Hazus: Earthquake Global Risk Report

Region Name: OceanicWHuasna

Earthquake Scenario: oceanicwesthuasnasha_m7p21_se

Print Date: June 11, 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.

Table of Contents

Section	Page #
General Description of the Region	3
Building and Lifeline Inventory	4
Building Inventory	
Critical Facility Inventory	
Transportation and Utility Lifeline Inventory	
Earthquake Scenario Parameters	7
Direct Earthquake Damage	8
Buildings Damage	
Essential Facilities Damage	
Transportation and Utility Lifeline Damage	
Induced Earthquake Damage	14
Fire Following Earthquake	
Debris Generation	
Social Impact	15
Shelter Requirements	
Casualties	
Economic Loss	17
Building Related Losses	
Transportation and Utility Lifeline Losses	

Appendix A: County Listing for the Region

Appendix B: Regional Population and Building Value Data

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 15 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 44,544.01 square miles and contains 4,257 census tracts. There are over 5,952 thousand households in the region which has a total population of 17,832,696 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 4,930 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 213,747 and 154,672 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 4,930 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 262 hospitals in the region with a total bed capacity of 48,640 beds. There are 6,181 schools, 1,047 fire stations, 397 police stations and 94 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 368,419.00 (millions of dollars). This inventory includes over 9,564.76 miles of highways, 9,923 bridges, 206,565.47 miles of pipes.

Table 1: Transportation System Lifeline Inventory

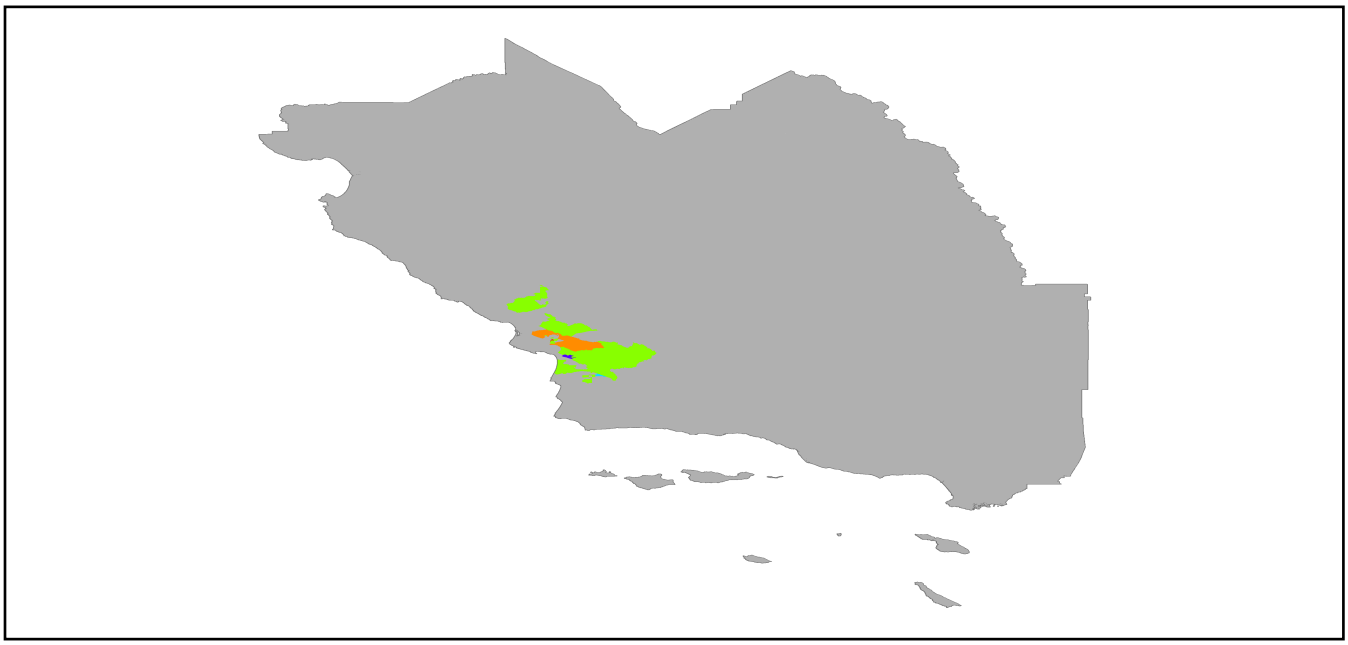
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	9,923	47701.7835
	Segments	8,185	93306.9763
	Tunnels	55	512.5778
		Subtotal	**141521.3376**
Railways	Bridges	1,285	7311.6500
	Facilities	95	252.9850
	Segments	1,678	51237.3926
	Tunnels	0	0.0000
		Subtotal	**58802.0276**
Light Rail	Bridges	40	8.4287
	Facilities	141	2858.2700
	Segments	7	4365.3859
	Tunnels	0	0.0000
		Subtotal	**7232.0846**
Bus	Facilities	50	109.9643
		Subtotal	**109.9643**
Ferry	Facilities	15	19.9650
		Subtotal	**19.9650**
Port	Facilities	247	941.5256
		Subtotal	**941.5256**
Airport	Facilities	126	3585.4015
	Runways	132	1535.4010
		Subtotal	**5120.8025**
		Total	**213,747.70**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	4109.2082
	Facilities	28	1100.2320
	Pipelines	0	0.0000
		Subtotal	**5209.4402**
Waste Water	Distribution Lines	NA	2465.5249
	Facilities	86	14787.8548
	Pipelines	0	0.0000
		Subtotal	**17253.3797**
Natural Gas	Distribution Lines	NA	1643.6833
	Facilities	31	1107.0372
	Pipelines	427	13027.6185
		Subtotal	**15778.3390**
Oil Systems	Facilities	65	7.6700
	Pipelines	0	0.0000
		Subtotal	**7.6700**
Electrical Power	Facilities	474	116370.2075
		Subtotal	**116370.2075**
Communication	Facilities	454	53.5720
		Subtotal	**53.5720**
		Total	**154,672.60**

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	oceanicwesthuasnasha_m7p21_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	7.21
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 19,214 buildings will be at least moderately damaged. This is over 0.00 % of the buildings in the region. There are an estimated 326 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

