Hazus: Earthquake Global Risk Report

Region Name: RoseCanyon

Earthquake Scenario: rosecanyonshaw09modg_m6p99_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 7 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 42,845.89 square miles and contains 5,057 census tracts. There are over 7,416 thousand households in the region which has a total population of 22,123,016 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 6,204 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 249,151 and 143,623 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 6,204 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 88% 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 301 hospitals in the region with a total bed capacity of 56,758 beds. There are 6,917 schools, 1,153 fire stations, 372 police stations and 111 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 392,774.00 (millions of dollars). This inventory includes over 9,271.48 miles of highways, 9,827 bridges, 183,191.36 miles of pipes.

Table 1: Transportation System Lifeline Inventory

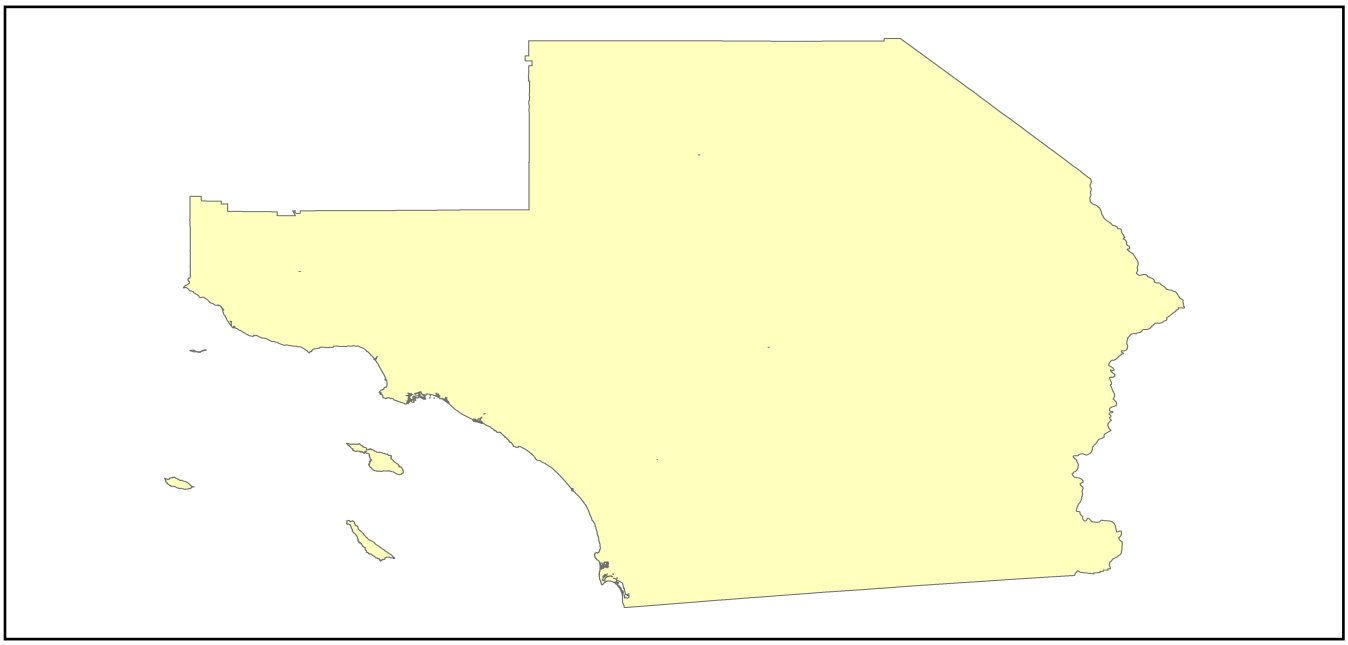
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	9,827	62348.0121
	Segments	8,827	101733.3936
	Tunnels	57	527.2913
		Subtotal	**164608.6970**
Railways	Bridges	1,745	9929.0500
	Facilities	96	255.6480
	Segments	1,428	58428.6658
	Tunnels	0	0.0000
		Subtotal	**68613.3638**
Light Rail	Bridges	51	13.2750
	Facilities	149	3200.8000
	Segments	8	5399.1047
	Tunnels	0	0.0000
		Subtotal	**8613.1797**
Bus	Facilities	29	62.9697
		Subtotal	**62.9697**
Ferry	Facilities	19	25.2890
		Subtotal	**25.2890**
Port	Facilities	337	1284.5916
		Subtotal	**1284.5916**
Airport	Facilities	123	4513.1838
	Runways	123	1430.0648
		Subtotal	**5943.2486**
		Total	**249,151.30**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	3638.4432
	Facilities	47	1846.8180
	Pipelines	0	0.0000
		Subtotal	**5485.2612**
Waste Water	Distribution Lines	NA	2183.0659
	Facilities	115	19774.4570
	Pipelines	0	0.0000
		Subtotal	**21957.5229**
Natural Gas	Distribution Lines	NA	1455.3773
	Facilities	27	911.8061
	Pipelines	222	13181.6695
		Subtotal	**15548.8529**
Oil Systems	Facilities	50	5.9000
	Pipelines	0	0.0000
		Subtotal	**5.9000**
Electrical Power	Facilities	398	100590.6328
		Subtotal	**100590.6328**
Communication	Facilities	298	35.1640
		Subtotal	**35.1640**
		Total	**143,623.30**

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	rosecanyonshaw09modg_m6p99_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	6.99
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 84,166 buildings will be at least moderately damaged. This is over 1.00 % of the buildings in the region. There are an estimated 1,376 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

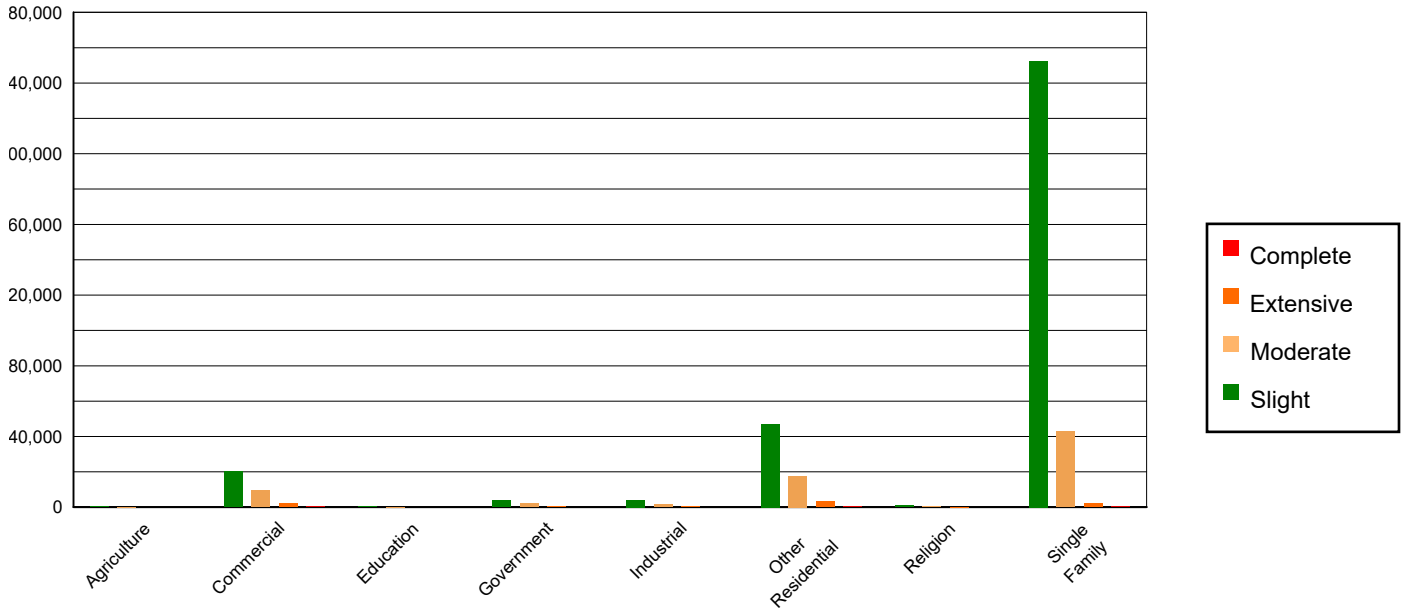


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	9094.37	0.16	388.98	0.12	116.88	0.16	17.51	0.21	3.26	0.24
Commercial	394699.70	6.82	20222.54	6.14	9322.44	12.54	1959.08	23.23	363.24	26.40
Education	11256.30	0.19	458.58	0.14	142.61	0.19	16.24	0.19	5.27	0.38
Government	27460.77	0.47	3837.27	1.17	2335.97	3.14	550.24	6.53	36.75	2.67
Industrial	102811.73	1.78	4045.49	1.23	1577.23	2.12	316.14	3.75	43.41	3.15
Other Residential	881957.15	15.23	47071.29	14.29	17634.00	23.72	3260.30	38.66	326.26	23.71
Religion	19329.37	0.33	861.38	0.26	552.13	0.74	132.63	1.57	16.50	1.20
Single Family	4344664.37	75.02	252464.62	76.66	42676.25	57.39	2180.32	25.86	581.43	42.25
Total	**5,791,274**		**329,350**		**74,358**		**8,432**		**1,376**	

