	0
Kings	0	0
Los Angeles	371	197
Orange	0	0
Riverside	0	0
San Bernardino	0	0
San Diego	0	0
San Luis Obispo	0	0
Santa Barbara	1	1
Tulare	0	0
Ventura	4,097	2,434
Total	**4,470**	**2,631**
Region Total	**4,470**	**2,631**

Totals only reflect data for those census tracts/blocks included in the user's study region and will reflect the entire county/state only if all of the census blocks for that county/states were selected at the time of study region creation.