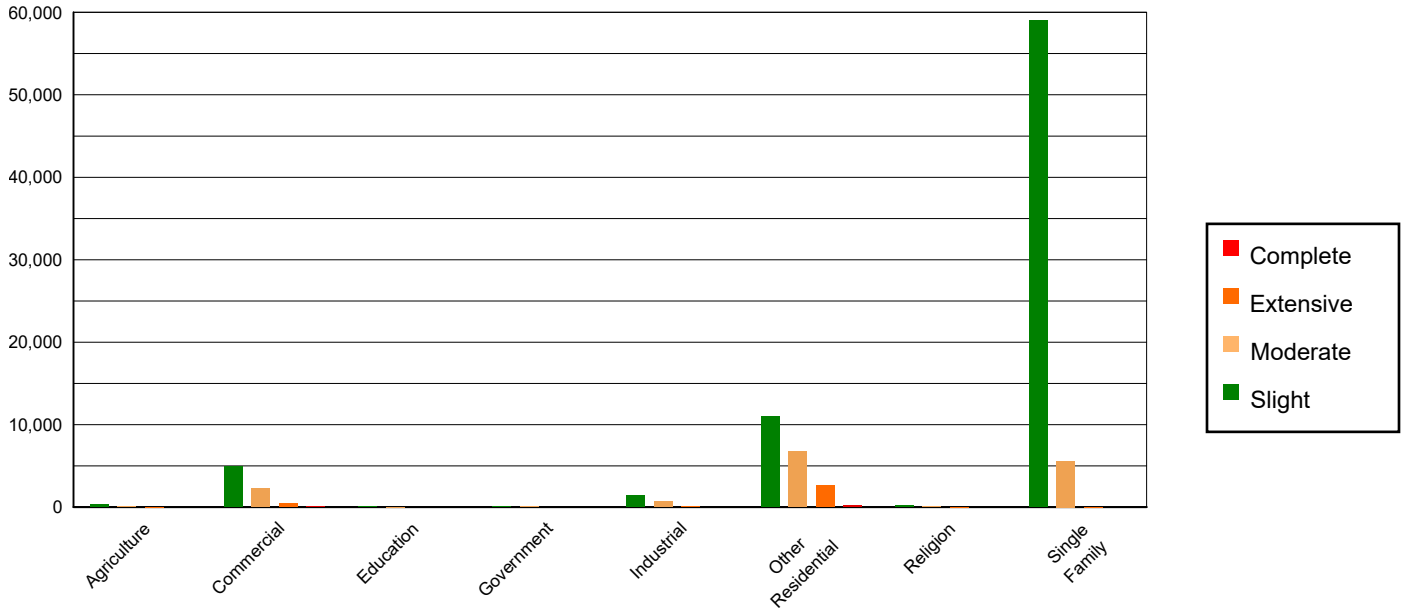


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	28333.50	0.59	314.86	0.41	101.14	0.65	17.68	0.54	3.83	1.17
Commercial	335606.15	6.94	4903.53	6.36	2294.09	14.71	449.21	13.67	85.02	26.03
Education	10067.82	0.21	77.63	0.10	17.37	0.11	1.05	0.03	0.11	0.03
Government	7407.91	0.15	88.90	0.12	39.69	0.25	6.43	0.20	1.07	0.33
Industrial	95290.97	1.97	1427.49	1.85	698.68	4.48	112.40	3.42	15.46	4.73
Other Residential	783611.93	16.21	11010.57	14.29	6748.03	43.25	2658.31	80.87	216.16	66.17
Religion	19985.46	0.41	230.44	0.30	108.52	0.70	21.06	0.64	4.51	1.38
Single Family	3553893.83	73.52	58988.55	76.57	5593.20	35.85	20.90	0.64	0.52	0.16
Total	**4,834,198**		**77,042**		**15,601**		**3,287**		**327**	

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

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	4244026.00	87.79	68264.20	88.61	6711.99	43.02	40.62	1.24	0.98	0.30
Steel	102173.49	2.11	1383.98	1.80	1123.16	7.20	275.60	8.38	44.47	13.61
Concrete	108542.66	2.25	1694.74	2.20	834.71	5.35	253.27	7.71	53.69	16.43
Precast	53122.47	1.10	1203.78	1.56	784.41	5.03	67.55	2.05	3.83	1.17
RM	214710.24	4.44	1730.42	2.25	811.41	5.20	52.20	1.59	0.25	0.08
URM	29119.80	0.60	146.14	0.19	176.21	1.13	159.93	4.87	64.84	19.85
MH	82502.91	1.71	2618.72	3.40	5158.83	33.07	2437.87	74.17	158.63	48.56
Total	**4,834,198**		**77,042**		**15,601**		**3,287**		**327**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 48,640 hospital beds available for use. On the day of the earthquake, the model estimates that only 47,657 hospital beds (98.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 99.00% of the beds will be back in service. By 30 days, 100.00% 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	262	1	0	256
Schools	6,181	14	0	6,108
EOCs	94	1	0	93
PoliceStations	397	4	0	385
FireStations	1,047	1	0	1,028

Transportation Lifeline Damage

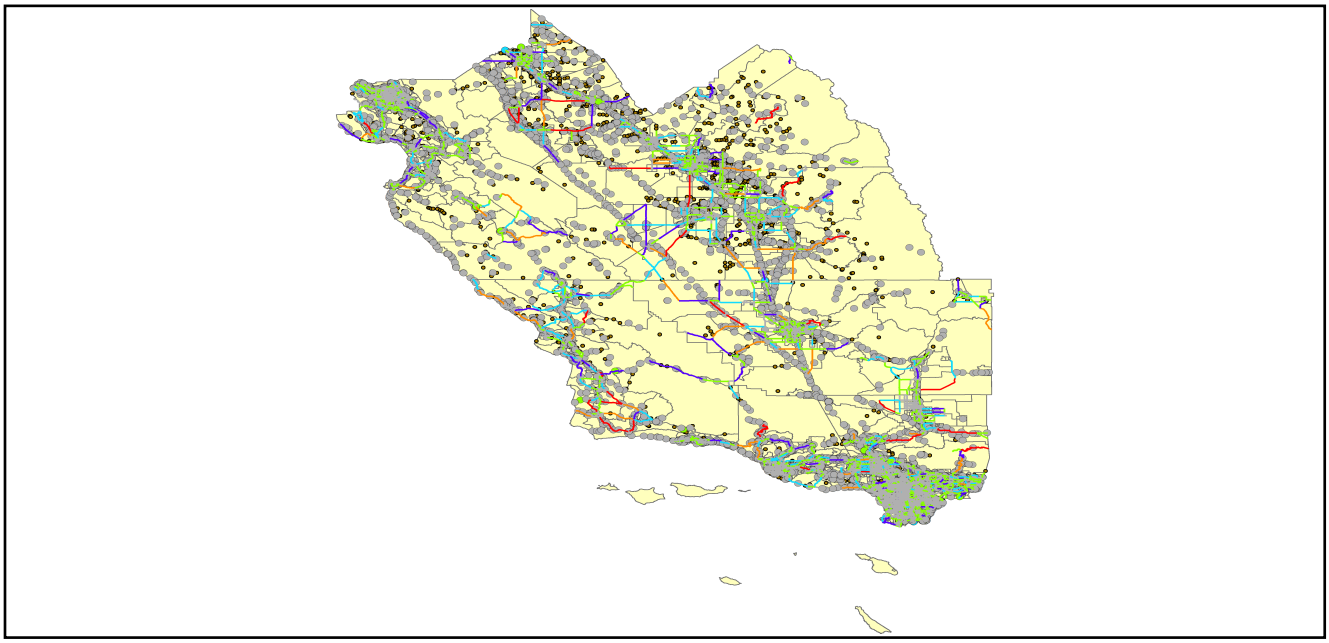


Table 6: Expected Damage to the Transportation Systems

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	8,185	0	0	8,185	8,185
	Bridges	9,923	8	1	9,914	9,919
	Tunnels	55	0	0	55	55
Railways	Segments	1,678	0	0	1,678	1,678
	Bridges	1,285	0	0	1,285	1,285
	Tunnels	0	0	0	0	0
	Facilities	95	0	0	95	95
Light Rail	Segments	7	0	0	7	7
	Bridges	40	0	0	40	40
	Tunnels	0	0	0	0	0
	Facilities	141	0	0	141	141
Bus	Facilities	50	0	0	50	50
Ferry	Facilities	15	0	0	15	15
Port	Facilities	247	0	0	247	247
Airport	Facilities	126	0	0	126	126
	Runways	132	0	0	132	132

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	28	1	0	27	28
Waste Water	86	3	0	78	86
Natural Gas	31	0	0	31	31
Oil Systems	65	0	0	65	65
Electrical Power	474	4	0	471	474
Communication	454	40	0	429	454

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

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	127,667	3354	838
Waste Water	76,600	1685	421
Natural Gas	2,298	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	5,952,780	21,152	15,524	8,798	0	0
Electric Power		73,433	44,353	16,728	1,276	102

Induced Earthquake Damage

Fire Following Earthquake

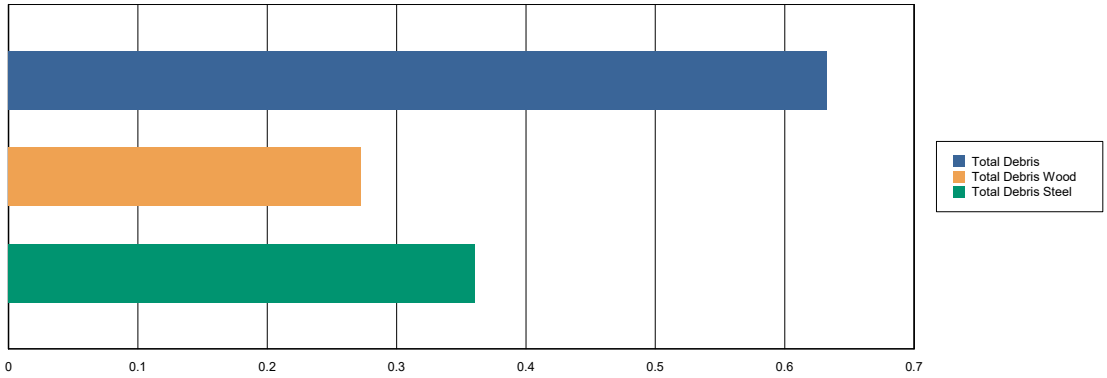
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 2 ignitions that will burn about 0.02 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 292 people and burn about 25 (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 633,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 43.00% 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 25,320 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