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

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	5093298.02	87.95	301120.65	91.43	50979.41	68.56	907.26	10.76	45.79	3.33
Steel	100171.26	1.73	3969.44	1.21	4213.51	5.67	1486.42	17.63	517.23	37.59
Concrete	99719.43	1.72	3591.67	1.09	2838.70	3.82	1059.28	12.56	289.37	21.03
Precast	45092.64	0.78	1398.09	0.42	1169.27	1.57	292.74	3.47	18.35	1.33
RM	264474.56	4.57	10680.98	3.24	8623.11	11.60	2072.40	24.58	68.56	4.98
URM	28286.87	0.49	553.80	0.17	137.72	0.19	184.57	2.19	241.81	17.57
MH	160230.98	2.77	8035.51	2.44	6395.79	8.60	2429.81	28.81	195.01	14.17
Total	**5,791,274**		**329,350**		**74,358**		**8,432**		**1,376**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 56,758 hospital beds available for use. On the day of the earthquake, the model estimates that only 52,063 hospital beds (92.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 95.00% 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	301	17	0	275
Schools	6,917	180	1	6,523
EOCs	111	2	0	107
PoliceStations	372	9	0	354
FireStations	1,153	24	0	1,099

Transportation Lifeline Damage

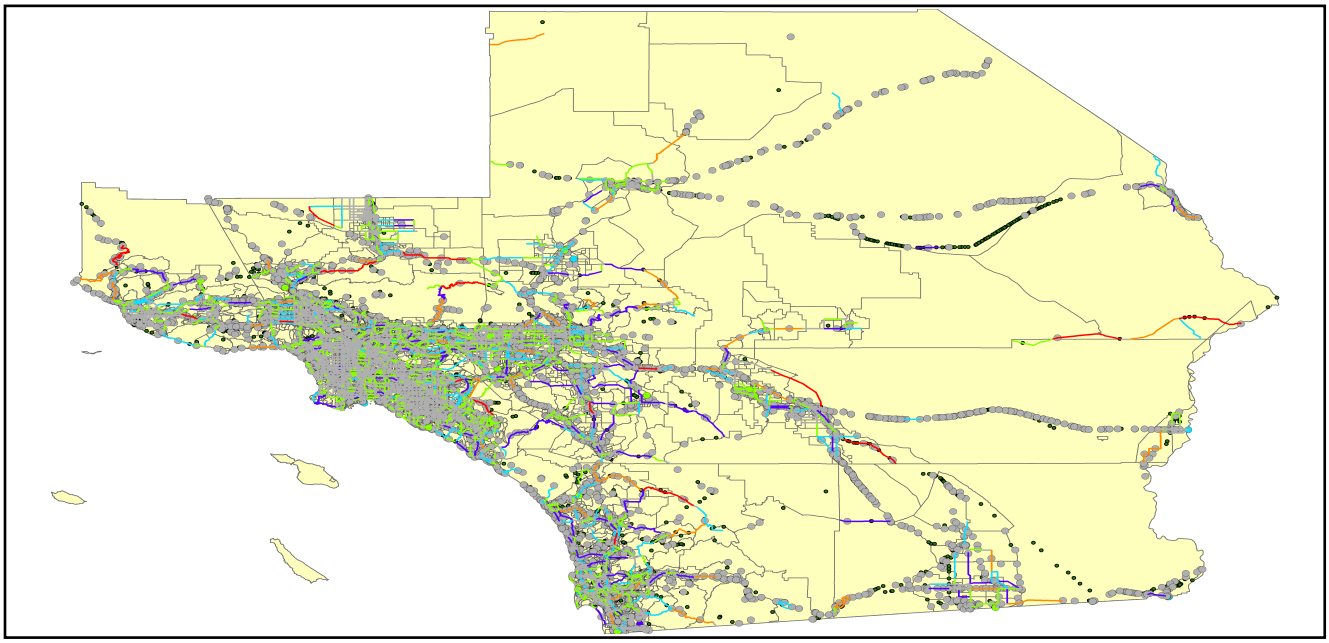


Table 6: Expected Damage to the Transportation Systems

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	8,827	0	0	8,827	8,827
	Bridges	9,827	26	0	9,800	9,809
	Tunnels	57	0	0	57	57
Railways	Segments	1,428	0	0	1,428	1,428
	Bridges	1,745	0	0	1,745	1,745
	Tunnels	0	0	0	0	0
	Facilities	96	3	0	96	96
Light Rail	Segments	8	0	0	8	8
	Bridges	51	0	0	51	51
	Tunnels	0	0	0	0	0
	Facilities	149	24	0	149	149
Bus	Facilities	29	0	0	29	29
Ferry	Facilities	19	3	0	19	19
Port	Facilities	337	76	0	337	337
Airport	Facilities	123	5	0	123	123
	Runways	123	0	0	123	123

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	47	1	0	45	47
Waste Water	115	19	0	94	115
Natural Gas	27	0	0	27	27
Oil Systems	50	1	0	49	50
Electrical Power	398	35	0	372	390
Communication	298	21	0	283	298

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

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	113,041	3777	944
Waste Water	67,825	1897	474
Natural Gas	2,326	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	7,416,381	129,013	113,699	84,685	277	0
Electric Power		362,689	238,208	102,074	10,155	477

Induced Earthquake Damage

Fire Following Earthquake

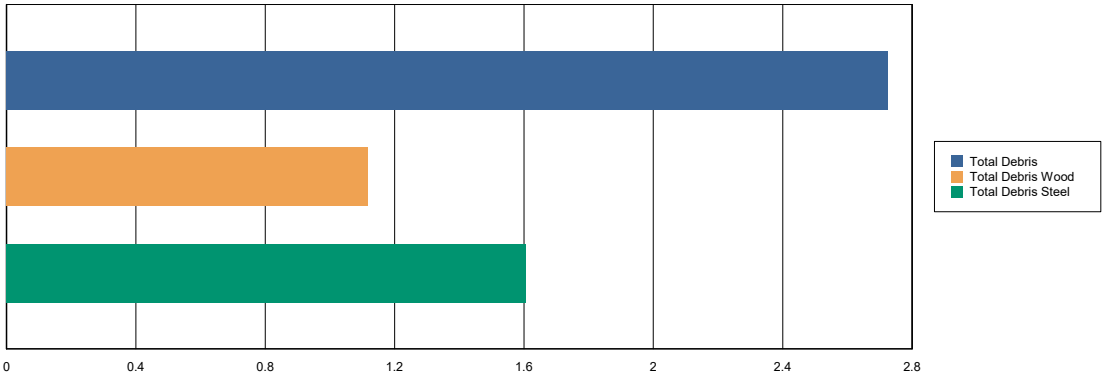
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 40 ignitions that will burn about 0.57 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 6,504 people and burn about 611 (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 2,725,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 41.00% 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 109,000 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



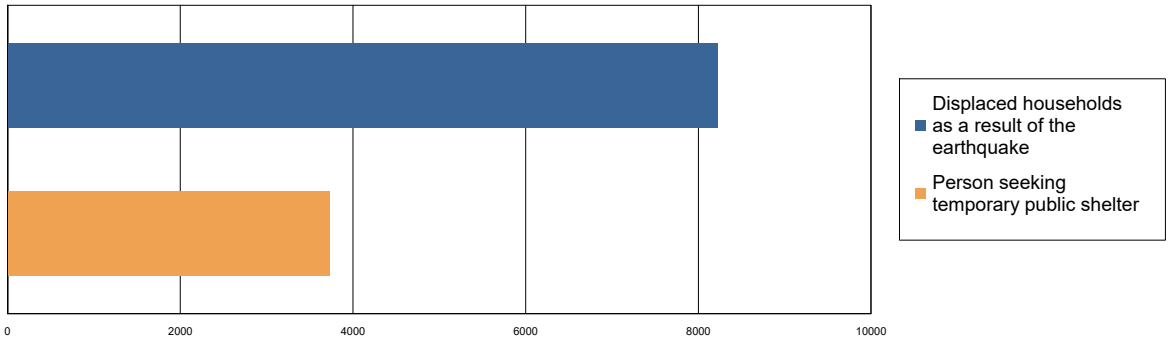
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
1.12	1.61	2.73	109,000 (@25 tons/truck)

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 8,225 households to be displaced due to the earthquake. Of these, 3,729 people (out of a total population of 22,123,016) 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
8,225	3,729

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	27.78	4.57	0.42	0.80
	Commuting	0.28	0.36	0.63	0.12
	Educational	0.00	0.00	0.00	0.00
	Hotels	3.16	0.56	0.05	0.09
	Industrial	21.39	3.48	0.30	0.58
	Other-Residential	776.40	96.95	6.59	12.62
	Single Family	722.93	56.81	3.22	6.24
	Total	**1,552**	**163**	**11**	**20**
2 PM	Commercial	1819.19	294.07	26.86	51.24
	Commuting	2.55	3.28	5.68	1.09
	Educational	642.88	95.28	8.46	16.21
	Hotels	0.61	0.11	0.01	0.02
	Industrial	156.53	25.59	2.27	4.27
	Other-Residential	247.23	32.06	2.36	4.31
	Single Family	222.63	18.64	1.10	2.05
	Total	**3,092**	**469**	**47**	**79**
5 PM	Commercial	1231.13	196.64	18.15	34.20
	Commuting	54.71	70.25	121.88	23.43
	Educational	179.68	24.76	1.87	3.55
	Hotels	0.95	0.17	0.01	0.03
	Industrial	97.83	15.99	1.42	2.67
	Other-Residential	291.28	37.16	2.70	4.92
	Single Family	267.21	21.72	1.29	2.41
	Total	**2,123**	**367**	**147**	**71**

Economic Loss

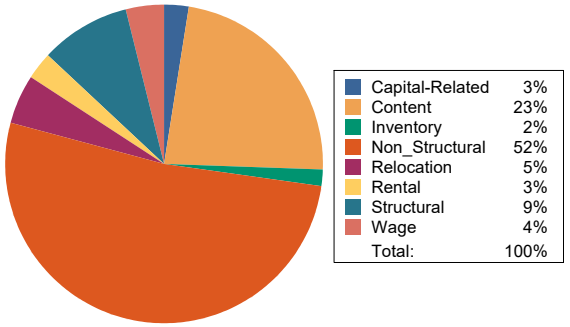
The total economic loss estimated for the earthquake is 31,990.73 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

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 27,675.59 (millions of dollars); 14 % 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 48 % 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)

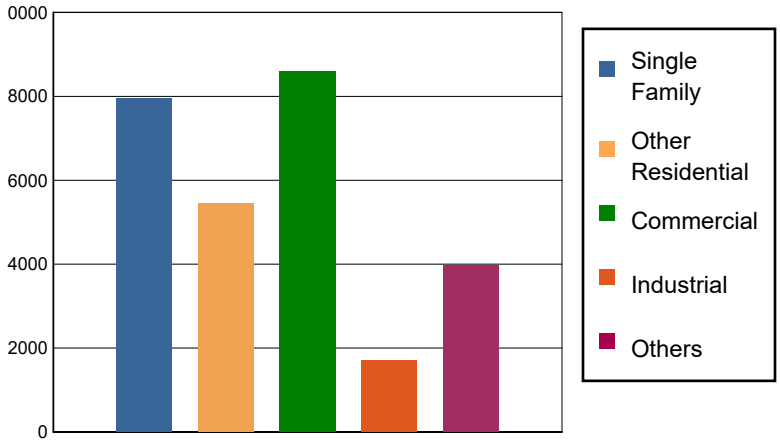


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	144.6914	735.7661	13.8750	146.1225	1,040.4550
	Capital-Related	0.0000	61.4700	619.5249	8.4523	28.4725	717.9197
	Rental	88.4016	303.8608	308.5399	7.7373	86.7803	795.3199
	Relocation	293.8577	167.9319	447.1173	39.2007	457.0647	1,405.1723
	Subtotal	**382.2593**	**677.9541**	**2110.9482**	**69.2653**	**718.4400**	**3958.8669**
Capital Stock Losses							
	Structural	830.9067	471.2494	775.9311	127.2515	348.4823	2,553.8210
	Non_Structural	4893.7690	3399.3674	3363.8135	807.0642	1882.3194	14,346.3335
	Content	1843.1540	900.6614	1997.8459	600.3785	1014.5289	6,356.5687
	Inventory	0.0000	0.0000	354.9579	91.0196	14.0242	460.0017
	Subtotal	**7567.8297**	**4771.2782**	**6492.5484**	**1625.7138**	**3259.3548**	**23716.7249**
	Total	**7950.09**	**5449.23**	**8603.50**	**1694.98**	**3977.79**	**27675.59**

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	101733.3936	0.0000	0.00
	Bridges	62348.0121	357.6580	0.57
	Tunnels	527.2913	1.3916	0.26
	Subtotal	**164608.6970**	**359.0496**	
Railways	Segments	58428.6658	0.0000	0.00
	Bridges	9929.0500	16.1213	0.16
	Tunnels	0.0000	0.0000	0.00
	Facilities	255.6480	8.8917	3.48
	Subtotal	**68613.3638**	**25.0130**	
Light Rail	Segments	5399.1047	0.0000	0.00
	Bridges	13.2750	0.2258	1.70
	Tunnels	0.0000	0.0000	0.00
	Facilities	3200.8000	264.6518	8.27
	Subtotal	**8613.1797**	**264.8776**	
Bus	Facilities	62.9697	1.0656	1.69
	Subtotal	**62.9697**	**1.0656**	
Ferry	Facilities	25.2890	2.0551	8.13
	Subtotal	**25.2890**	**2.0551**	
Port	Facilities	1284.5916	159.8861	12.45
	Subtotal	**1284.5916**	**159.8861**	
Airport	Facilities	4513.1838	387.4827	8.59
	Runways	1430.0648	0.0000	0.00
	Subtotal	**5943.2486**	**387.4827**	
	Total	**249,151.34**	**1,199.43**	

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	1846.8180	15.4089	0.83
	Distribution Lines	3638.4432	16.9943	0.47
	Subtotal	**5485.2612**	**32.4032**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	19774.4570	978.5648	4.95
	Distribution Lines	2183.0659	8.5367	0.39
	Subtotal	**21957.5229**	**987.1015**	
Natural Gas	Pipelines	13181.6695	0.0000	0.00
	Facilities	911.8061	0.9479	0.10
	Distribution Lines	1455.3773	2.9246	0.20
	Subtotal	**15548.8529**	**3.8725**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	5.9000	0.0334	0.57
	Subtotal	**5.9000**	**0.0334**	
Electrical Power	Facilities	100590.6328	2090.7575	2.08
	Subtotal	**100590.6328**	**2090.7575**	
Communication	Facilities	35.1640	1.5424	4.39
	Subtotal	**35.1640**	**1.5424**	
	Total	**143,623.33**	**3,115.71**	

Appendix A: County Listing for the Region

Imperial,CA

Los Angeles,CA

Orange,CA

Riverside,CA

San Bernardino,CA

San Diego,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					
	Imperial	179,702	20,945	12,603	33,548
	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
	Ventura	843,843	99,299	52,072	151,371
Total Region		**22,123,016**	**2,316,683**	**1,291,520**	**3,608,204**

Rose Canyon

Building Inspection Tagging (Counts)