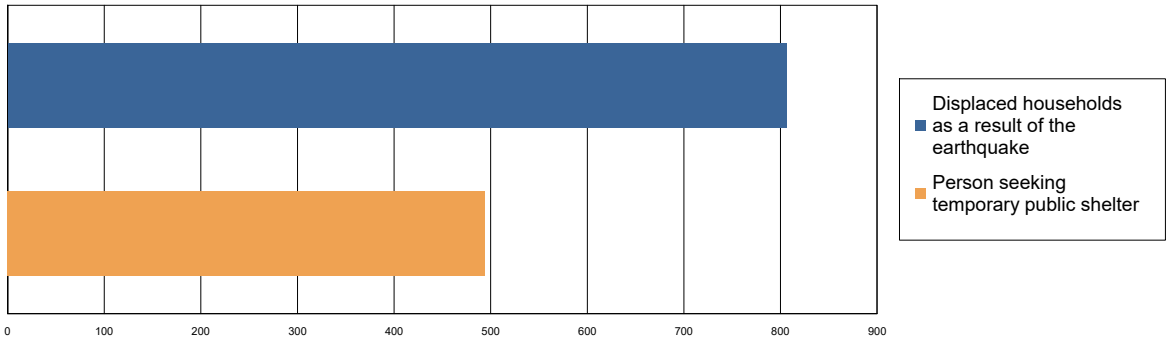
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
0.27	0.36	0.63	25,320 (@25 tons/truck)

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 806 households to be displaced due to the earthquake. Of these, 494 people (out of a total population of 17,832,696) 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
806	494

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	4.20	0.81	0.10	0.20
	Commuting	0.06	0.09	0.14	0.03
	Educational	0.00	0.00	0.00	0.00
	Hotels	0.22	0.03	0.00	0.01
	Industrial	3.72	0.59	0.06	0.12
	Other-Residential	220.28	33.79	2.75	5.21
	Single Family	108.16	4.34	0.02	0.04
	Total	**337**	**40**	**3**	**6**
2 PM	Commercial	272.35	50.94	6.20	12.08
	Commuting	0.56	0.81	1.29	0.25
	Educational	74.73	8.91	0.65	1.25
	Hotels	0.04	0.01	0.00	0.00
	Industrial	27.26	4.33	0.45	0.87
	Other-Residential	69.93	11.19	1.01	1.87
	Single Family	32.75	1.38	0.01	0.02
	Total	**478**	**78**	**10**	**16**
5 PM	Commercial	180.39	33.35	4.04	7.78
	Commuting	10.41	15.07	24.01	4.72
	Educational	20.95	2.58	0.20	0.38
	Hotels	0.07	0.01	0.00	0.00
	Industrial	17.03	2.71	0.28	0.54
	Other-Residential	80.99	12.77	1.11	2.05
	Single Family	39.38	1.65	0.01	0.02
	Total	**349**	**68**	**30**	**15**

Economic Loss

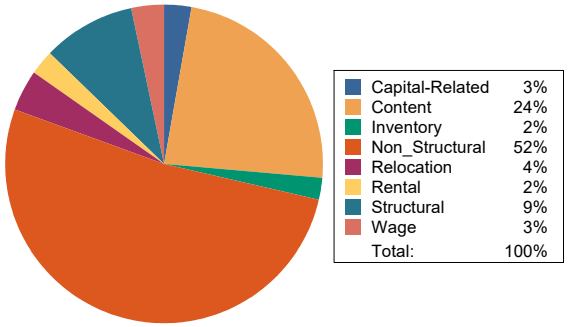
The total economic loss estimated for the earthquake is 6,938.18 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

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 5,219.60 (millions of dollars); 13 % 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)

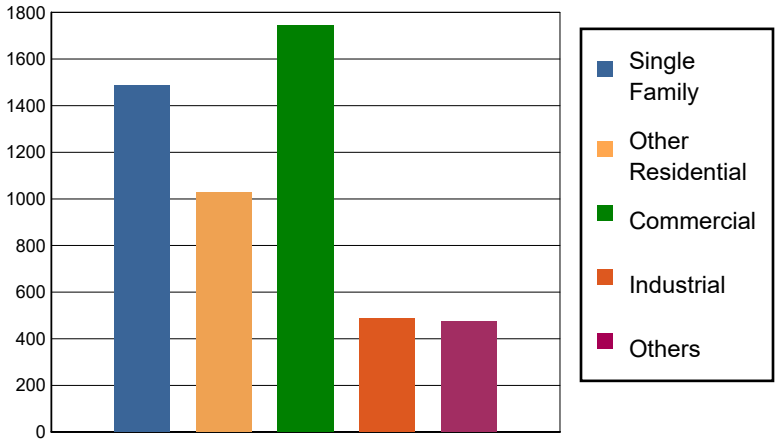


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	14.1473	145.4946	4.2770	9.3030	173.2219
	Capital-Related	0.0000	6.0108	134.1033	2.6035	2.6992	145.4168
	Rental	13.2369	42.2505	67.2401	2.7129	4.1377	129.5781
	Relocation	38.8012	46.8635	93.5316	14.3547	29.9657	223.5167
	Subtotal	**52.0381**	**109.2721**	**440.3696**	**23.9481**	**46.1056**	**671.7335**
Capital Stock Losses							
	Structural	142.9445	108.6648	159.0365	42.7233	40.5758	493.9449
	Non_Structural	936.3775	640.5873	677.6263	228.7727	222.9671	2,706.3309
	Content	357.3996	167.0837	396.2550	165.2908	150.3438	1,236.3729
	Inventory	0.0000	0.0000	69.8452	26.6948	14.6782	111.2182
	Subtotal	**1436.7216**	**916.3358**	**1302.7630**	**463.4816**	**428.5649**	**4547.8669**
	Total	**1488.76**	**1025.61**	**1743.13**	**487.43**	**474.67**	**5219.60**

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	93306.9763	0.0000	0.00
	Bridges	47701.7835	54.1190	0.11
	Tunnels	512.5778	0.0004	0.00
	Subtotal	**141521.3376**	**54.1194**	
Railways	Segments	51237.3926	0.0000	0.00
	Bridges	7311.6500	5.2988	0.07
	Tunnels	0.0000	0.0000	0.00
	Facilities	252.9850	3.6083	1.43
	Subtotal	**58802.0276**	**8.9071**	
Light Rail	Segments	4365.3859	0.0000	0.00
	Bridges	8.4287	0.0000	0.00
	Tunnels	0.0000	0.0000	0.00
	Facilities	2858.2700	2.8905	0.10
	Subtotal	**7232.0846**	**2.8905**	
Bus	Facilities	109.9643	3.7710	3.43
	Subtotal	**109.9643**	**3.7710**	
Ferry	Facilities	19.9650	0.0769	0.39
	Subtotal	**19.9650**	**0.0769**	
Port	Facilities	941.5256	8.8972	0.94
	Subtotal	**941.5256**	**8.8972**	
Airport	Facilities	3585.4015	24.7348	0.69
	Runways	1535.4010	0.0000	0.00
	Subtotal	**5120.8025**	**24.7348**	
	Total	**213,747.71**	**103.40**	

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	1100.2320	8.8140	0.80
	Distribution Lines	4109.2082	15.0923	0.37
	Subtotal	**5209.4402**	**23.9063**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	14787.8548	214.4471	1.45
	Distribution Lines	2465.5249	7.5813	0.31
	Subtotal	**17253.3797**	**222.0284**	
Natural Gas	Pipelines	13027.6185	0.0000	0.00
	Facilities	1107.0372	3.3539	0.30
	Distribution Lines	1643.6833	2.5973	0.16
	Subtotal	**15778.3390**	**5.9512**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	7.6700	0.0398	0.52
	Subtotal	**7.6700**	**0.0398**	
Electrical Power	Facilities	116370.2075	1360.4408	1.17
	Subtotal	**116370.2075**	**1360.4408**	
Communication	Facilities	53.5720	2.8193	5.26
	Subtotal	**53.5720**	**2.8193**	
	Total	**154,672.61**	**1,615.19**	