Inspected		Restricted		Unsafe	
Residential	60.3K	Residential	5.44K	Residential	908
Commercial	9.32K	Commercial	1.96K	Commercial	363
Industrial	1.58K	Industrial	316	Industrial	43.4
Agricultural	117	Agricultural	17.5	Agricultural	3.26
Educational	143	Educational	16.2	Educational	5.27
Government	2.34K	Government	550	Government	36.7
Religious	552	Religious	133	Religious	16.5

Total Economic Loss

Total: $27.7B

Top Counties	State	Total
San Diego	CA	$27.2B
Orange	CA	$382M
Los Angeles	CA	$72.4M
Riverside	CA	$55.5M
San Bernardino	CA	$14.2M
Imperial	CA	$774K
-	-	-

Injuries & Fatalities

Total Day: 3.69K
Total Night: 1.75K

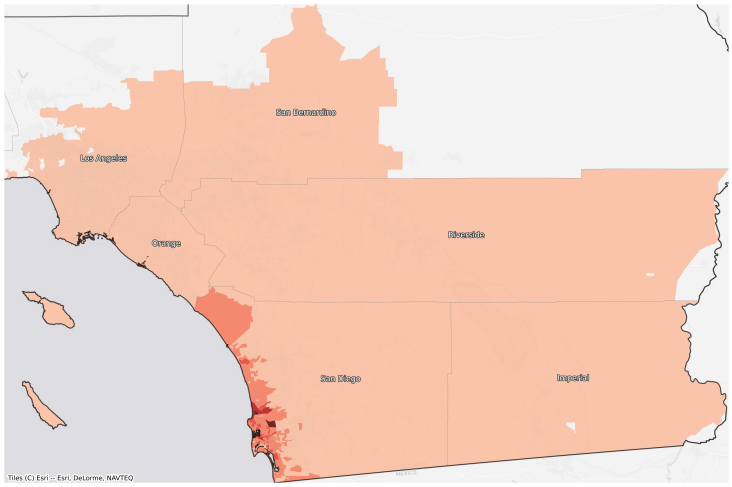
Top Counties	State	Injuries (day/night)	Fatalities (day/night)
San Diego	CA	3.59K/1.71K	79.2/20.4
Orange	CA	13.5/9.63	0.00216/0.000601
Los Angeles	CA	3.39/1.76	0.00119/0.000483
Riverside	CA	1.42/2.27	0.000178/0.000129
San Bernardino	CA	0.264/0.241	0.000115/0.000062
Imperial	CA	0.00364/0.00412	0/0
Ventura	CA	0/0	0/0

Displaced Households & Short-Term Shelter Needs

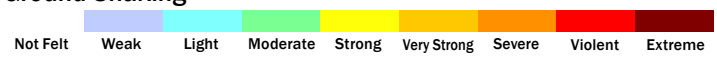
Total Displaced: 8.23K
Total Needing Shelter: 3.73K

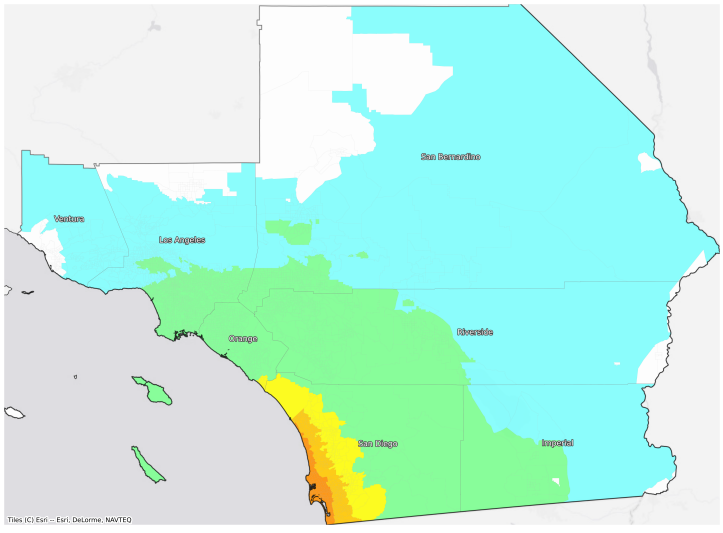
Top Counties	State	Displaced	Needing Shelter
San Diego	CA	8.22K	3.73K
Orange	CA	0.399	0.21
Los Angeles	CA	0.0782	0.0212
Riverside	CA	0.0015	0.000937
Imperial	CA	0	0
San Bernardino	CA	0	0
Ventura	CA	0	0

Economic Impacts by Census Tract (4.43K Tracts with Losses)



Ground Shaking





Debris

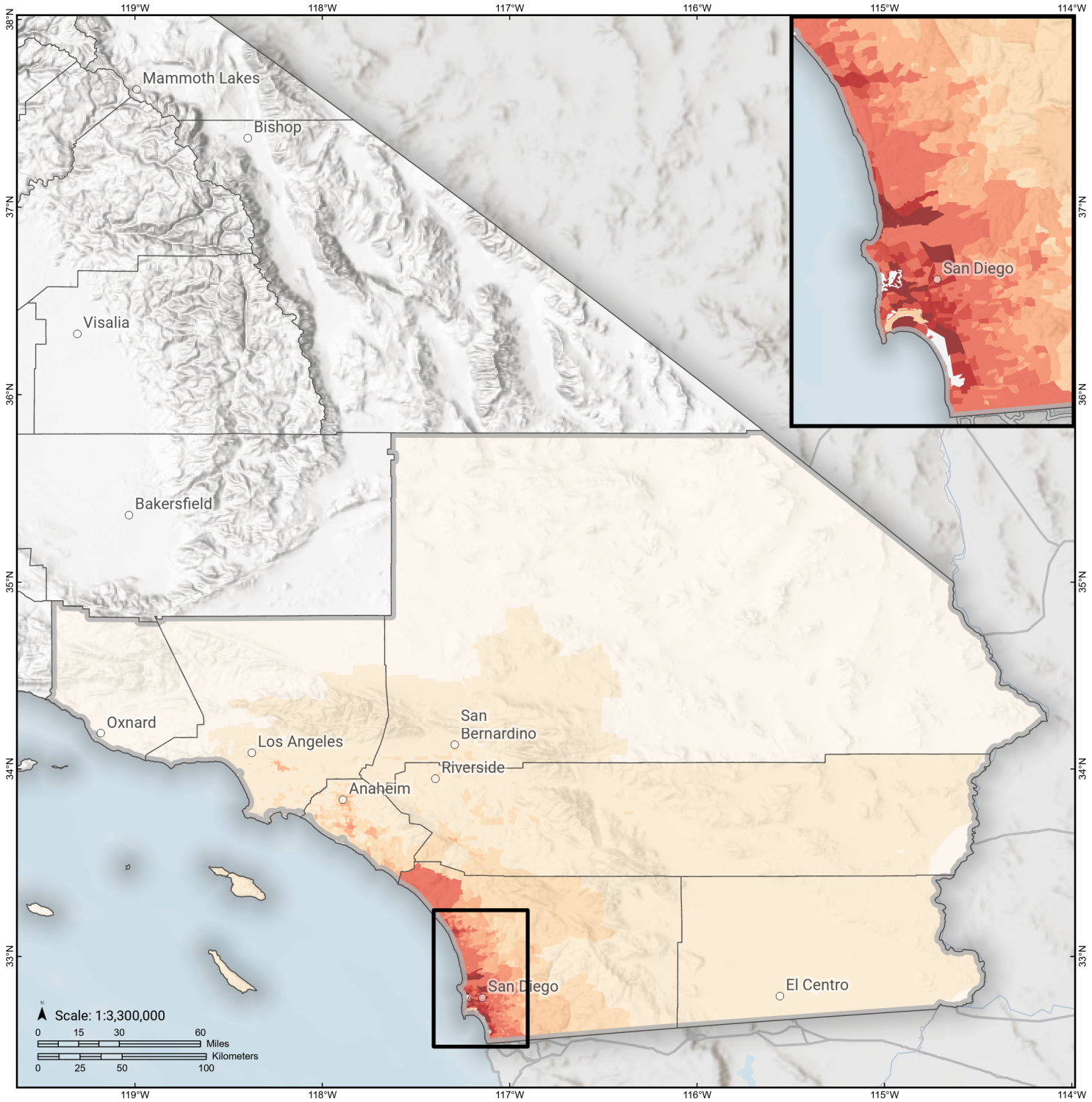
Total Tons: 2.73M
Total Truckloads: 109K