Appendix A: County Listing for the Region

Fresno,CA

Kern,CA

Kings,CA

Los Angeles,CA

Madera,CA

Merced,CA

Monterey,CA

San Benito,CA

San Luis Obispo,CA

Santa Barbara,CA

Santa Clara,CA

Santa Cruz,CA

Stanislaus,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					
	Fresno	1,008,654	98,532	61,772	160,304
	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
	Madera	156,255	18,025	9,641	27,667
	Merced	281,202	25,194	26,098	51,292
	Monterey	439,035	47,655	28,750	76,405
	San Benito	64,209	9,440	3,799	13,239
	San Luis Obispo	282,424	41,720	20,896	62,616
	Santa Barbara	448,229	49,971	28,481	78,452
	Santa Clara	1,936,259	261,111	120,471	381,582
	Santa Cruz	270,861	36,147	18,805	54,952
	Stanislaus	552,878	62,937	37,511	100,449
	Tulare	473,117	43,262	31,210	74,472
	Ventura	843,843	99,299	52,072	151,371
Total Region		**17,832,696**	**1,845,276**	**1,073,530**	**2,918,810**

Building Damage by Count by General Occupancy

RiskMAP
Increasing Resilience Together

June 11, 2024

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
California						
Fresno						
Agriculture	3,418	3	0	0	0	3,421
Commercial	21,045	8	0	0	0	21,054
Education	602	0	0	0	0	602
Government	291	0	0	0	0	291
Industrial	5,345	3	0	0	0	5,348
Religion	1,506	1	0	0	0	1,507
Other Residential	40,951	21	1	0	0	40,973
Single Family	226,415	10	0	0	0	226,425
Kern						
Agriculture	4,631	13	1	0	0	4,645
Commercial	15,539	27	2	0	0	15,567
Education	462	0	0	0	0	462
Government	442	1	0	0	0	443
Industrial	6,035	11	1	0	0	6,047
Religion	1,521	3	0	0	0	1,524
Other Residential	54,379	133	8	0	0	54,520
Single Family	205,080	59	0	0	0	205,139
Kings						

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Agriculture	305	1	0	0	0	306
Commercial	2,314	4	0	0	0	2,318
Education	103	0	0	0	0	103
Government	72	0	0	0	0	72
Industrial	554	1	0	0	0	555
Religion	210	0	0	0	0	210
Other Residential	4,330	12	1	0	0	4,342
Single Family	36,235	10	0	0	0	36,245
Los Angeles						
Agriculture	2,032	0	0	0	0	2,032
Commercial	190,861	0	0	0	0	190,861
Education	5,486	0	0	0	0	5,486
Government	3,031	0	0	0	0	3,031
Industrial	53,126	0	0	0	0	53,126
Religion	10,651	0	0	0	0	10,651
Other Residential	481,671	0	0	0	0	481,671
Single Family	1,803,140	0	0	0	0	1,803,140
Madera						
Agriculture	634	0	0	0	0	634
Commercial	2,905	0	0	0	0	2,905
Education	115	0	0	0	0	115
Government	111	0	0	0	0	111
Industrial	903	0	0	0	0	903
Religion	119	0	0	0	0	119
Other Residential	6,634	1	0	0	0	6,635

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Single Family	*38,912*	*0*	*0*	*0*	*0*	*38,912*
Merced						
Agriculture	*7,650*	*3*	*0*	*0*	*0*	*7,653*
Commercial	*4,754*	*0*	*0*	*0*	*0*	*4,754*
Education	*163*	*0*	*0*	*0*	*0*	*163*
Government	*171*	*0*	*0*	*0*	*0*	*171*
Industrial	*1,022*	*0*	*0*	*0*	*0*	*1,022*
Religion	*345*	*0*	*0*	*0*	*0*	*345*
Other Residential	*10,786*	*1*	*0*	*0*	*0*	*10,787*
Single Family	*63,598*	*0*	*0*	*0*	*0*	*63,598*
Monterey						
Agriculture	*1,732*	*70*	*13*	*0*	*0*	*1,815*
Commercial	*9,203*	*39*	*4*	*0*	*0*	*9,246*
Education	*239*	*0*	*0*	*0*	*0*	*239*
Government	*184*	*1*	*0*	*0*	*0*	*185*
Industrial	*1,838*	*11*	*1*	*0*	*0*	*1,850*
Religion	*576*	*3*	*0*	*0*	*0*	*580*
Other Residential	*19,628*	*161*	*20*	*0*	*0*	*19,809*
Single Family	*90,750*	*126*	*0*	*0*	*0*	*90,876*
San Benito						
Agriculture	*253*	*0*	*0*	*0*	*0*	*253*
Commercial	*1,079*	*1*	*0*	*0*	*0*	*1,080*
Education	*42*	*0*	*0*	*0*	*0*	*42*
Government	*45*	*0*	*0*	*0*	*0*	*45*
Industrial	*326*	*0*	*0*	*0*	*0*	*326*

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Religion	*64*	*0*	*0*	*0*	*0*	*64*
Other Residential	*1,374*	*1*	*0*	*0*	*0*	*1,375*
Single Family	*14,726*	*0*	*0*	*0*	*0*	*14,726*
San Luis Obispo						
Agriculture	*191*	*151*	*61*	*14*	*3*	*421*
Commercial	*3,602*	*3,608*	*1,727*	*366*	*72*	*9,375*
Education	*116*	*54*	*11*	*1*	*0*	*182*
Government	*84*	*64*	*30*	*5*	*1*	*185*
Industrial	*995*	*973*	*494*	*84*	*11*	*2,556*
Religion	*145*	*134*	*64*	*14*	*3*	*360*
Other Residential	*6,783*	*7,451*	*4,525*	*1,386*	*71*	*20,216*
Single Family	*41,557*	*40,143*	*3,923*	*15*	*0*	*85,639*
Santa Barbara						
Agriculture	*362*	*72*	*26*	*3*	*1*	*464*
Commercial	*7,961*	*1,202*	*560*	*83*	*13*	*9,820*
Education	*269*	*23*	*6*	*0*	*0*	*299*
Government	*206*	*22*	*9*	*1*	*0*	*239*
Industrial	*2,181*	*423*	*203*	*29*	*4*	*2,840*
Religion	*481*	*88*	*44*	*7*	*1*	*621*
Other Residential	*17,322*	*3,180*	*2,192*	*1,273*	*145*	*24,111*
Single Family	*78,687*	*18,619*	*1,670*	*6*	*1*	*98,982*
Santa Clara						
Agriculture	*895*	*0*	*0*	*0*	*0*	*895*
Commercial	*35,468*	*1*	*0*	*0*	*0*	*35,469*
Education	*1,173*	*0*	*0*	*0*	*0*	*1,173*

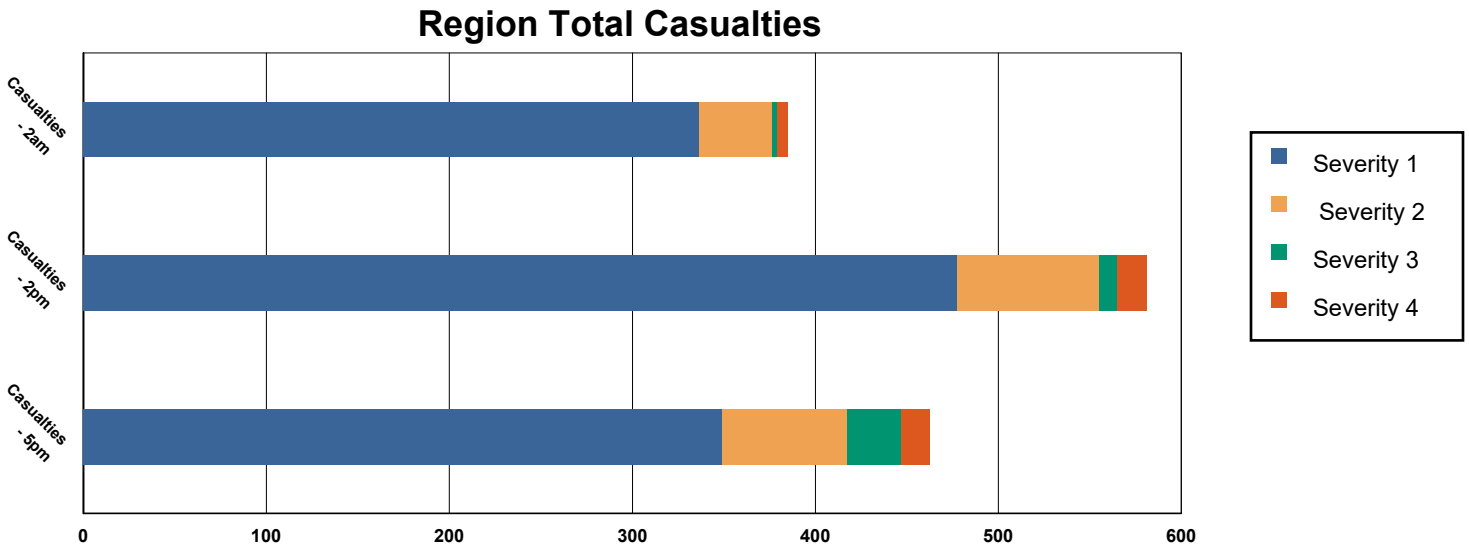
	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Government	*502*	*0*	*0*	*0*	*0*	*502*
Industrial	*9,433*	*0*	*0*	*0*	*0*	*9,433*
Religion	*1,540*	*0*	*0*	*0*	*0*	*1,540*
Other Residential	*59,159*	*1*	*0*	*0*	*0*	*59,160*
Single Family	*427,219*	*0*	*0*	*0*	*0*	*427,219*
Santa Cruz						
Agriculture	*840*	*0*	*0*	*0*	*0*	*840*
Commercial	*6,692*	*2*	*0*	*0*	*0*	*6,694*
Education	*225*	*0*	*0*	*0*	*0*	*225*
Government	*127*	*0*	*0*	*0*	*0*	*127*
Industrial	*1,819*	*0*	*0*	*0*	*0*	*1,819*
Religion	*359*	*0*	*0*	*0*	*0*	*359*
Other Residential	*14,888*	*4*	*0*	*0*	*0*	*14,892*
Single Family	*68,870*	*0*	*0*	*0*	*0*	*68,870*
Stanislaus						
Agriculture	*1,239*	*0*	*0*	*0*	*0*	*1,239*
Commercial	*10,369*	*0*	*0*	*0*	*0*	*10,369*
Education	*307*	*0*	*0*	*0*	*0*	*307*
Government	*680*	*0*	*0*	*0*	*0*	*680*
Industrial	*3,475*	*0*	*0*	*0*	*0*	*3,475*
Religion	*456*	*0*	*0*	*0*	*0*	*456*
Other Residential	*19,569*	*0*	*0*	*0*	*0*	*19,569*
Single Family	*142,724*	*0*	*0*	*0*	*0*	*142,724*
Tulare						
Agriculture	*3,554*	*1*	*0*	*0*	*0*	*3,555*

		# of Buildings					
		None	Slight	Moderate	Extensive	Complete	Total
	Commercial	*8,871*	*2*	*0*	*0*	*0*	*8,873*
	Education	*269*	*0*	*0*	*0*	*0*	*269*
	Government	*461*	*0*	*0*	*0*	*0*	*461*
	Industrial	*2,147*	*1*	*0*	*0*	*0*	*2,148*
	Religion	*827*	*0*	*0*	*0*	*0*	*827*
	Other Residential	*20,013*	*9*	*0*	*0*	*0*	*20,022*
	Single Family	*112,034*	*0*	*0*	*0*	*0*	*112,034*
Ventura							
	Agriculture	*598*	*0*	*0*	*0*	*0*	*598*
	Commercial	*14,942*	*10*	*0*	*0*	*0*	*14,953*
	Education	*497*	*0*	*0*	*0*	*0*	*497*
	Government	*1,000*	*1*	*0*	*0*	*0*	*1,001*
	Industrial	*6,092*	*4*	*0*	*0*	*0*	*6,097*
	Religion	*1,186*	*1*	*0*	*0*	*0*	*1,187*
	Other Residential	*26,125*	*37*	*1*	*0*	*0*	*26,163*
	Single Family	*203,947*	*21*	*0*	*0*	*0*	*203,968*
Total		**4,834,198**	**77,042**	**15,601**	**3,287**	**327**	**4,930,454**
Region Total		**4,834,198**	**77,042**	**15,601**	**3,287**	**327**	**4,930,454**

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

June 11, 2024



	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Fresno					
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					
Fresno					
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**
Kern					
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	**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	**0**	**0**	**0**	**0**	**0**
Kings					
Casualties - 2am					
Commuting	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Kings					
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	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**
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	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

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Los Angeles					
Casualties - 2pm					
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**
Madera					
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					
Merced					
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**
Monterey					
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	**1**	**0**	**0**	**0**	**1**
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

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Monterey					
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	**1**	**0**	**0**	**0**	**1**
Casualties - 5pm					
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
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 5pm	**1**	**0**	**0**	**0**	**1**
San Benito					
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

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Benito					
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
San Luis Obispo					
Casualties - 2am					
Commuting	0	0	0	0	0
Commercial	3	1	0	0	4
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	3	0	0	0	3
Other-Residential	111	16	1	3	131
Single Family	65	3	0	0	68
Total Casualties - 2am	**183**	**20**	**2**	**3**	**207**
Casualties - 2pm					
Commuting	0	0	1	0	2
Commercial	207	40	5	10	262
Educational	45	5	0	1	51
Hotels	0	0	0	0	0
Industrial	20	3	0	1	25
Other-Residential	38	6	1	1	45
Single Family	21	1	0	0	22
Total Casualties - 2pm	**331**	**56**	**7**	**12**	**406**
Casualties - 5pm					
Commuting	6	9	14	3	32
Commercial	131	25	3	6	165
Educational	14	1	0	0	15
Hotels	0	0	0	0	0
Industrial	13	2	0	0	15
Other-Residential	41	6	1	1	49
Single Family	24	1	0	0	25
Total Casualties - 5pm	**228**	**45**	**18**	**11**	**302**
Santa Barbara					
Casualties - 2am					
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	1	0	0	0	1
Other-Residential	108	18	1	3	130
Single Family	43	2	0	0	44
Total Casualties - 2am	**152**	**20**	**2**	**3**	**176**
Casualties - 2pm					
Commuting	0	0	1	0	1

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Santa Barbara					
Casualties - 2pm					
Commercial	64	10	1	2	78
Educational	30	4	0	1	34
Hotels	0	0	0	0	0
Industrial	7	1	0	0	8
Other-Residential	32	5	0	1	38
Single Family	12	1	0	0	13
Total Casualties - 2pm	**144**	**21**	**3**	**4**	**172**
Casualties - 5pm					
Commuting	4	6	10	2	22
Commercial	49	8	1	2	59
Educational	7	1	0	0	9
Hotels	0	0	0	0	0
Industrial	4	1	0	0	5
Other-Residential	39	7	1	1	48
Single Family	15	1	0	0	16
Total Casualties - 5pm	**119**	**23**	**11**	**5**	**158**
Santa Clara					
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

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Santa Clara					
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Santa Cruz					
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**
Stanislaus					
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

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Stanislaus					
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**
Tulare					
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