Type	Tons
Brick, Wood, and Other	1.11M
Concrete & Steel	1.62M

Rose Canyon

Debris Generated by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Rose Canyon
Scenario: rosecanyonshaw09modg_m6p99_se

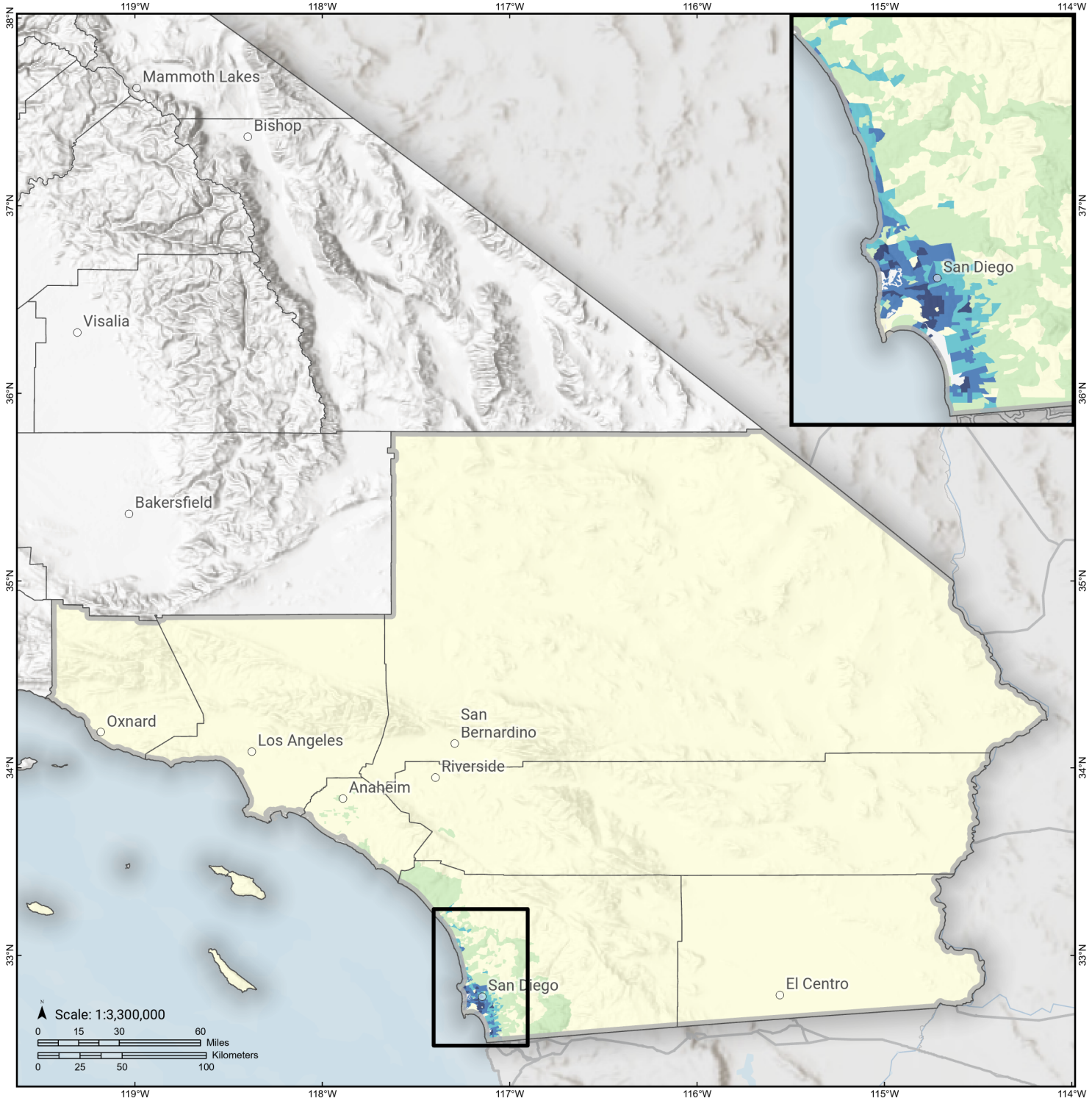
Debris Generated *(in tons)*

- 0
- >0 - 10
- >10 - 50
- >50 - 100
- >100 - 500
- >500 - 1,000
- >1,000 - 5,000
- >5,000 - 10,000
- >10,000 - 20,000
- >20,000 - 105,500

Rose Canyon

Displaced Households by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Rose Canyon
Scenario: rosecanyonshaw09modg_m6p99_se

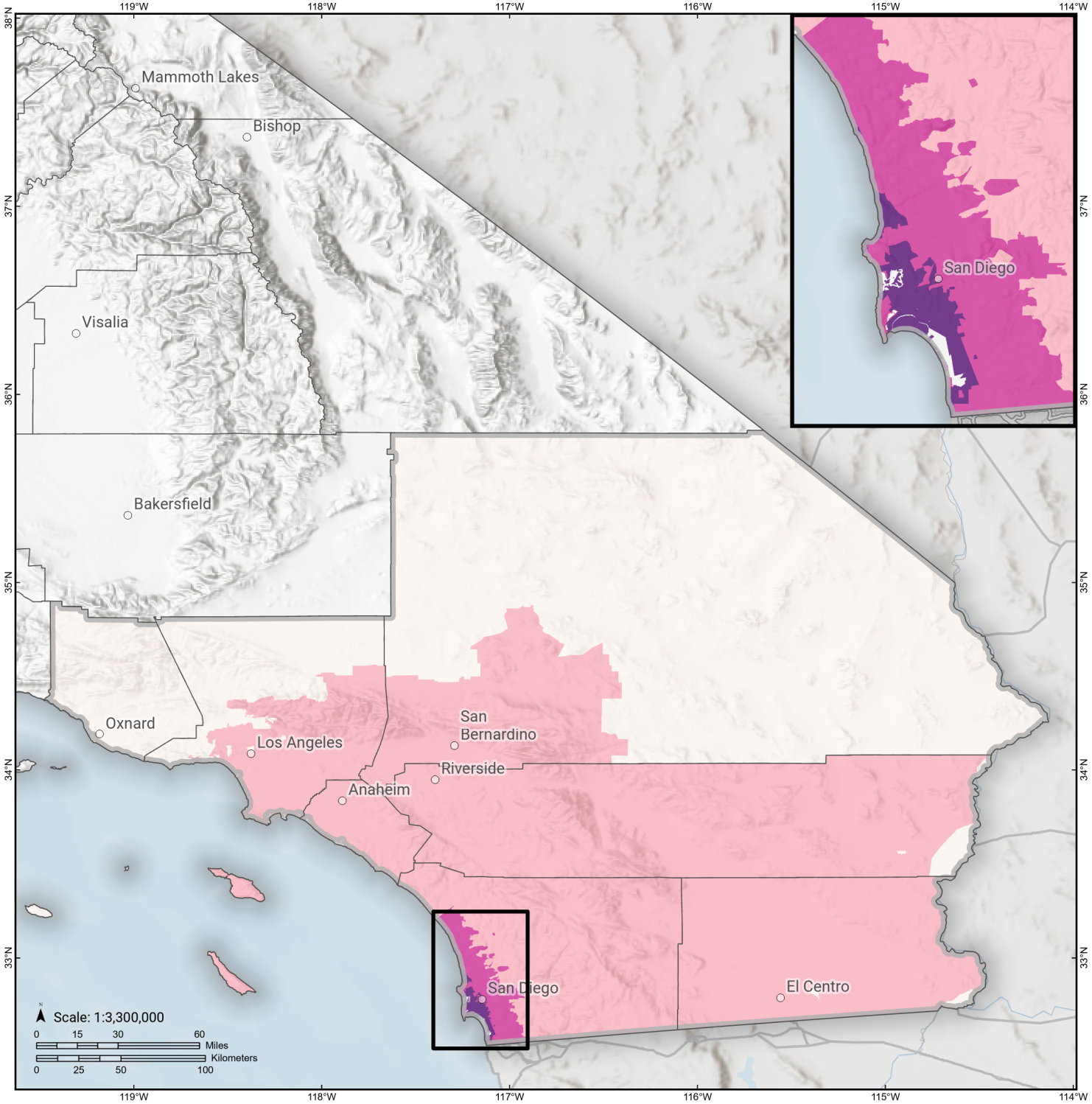
Displaced Households

- 0
- 1
- 2 - 10
- 11 - 50
- 51 - 410

Rose Canyon

Loss Ratio by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Rose Canyon
Scenario: rosecanyonshaw09modg_m6p99_se

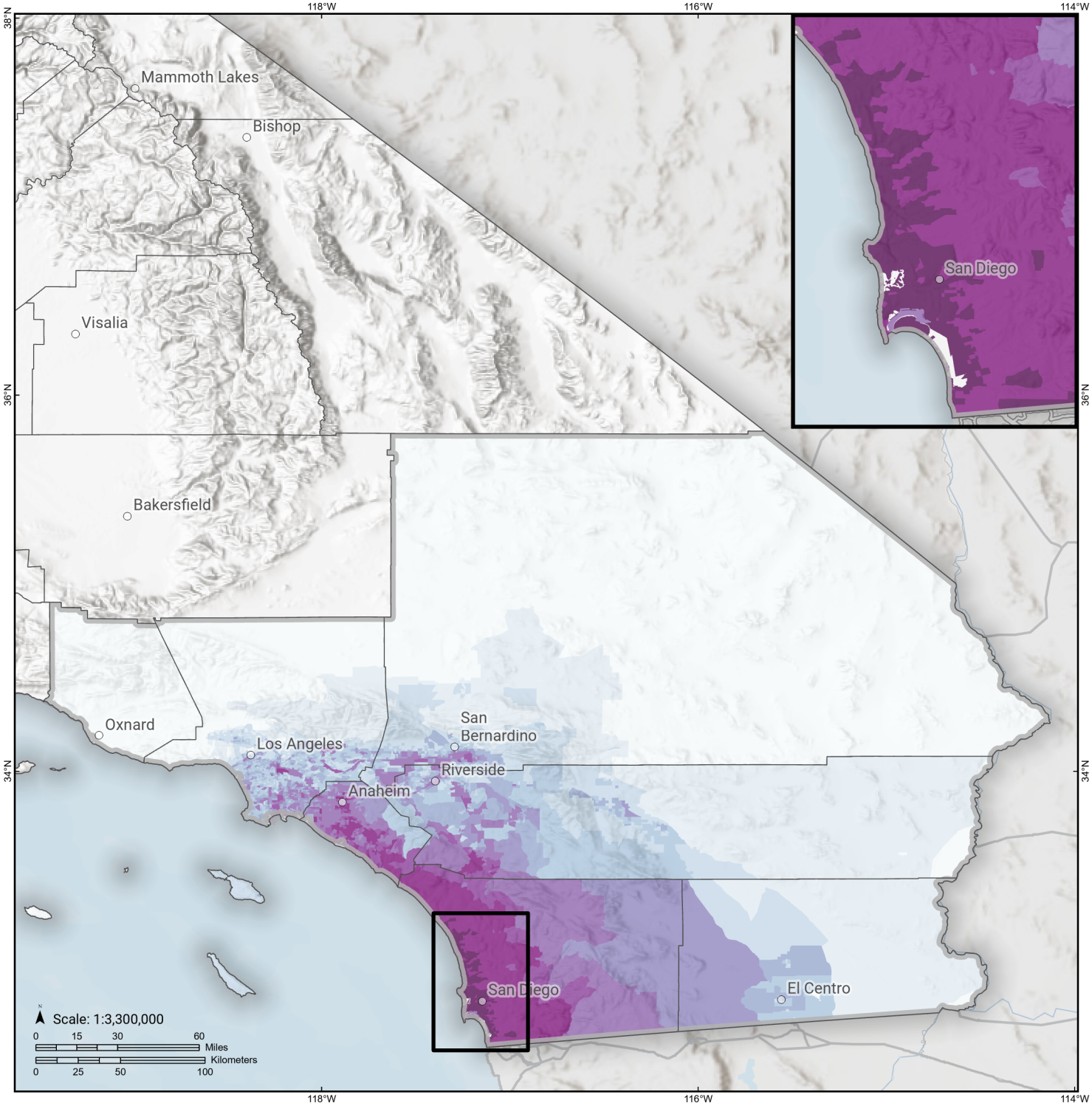
Loss Ratio *(ratio of building related economic loss to exposed value of buildings)*

- 0%
- >0 - 1%
- >1 - 10%
- >10 - 36%

Rose Canyon

Total Building Related Economic Loss by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Rose Canyon
Scenario: rosecanyonshaw09modg_m6p99_se

Economic Loss *(in thousands of USD $)*

0	>50 - 100
>0 -1	>100 - 500
>1 - 10	>500 - 1,000
>10 - 25	>1,000 - 40,000
>25 - 50	>40,000 - 847,300

Building Damage by Count by General Occupancy

RiskMAP
Increasing Resilience Together

April 23, 2024

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
California						
Imperial						
Agriculture	138	0	0	0	0	138
Commercial	3,646	0	0	0	0	3,646
Education	99	0	0	0	0	99
Government	202	0	0	0	0	202
Industrial	580	0	0	0	0	580
Religion	295	0	0	0	0	295
Other Residential	7,514	4	0	0	0	7,518
Single Family	35,405	0	0	0	0	35,405
Los Angeles						
Agriculture	2,031	1	0	0	0	2,032
Commercial	190,657	195	9	0	0	190,861
Education	5,484	1	0	0	0	5,486
Government	3,027	3	0	0	0	3,031
Industrial	53,071	52	3	0	0	53,126
Religion	10,641	10	0	0	0	10,651
Other Residential	481,476	189	7	0	0	481,671
Single Family	1,802,985	153	2	0	0	1,803,140
Orange						