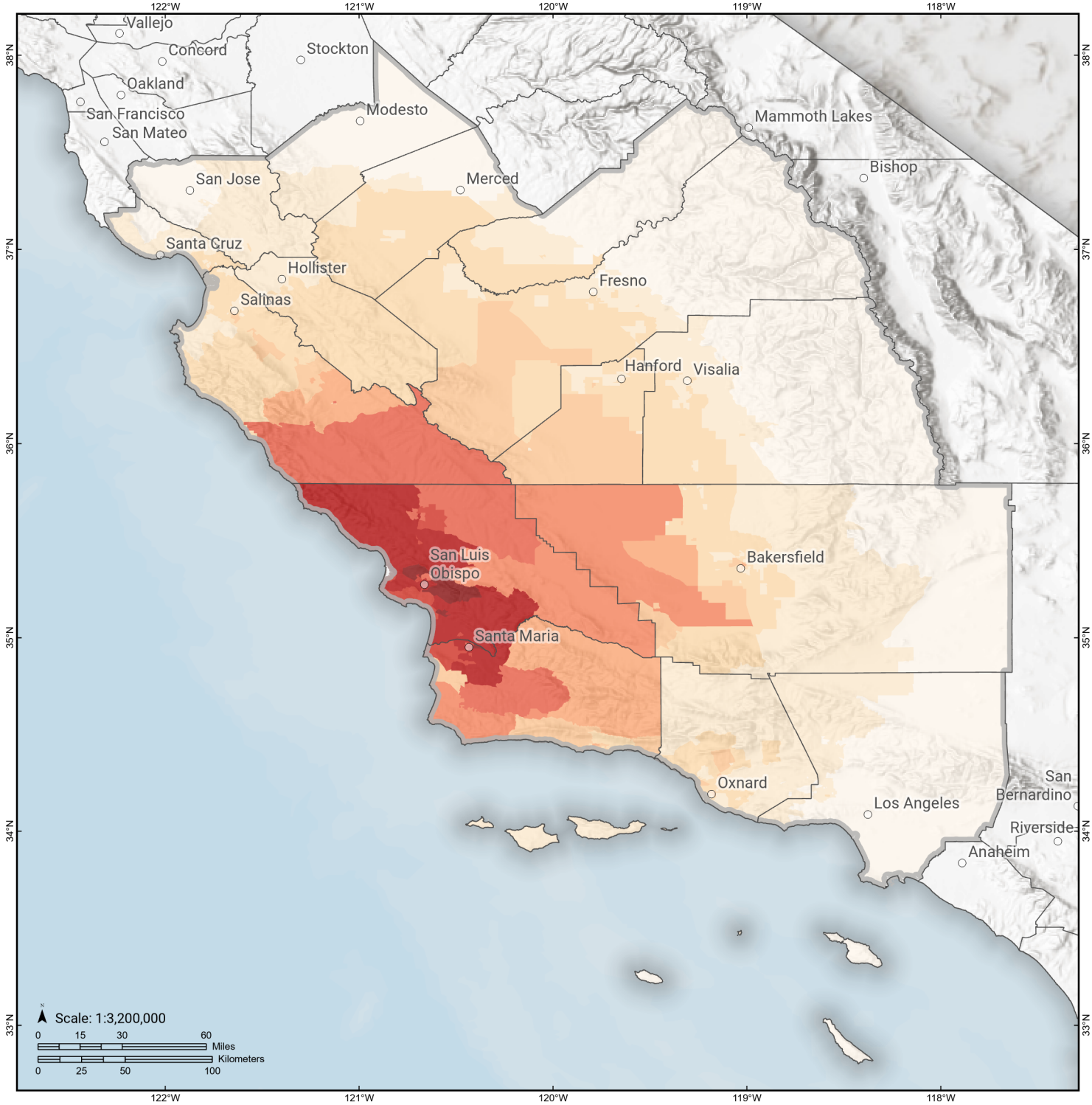
	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Tulare					
Casualties - 5pm					
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Ventura					
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
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.

Oceanic - West Huasna

Debris Generated by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oceanic - West Huasna
Scenario: oceanicwesthuasnasha_m7p21_se

Debris Generated *(in tons)*

- 0
- >0 - 1
- >1 - 10
- >10 - 50
- >50 - 100
- >100 - 250
- >250 - 1,000
- >1,000 - 4,000
- >4,000 - 15,000
- >15,000 - 47,500

Debris Summary Report

June 11, 2024

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
California			
Fresno	0	0	0
Kings	0	0	0
San Luis Obispo	183	254	437
Madera	0	0	0
Tulare	0	0	0
Ventura	0	0	0
Kern	1	0	1
Santa Cruz	0	0	0
Monterey	1	1	2
Los Angeles	0	0	0
Stanislaus	0	0	0
Santa Barbara	85	108	193
Santa Clara	0	0	0
San Benito	0	0	0
Merced	0	0	0
Total	**270**	**364**	**634**
Region Total	**270**	**364**	**634**

Study Region : OceanicWHuasna

Scenario : oceanicwesthuasnasha_m7p21_se

	Brick, Wood & Others	Concrete & Steel	Total

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

June 11, 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										
Fresno	170	4,047	2,648	508	0.00	17	23	27	37	7,477
Kings	80	1,527	868	125	0.01	10	15	17	16	2,658
San Luis Obispo	343,625	1,899,268	874,745	68,320	3.58	155,502	109,059	124,244	94,842	3,669,605
Tulare	39	1,599	1,082	250	0.00	3	5	6	7	2,991
Madera	9	315	213	40	0.00	0	0	1	1	580
San Benito	7	191	128	18	0.00	1	2	2	2	349
Merced	38	333	255	136	0.00	2	1	1	1	767
Santa Barbara	146,823	769,332	338,972	37,336	1.17	67,535	35,992	48,578	34,245	1,478,813
Stanislaus	0	1	1	0	0.00	0	0	0	0	3

Study Region : OceanicWHuasna

Scenario : oceanicwesthuasnasha_m7p21_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
Santa Clara	6	189	121	20	0.00	1	1	2	2	342
Kern	840	10,803	6,261	1,354	0.01	103	116	134	141	19,753
Ventura	203	4,467	2,457	346	0.00	20	34	40	50	7,617
Monterey	2,066	13,549	8,155	2,676	0.02	319	161	162	224	27,312
Santa Cruz	34	618	407	81	0.00	4	7	9	8	1,169
Los Angeles	4	92	59	8	0.00	0	1	0	2	167
Total	**493,945**	**2,706,331**	**1,236,373**	**111,218**	**0.32**	**223,517**	**145,417**	**173,222**	**129,578**	**5,219,602**
Region Total	**493,945**	**2,706,331**	**1,236,373**	**111,218**	**0.32**	**223,517**	**145,417**	**173,222**	**129,578**	**5,219,602**

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

June 11, 2024

All values are in thousands of dollars

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
California								
Fresno								
Segments	0	0	0					0
Bridges	32	0	0					32
Tunnels	0	0	0					0
Facilities		231	0	21	0	0	1,049	1,301
Total	**32**	**231**	**0**	**21**	**0**	**0**	**1,049**	**1,333**
Kern								
Segments	0	0	0					0
Bridges	60	0	0					60
Tunnels	0	0	0					0
Facilities		180	0	62	0	0	904	1,145
Total	**60**	**180**	**0**	**62**	**0**	**0**	**904**	**1,205**
Kings								
Segments	0	0	0					0
Bridges	9	0	0					9
Tunnels	0	0	0					0
Facilities		128	0	41	0	0	359	529

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**9**	**128**	**0**	**41**	**0**	**0**	**359**	**538**
Los Angeles								
Segments	0	0	0					0
Bridges	20	0	0					20
Tunnels	0	0	0					0
Facilities		125	2,393	28	812	13	2,861	6,232
Total	**20**	**125**	**2,393**	**28**	**812**	**13**	**2,861**	**6,252**
Madera								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		26	0	21	0	0	57	103
Total	**0**	**26**	**0**	**21**	**0**	**0**	**57**	**103**
Merced								
Segments	0	0	0					0
Bridges	1	0	0					1
Tunnels	0	0	0					0
Facilities		6	0	2	0	0	131	139
Total	**1**	**6**	**0**	**2**	**0**	**0**	**131**	**140**
Monterey								
Segments	0	0	0					0
Bridges	358	30	0					388
Tunnels	0	0	0					0
Facilities		26	0	563	110	0	1,726	2,425

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**358**	**56**	**0**	**563**	**110**	**0**	**1,726**	**2,813**
San Benito								
Segments	0	0	0					0
Bridges	1	0	0					1
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	102	102
Total	**1**	**0**	**0**	**0**	**0**	**0**	**102**	**103**
San Luis Obispo								
Segments	0	0	0					0
Bridges	44,506	5,003	0					49,508
Tunnels	0	0	0					0
Facilities		2,015	0	1,313	6,465	0	11,395	21,189
Total	**44,506**	**7,018**	**0**	**1,313**	**6,465**	**0**	**11,395**	**70,697**
Santa Barbara								
Segments	0	0	0					0
Bridges	9,108	266	0					9,374
Tunnels	0	0	0					0
Facilities		755	0	1,544	809	38	4,633	7,780
Total	**9,108**	**1,021**	**0**	**1,544**	**809**	**38**	**4,633**	**17,155**
Santa Clara								
Segments	0	0	0					0
Bridges	3	0	0					3
Tunnels	0	0	0					0
Facilities		11	498	26	0	0	485	1,020

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**3**	**11**	**498**	**26**	**0**	**0**	**485**	**1,023**
Santa Cruz								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	45	37	0	257	339
Total	**0**	**0**	**0**	**45**	**37**	**0**	**257**	**339**
Stanislaus								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Tulare								
Segments	0	0	0					0
Bridges	2	0	0					2
Tunnels	0	0	0					0
Facilities		0	0	83	0	0	255	338
Total	**2**	**0**	**0**	**83**	**0**	**0**	**255**	**340**
Ventura								
Segments	0	0	0					0
Bridges	19	0	0					19
Tunnels	0	0	0					0
Facilities		105	0	21	665	26	520	1,337

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	19	105	0	21	665	26	520	1,356
Total	54,119	8,907	2,890	3,771	8,897	77	24,735	103,397
Region Total	54,119	8,907	2,890	3,771	8,897	77	24,735	103,397