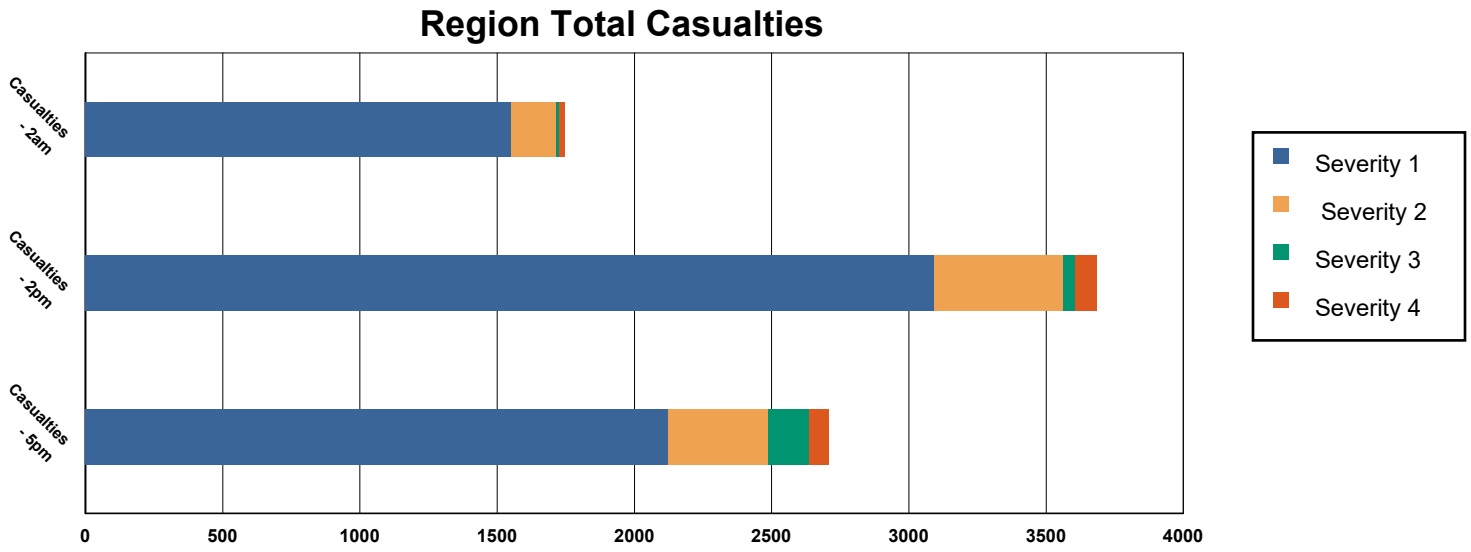
	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Agriculture	*1,119*	*14*	*1*	*0*	*0*	*1,135*
Commercial	*67,571*	*721*	*47*	*0*	*0*	*68,340*
Education	*1,885*	*5*	*0*	*0*	*0*	*1,890*
Government	*642*	*8*	*0*	*0*	*0*	*650*
Industrial	*18,563*	*216*	*15*	*0*	*0*	*18,795*
Religion	*2,034*	*21*	*1*	*0*	*0*	*2,057*
Other Residential	*84,374*	*1,261*	*83*	*0*	*0*	*85,718*
Single Family	*702,832*	*3,370*	*10*	*0*	*0*	*706,212*
Riverside						
Agriculture	*1,712*	*1*	*0*	*0*	*0*	*1,713*
Commercial	*46,293*	*62*	*2*	*0*	*0*	*46,357*
Education	*990*	*0*	*0*	*0*	*0*	*990*
Government	*7,172*	*3*	*0*	*0*	*0*	*7,175*
Industrial	*6,401*	*8*	*0*	*0*	*0*	*6,409*
Religion	*1,317*	*2*	*0*	*0*	*0*	*1,319*
Other Residential	*122,071*	*690*	*38*	*0*	*0*	*122,799*
Single Family	*604,875*	*578*	*2*	*0*	*0*	*605,455*
San Bernardino						
Agriculture	*1,814*	*1*	*0*	*0*	*0*	*1,815*
Commercial	*40,024*	*16*	*1*	*0*	*0*	*40,041*
Education	*985*	*0*	*0*	*0*	*0*	*985*
Government	*1,238*	*0*	*0*	*0*	*0*	*1,238*
Industrial	*9,471*	*3*	*0*	*0*	*0*	*9,474*
Religion	*2,319*	*1*	*0*	*0*	*0*	*2,320*
Other Residential	*98,756*	*63*	*2*	*0*	*0*	*98,821*

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Single Family	*525,329*	*37*	*1*	*0*	*0*	*525,367*
San Diego						
Agriculture	*1,683*	*371*	*115*	*18*	*3*	*2,190*
Commercial	*31,556*	*19,227*	*9,263*	*1,959*	*363*	*62,369*
Education	*1,316*	*452*	*142*	*16*	*5*	*1,932*
Government	*14,179*	*3,823*	*2,335*	*550*	*37*	*20,924*
Industrial	*8,628*	*3,766*	*1,559*	*316*	*43*	*14,313*
Religion	*1,536*	*828*	*550*	*133*	*17*	*3,063*
Other Residential	*61,604*	*44,864*	*17,504*	*3,260*	*326*	*127,559*
Single Family	*469,271*	*248,327*	*42,661*	*2,180*	*581*	*763,020*
Ventura						
Agriculture	*598*	*0*	*0*	*0*	*0*	*598*
Commercial	*14,953*	*0*	*0*	*0*	*0*	*14,953*
Education	*497*	*0*	*0*	*0*	*0*	*497*
Government	*1,001*	*0*	*0*	*0*	*0*	*1,001*
Industrial	*6,097*	*0*	*0*	*0*	*0*	*6,097*
Religion	*1,187*	*0*	*0*	*0*	*0*	*1,187*
Other Residential	*26,163*	*0*	*0*	*0*	*0*	*26,163*
Single Family	*203,968*	*0*	*0*	*0*	*0*	*203,968*
Total	**5,791,274**	**329,350**	**74,358**	**8,432**	**1,376**	**6,204,790**
Region Total	**5,791,274**	**329,350**	**74,358**	**8,432**	**1,376**	**6,204,790**

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					
Imperial					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Imperial					
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Los Angeles					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	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	1	0	0	0	1
Single Family	0	0	0	0	0
Total Casualties - 2am	**2**	**0**	**0**	**0**	**2**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	2	0	0	0	2
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
Single Family	0	0	0	0	0
Total Casualties - 2pm	**3**	**0**	**0**	**0**	**3**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	2	0	0	0	2
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Other-Residential	1	0	0	0	1
Single Family	0	0	0	0	0
Total Casualties - 5pm	**2**	**0**	**0**	**0**	**2**
Orange					
Casualties - 2am					
Commuting	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Orange					
Casualties - 2am					
Commercial	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	4	0	0	0	4
Single Family	5	0	0	0	5
Total Casualties - 2am	**10**	**0**	**0**	**0**	**10**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	7	0	0	0	7
Educational	2	0	0	0	2
Hotels	0	0	0	0	0
Industrial	1	0	0	0	1
Other-Residential	1	0	0	0	1
Single Family	1	0	0	0	1
Total Casualties - 2pm	**13**	**0**	**0**	**0**	**14**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	5	0	0	0	5
Educational	1	0	0	0	1
Hotels	0	0	0	0	0
Industrial	1	0	0	0	1
Other-Residential	1	0	0	0	1
Single Family	2	0	0	0	2
Total Casualties - 5pm	**9**	**0**	**0**	**0**	**10**
Riverside					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	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	1	0	0	0	1
Single Family	1	0	0	0	1
Total Casualties - 2am	**2**	**0**	**0**	**0**	**2**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	1	0	0	0	1
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					
Riverside					
Casualties - 2pm					
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 2pm	**1**	**0**	**0**	**0**	**1**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 5pm	**1**	**0**	**0**	**0**	**1**
San Bernardino					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Diego					
Casualties - 2am					
Commuting	0	0	1	0	1
Commercial	28	5	0	1	33
Educational	0	0	0	0	0
Hotels	3	1	0	0	4
Industrial	21	3	0	1	26
Other-Residential	769	97	7	13	885
Single Family	717	57	3	6	783
Total Casualties - 2am	**1,538**	**163**	**11**	**20**	**1,732**
Casualties - 2pm					
Commuting	3	3	6	1	13
Commercial	1,809	294	27	51	2,181
Educational	640	95	8	16	760
Hotels	1	0	0	0	1
Industrial	155	26	2	4	187
Other-Residential	245	32	2	4	284
Single Family	221	19	1	2	243
Total Casualties - 2pm	**3,073**	**469**	**47**	**79**	**3,668**
Casualties - 5pm					
Commuting	55	70	122	23	270
Commercial	1,224	196	18	34	1,473
Educational	179	25	2	4	209
Hotels	1	0	0	0	1
Industrial	97	16	1	3	117
Other-Residential	289	37	3	5	334
Single Family	265	22	1	2	290
Total Casualties - 5pm	**2,110**	**366**	**147**	**71**	**2,695**
Ventura					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Commuting	0	0	0	0	0
Commercial	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Ventura					
Casualties - 2pm					
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Commuting	0	0	0	0	0
Commercial	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
Single Family	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
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 09, 2024

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
California			
Riverside	2	0	3
San Bernardino	1	0	1
Imperial	0	0	0
Ventura	0	0	0
Orange	11	6	17
San Diego	1,084	1,613	2,697
Los Angeles	4	1	5
Total	**1,102**	**1,620**	**2,722**
Region Total	**1,102**	**1,620**	**2,722**

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 : RoseCanyon

Scenario : rosecanyonshaw09modg_m6p99_se

Debris Summary Report

April 23, 2024

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
California			
Riverside	3	0	3
San Bernardino	1	0	1
Imperial	0	0	0
Ventura	0	0	0
Orange	11	6	17
San Diego	1,087	1,613	2,700
Los Angeles	4	1	5
Total	**1,106**	**1,620**	**2,726**
Region Total	**1,106**	**1,620**	**2,726**

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 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										
Imperial	5	435	276	55	0.00	0	0	1	1	774
San Bernardino	377	8,156	4,736	728	0.00	46	50	54	101	14,248
Riverside	2,439	35,307	15,833	1,028	0.01	190	170	156	396	55,519
Ventura	0	0	0	0	0.00	0	0	0	0	0
Orange	17,410	224,510	118,199	10,864	0.04	1,894	2,573	2,775	3,786	382,012
San Diego	2,530,340	14,038,988	6,192,838	444,599	2.91	1,402,601	714,547	1,036,783	789,969	27,150,665
Los Angeles	3,249	38,939	24,687	2,728	0.00	440	579	686	1,067	72,375
Total	**2,553,821**	**14,346,334**	**6,356,569**	**460,002**	**0.42**	**1,405,173**	**717,920**	**1,040,455**	**795,320**	**27,675,594**

Study Region : RoseCanyon

Scenario : rosecanyonshaw09modg_m6p99_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
Region Total	**2,553,821**	**14,346,334**	**6,356,569**	**460,002**	**0.42**	**1,405,173**	**717,920**	**1,040,455**	**795,320**	**27,675,594**

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.