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

June 11, 2024

All values are in thousands of dollars

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
California							
Fresno							
Facilities	0	251	0	13	22,724	5	22,994
Pipelines	230	116	0	0			346
Total	230	367	0	13	22,724	5	23,340
Kern							
Facilities	405	128	1	1,097	218,495	9	220,136
Pipelines	395	198	0	0			593
Total	800	326	1	1,097	218,495	9	220,729
Kings							
Facilities	0	0	0	134	12,410	1	12,545
Pipelines	85	43	0	0			128
Total	85	43	0	134	12,410	1	12,673
Los Angeles							
Facilities	61	397	0	144	86,284	0	86,887

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Pipelines	328	165	0	0			492
Total	389	562	0	144	86,284	0	87,379
Madera							
Facilities	0	0	0	0	1,069	0	1,069
Pipelines	59	30	0	0			89
Total	59	30	0	0	1,069	0	1,158
Merced							
Facilities	0	251	0	0	21,740	1	21,992
Pipelines	81	41	0	0			122
Total	81	292	0	0	21,740	1	22,114
Monterey							
Facilities	0	1,107	0	0	50,068	42	51,216
Pipelines	561	282	0	0			843
Total	561	1,388	0	0	50,068	42	52,059
San Benito							
Facilities	0	246	0	0	0	1	247
Pipelines	46	23	0	0			69
Total	46	269	0	0	0	1	316
San Luis Obispo							
Facilities	8,178	197,879	25	0	895,244	2,138	1,103,463
Pipelines	9,781	4,913	0	0			14,694

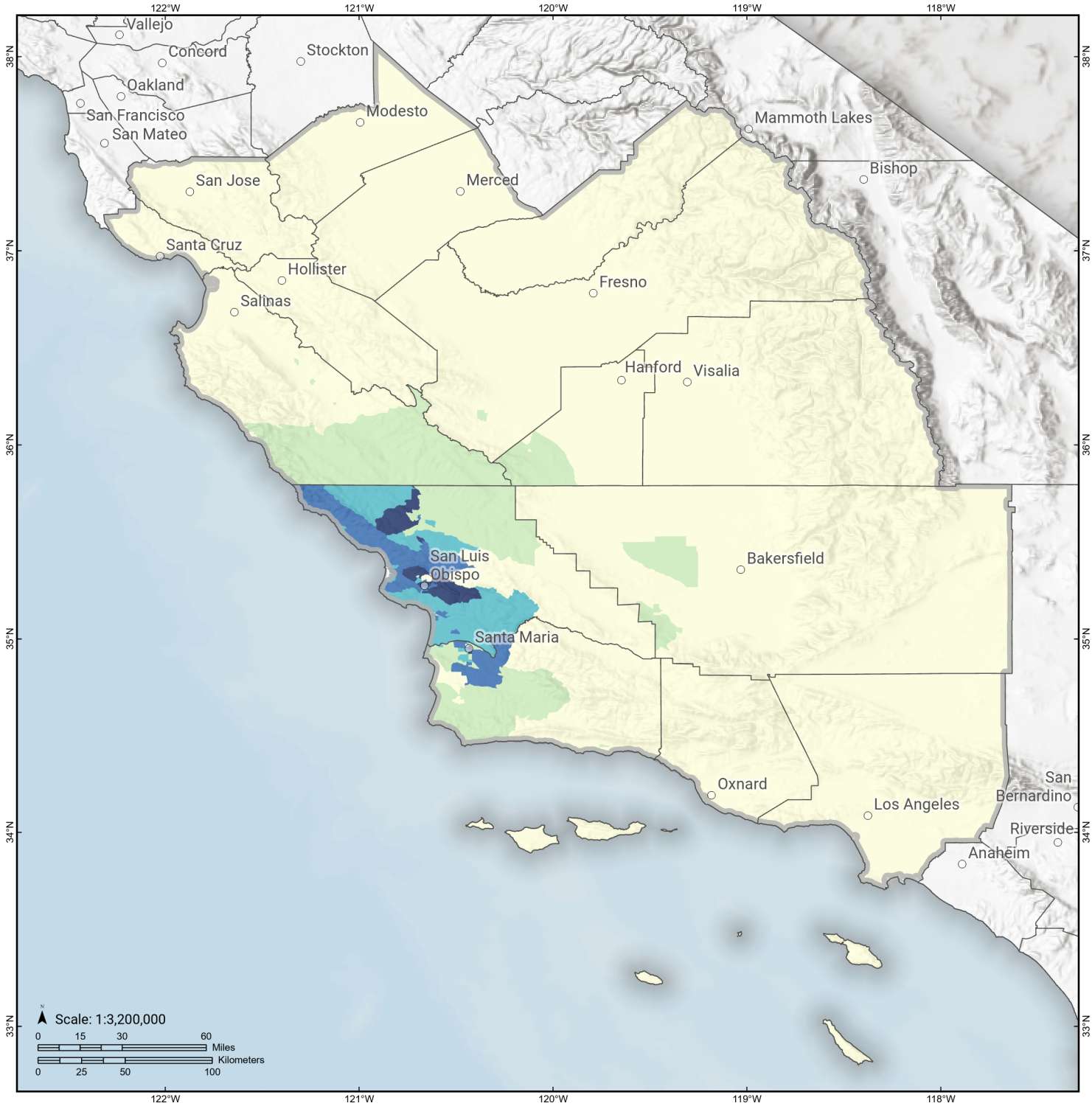
	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Total	17,959	202,792	25	0	895,244	2,138	1,118,158
Santa Barbara							
Facilities	0	11,845	13	1,879	26,206	616	40,559
Pipelines	3,175	1,595	0	0			4,770
Total	3,175	13,440	13	1,879	26,206	616	45,329
Santa Clara							
Facilities	1	0	0	0	2,971	0	2,972
Pipelines	94	47	0	0			142
Total	95	47	0	0	2,971	0	3,113
Santa Cruz							
Facilities	0	371	0	0	42	1	414
Pipelines	35	18	0	0			53
Total	35	389	0	0	42	1	467
Stanislaus							
Facilities	0	123	0	0	8	0	131
Pipelines	4	2	0	0			6
Total	4	125	0	0	8	0	136
Tulare							
Facilities	28	248	0	0	3,137	1	3,415
Pipelines	109	55	0	0			164
Total	137	303	0	0	3,137	1	3,579

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Ventura							
Facilities	140	1,601	0	87	20,043	4	21,876
Pipelines	108	54	0	0			163
Total	249	1,655	0	87	20,043	4	22,038
Total	**23,906**	**222,028**	**40**	**3,354**	**1,360,441**	**2,819**	**1,612,589**
Region Total	**23,906**	**222,028**	**40**	**3,354**	**1,360,441**	**2,819**	**1,612,589**

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.