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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								
Imperial								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		77	0	0	0	0	410	487
Total	**0**	**77**	**0**	**0**	**0**	**0**	**410**	**487**
Los Angeles								
Segments	0	0	0					0
Bridges	766	0	0					766
Tunnels	0	0	0					0
Facilities		1,160	22,087	278	7,382	128	23,262	54,297
Total	**766**	**1,160**	**22,087**	**278**	**7,382**	**128**	**23,262**	**55,062**
Orange								
Segments	0	0	0					0
Bridges	268	1	0					269
Tunnels	0	0	0					0
Facilities		631	0	0	2,262	218	16,286	19,398

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**268**	**632**	**0**	**0**	**2,262**	**218**	**16,286**	**19,666**
Riverside								
Segments	0	0	0					0
Bridges	16	0	0					16
Tunnels	0	0	0					0
Facilities		128	0	256	0	0	2,006	2,390
Total	**16**	**128**	**0**	**256**	**0**	**0**	**2,006**	**2,406**
San Bernardino								
Segments	0	0	0					0
Bridges	39	0	0					39
Tunnels	0	0	0					0
Facilities		388	0	41	0	0	2,526	2,954
Total	**39**	**388**	**0**	**41**	**0**	**0**	**2,526**	**2,993**
San Diego								
Segments	0	0	0					0
Bridges	356,569	16,121	226					372,915
Tunnels	1,392	0	0					1,392
Facilities		6,499	242,565	491	150,241	1,709	342,965	744,470
Total	**357,961**	**22,620**	**242,791**	**491**	**150,241**	**1,709**	**342,965**	**1,118,777**
Ventura								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		9	0	0	0	0	29	37

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	0	9	0	0	0	0	29	37
Total	359,050	25,013	264,878	1,066	159,886	2,055	387,483	1,199,430
Region Total	359,050	25,013	264,878	1,066	159,886	2,055	387,483	1,199,430

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							
Imperial							
Facilities	56	1,844	0	0	44,398	2	46,300
Pipelines	84	42	0	0			126
Total	140	1,886	0	0	44,398	2	46,426
Los Angeles							
Facilities	284	1,737	3	150	97,978	7	100,159
Pipelines	438	220	0	0			658
Total	722	1,957	3	150	97,978	7	100,817
Orange							
Facilities	725	12,405	1	62	41,716	11	54,921
Pipelines	420	211	0	0			630
Total	1,144	12,616	1	62	41,716	11	55,551
Riverside							
Facilities	629	4,770	0	75	27,357	14	32,845

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Pipelines	330	166	0	0			496
Total	959	4,936	0	75	27,357	14	33,341
San Bernardino							
Facilities	112	1,475	0	3	59,525	4	61,120
Pipelines	281	141	0	0			422
Total	393	1,616	0	3	59,525	4	61,542
San Diego							
Facilities	13,602	956,313	29	658	1,819,780	1,504	2,791,887
Pipelines	15,421	7,746	0	0			23,168
Total	29,024	964,059	29	658	1,819,780	1,504	2,815,054
Ventura							
Facilities	0	21	0	0	3	0	24
Pipelines	21	10	0	0			31
Total	21	31	0	0	3	0	55
Total	**32,403**	**987,101**	**33**	**948**	**2,090,758**	**1,542**	**3,112,786**
Region Total	**32,403**	**987,101**	**33**	**948**	**2,090,758**	**1,542**	**3,112,786**

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 09, 2024

All values are in thousands of dollars

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
California							
Imperial							
Facilities	56	1,844	0	0	44,398	2	46,300
Pipelines	84	42	0	0			126
Total	140	1,886	0	0	44,398	2	46,426
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Total	**32,403**	**987,101**	**33**	**948**	**2,090,758**	**1,542**	**3,112,786**
Region Total	**32,403**	**987,101**	**33**	**948**	**2,090,758**	**1,542**	**3,112,786**

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	8.50 - 33.80
	Building Contents	0.80 - 3.20
	Business Interruption	2.00 - 7.90
Infrastructure	Lifelines Damage	
	Total	13.80 - 55.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	299,500	20,200	9,300	329,000
Minor	60,300	9,300	4,600	74,200
Major	5,400	2,000	1,000	8,400
Destroyed	910	360	110	1,380
Total	366,110	31,860	15,010	412,980

Estimated Casualties : Night Time

Severity Level	Description	# Persons
Level 1	Medical Aid	800 - 3,000
Level 2	Hospital Care	80 - 300
Level 3	Life-threatening	10 - 20
Level 4	Fatalities	10 - 40

Estimated Shelter Needs

Type	Households	People
Displaced Households	4,000 - 16,000	10,000 - 40,000
Public Shelter	1,490	3,730

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 : 6.99

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 22,123,016

Building Exposure : ($ Millions)

Residential	
Commercial	753,379
Other	538,143
Total	

Counties :

Major Metro Area :

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	8.50 - 33.80
	Building Contents	0.80 - 3.20
	Business Interruption	2.00 - 7.90
Infrastructure	Lifelines Damage	
	Total	13.80 - 55.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	299,500	20,200	9,300	329,000
Minor	60,300	9,300	4,600	74,200
Major	5,400	2,000	1,000	8,400
Destroyed	910	360	110	1,380
Total	366,110	31,860	15,010	412,980

Estimated Casualties : Day Time

Severity Level	Description	# Persons
Level 1	Medical Aid	1,500 - 6,000
Level 2	Hospital Care	200 - 900
Level 3	Life-threatening	20 - 90
Level 4	Fatalities	40 - 160

Estimated Shelter Needs

Type	Households	People
Displaced Households	4,000 - 16,000	10,000 - 40,000
Public Shelter	1,490	3,730

Comments :

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Earthquake Information

Location :

Origin Time:

Magnitude : 6.99

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 22,123,016

Building Exposure : ($ Millions)

Residential	
Commercial	753,379
Other	538,143
Total	

Counties :

Major Metro Area :

Time of report: April 23, 2024 2:19 pm

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	8.50 - 33.80
	Building Contents	0.80 - 3.20
	Business Interruption	2.00 - 7.90
Infrastructure	Lifelines Damage	
	Total	13.80 - 55.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	299,500	20,200	9,300	329,000
Minor	60,300	9,300	4,600	74,200
Major	5,400	2,000	1,000	8,400
Destroyed	910	360	110	1,380
Total	366,110	31,860	15,010	412,980

Estimated Casualties : Commute Time

Severity Level	Description	# Persons
Level 1	Medical Aid	1,100 - 4,000
Level 2	Hospital Care	180 - 700
Level 3	Life-threatening	70 - 300
Level 4	Fatalities	40 - 140

Estimated Shelter Needs

Type	Households	People
Displaced Households	4,000 - 16,000	10,000 - 40,000
Public Shelter	1,490	3,730

Comments :

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Earthquake Information

Location :

Origin Time:

Magnitude : 6.99

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 22,123,016

Building Exposure : ($ Millions)

Residential	
Commercial	753,379
Other	538,143
Total	

Counties :

Major Metro Area :

HAZUS™

FEMA

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Shelter Summary Report

April 23, 2024

	# of Displaced Households	# of People Needing Short Term Shelter
California		
Riverside	0	0
San Bernardino	0	0
Imperial	0	0
Ventura	0	0
Orange	0	0
San Diego	8,225	3,729
Los Angeles	0	0
Total	**8,225**	**3,730**
Region Total	**8,225**	**3,730**

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.