Oceanic - West Huasna

Displaced Households by Census Tract



Study Region: Oceanic - West Huasna
Scenario: oceanicwesthuasnasha_m7p21_se

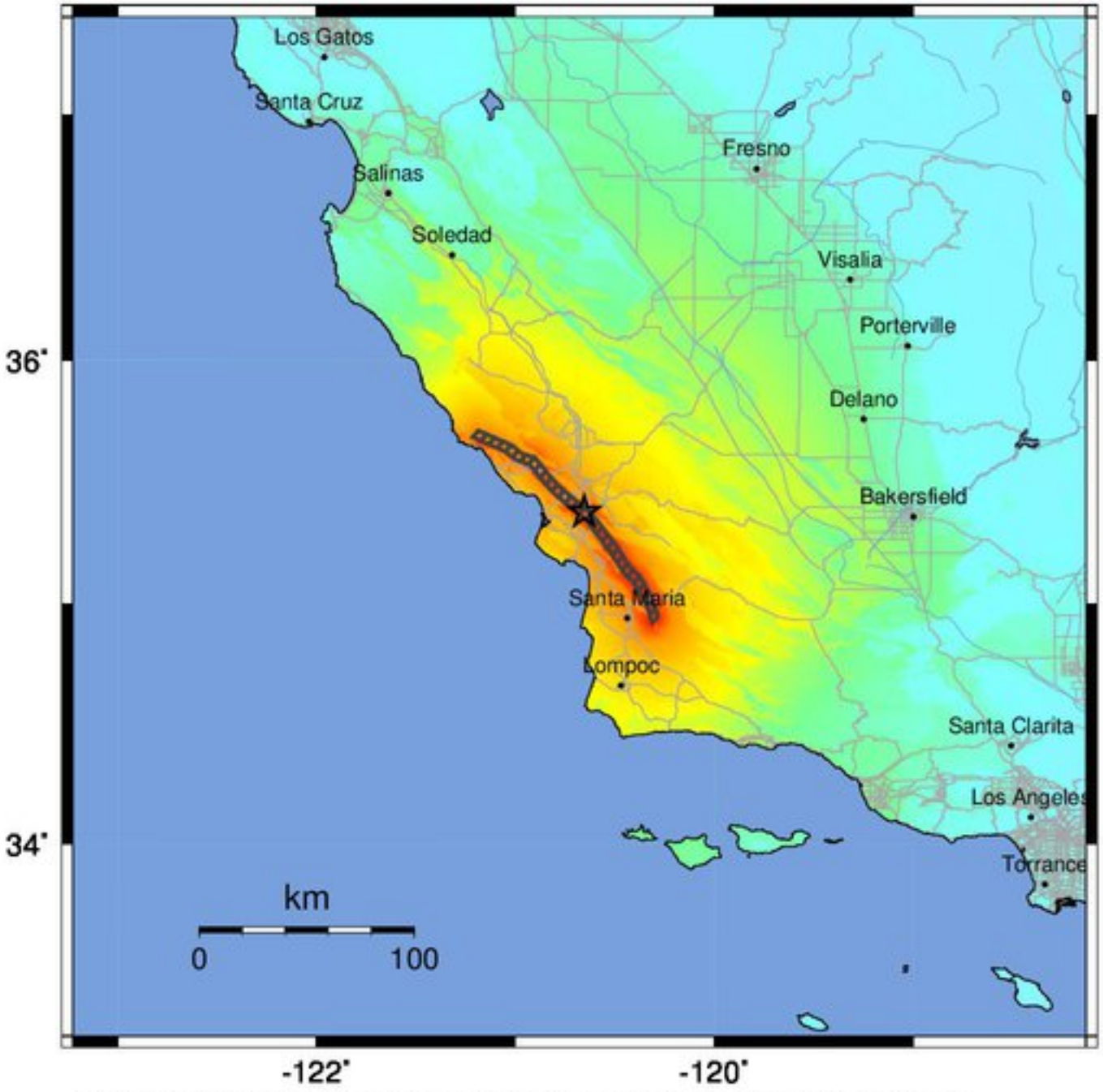
Displaced Households

- 0
- 1
- 2 - 5
- 6 - 15
- 16 - 75

-- Earthquake Planning Scenario --

ShakeMap for Oceanic - West Huasna - Median ground motions Scenario

Scenario Date: May 16, 2017 08:32:08 AM MDT M 7.2 N35.38 W120.65 Depth: 4.5km



PLANNING SCENARIO ONLY -- Map Version 14 Processed 2017-05-16 11:26:40 PM MDT

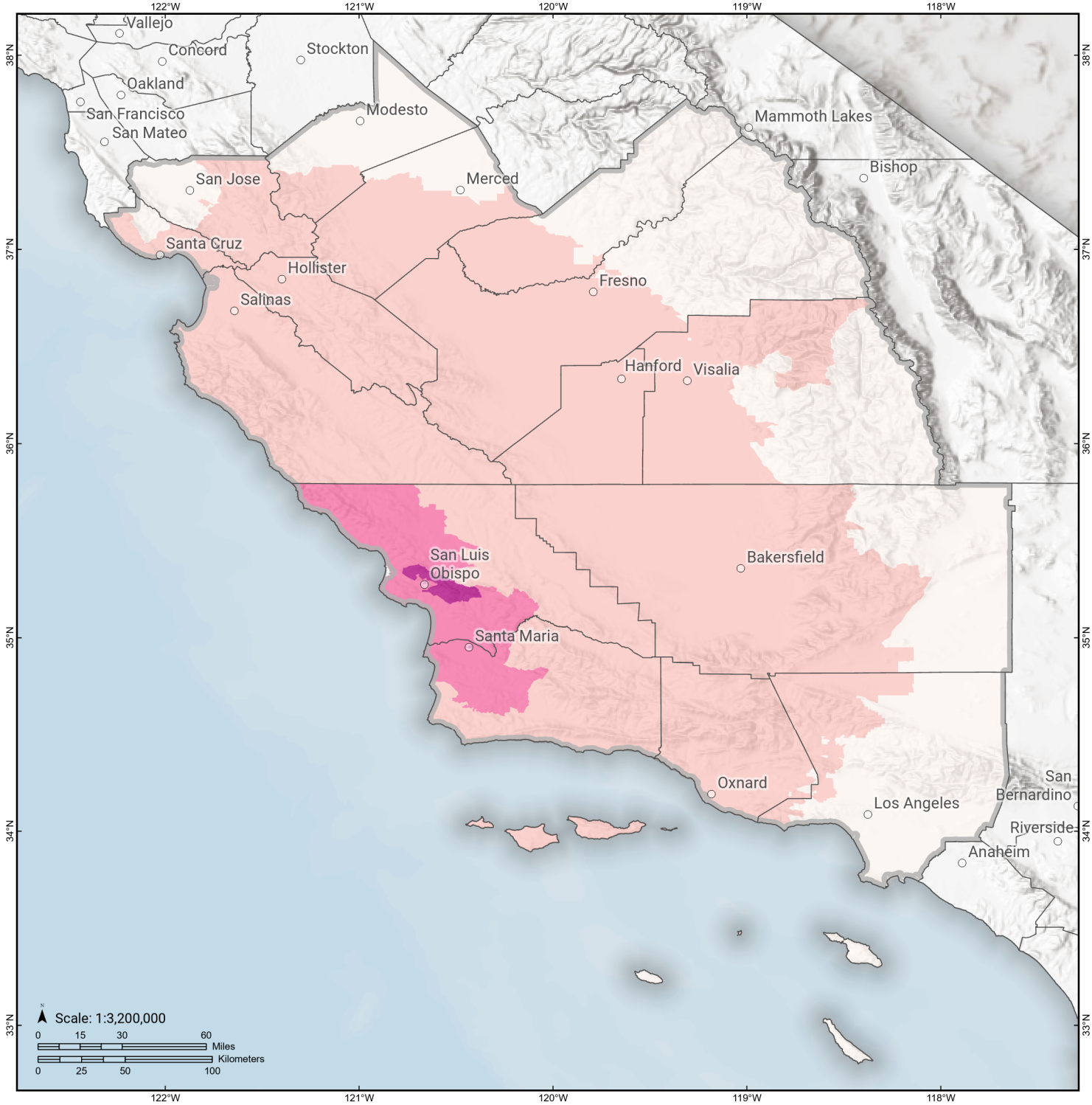
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.05	0.3	2.8	6.2	12	22	40	75	>139
PEAK VEL.(cm/s)	*<0.02*	*0.1*	*1.4*	*4.7*	*9.6*	*20*	*41*	*86*	*>178*
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Worden et al. (2012)

Oceanic - West Huasna

Loss Ratio by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oceanic - West Huasna
Scenario: oceanicwesthuasnasha_m7p21_se

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

- 0%
- >0 - 1%
- >1 - 10%
- >10 - 21%

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	1.60 - 6.40
	Building Contents	0.20 - 0.80
	Business Interruption	0.30 - 1.30
Infrastructure	Lifelines Damage	
	Total	2.60 - 10.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	70,000	4,900	2,100	77,000
Minor	12,300	2,300	920	15,520
Major	2,700	450	160	3,310
Destroyed	220	90	20	330
Total	85,220	7,740	3,200	96,160

Estimated Casualties : Night Time

Severity Level	Description	# Persons
Level 1	Medical Aid	170 - 700
Level 2	Hospital Care	20 - 80
Level 3	Life-threatening	< 10
Level 4	Fatalities	< 10

Estimated Shelter Needs

Type	Households	People
Displaced Households	400 - 1,600	1,000 - 4,000
Public Shelter	200	500

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 : 7.21

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 0.00

Information Sources:

Comments :

Population and Building Exposure

Population: 17,832,696

Building Exposure : ($ Millions)

Residential	1,845,284
Commercial	583,413
Other	490,124
Total	2,918,821

Counties : See Appendix

Major Metro Area :

Time of report: June 11, 2024 10:03 am

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	1.60 - 6.40
	Building Contents	0.20 - 0.80
	Business Interruption	0.30 - 1.30
Infrastructure	Lifelines Damage	
	Total	2.60 - 10.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	70,000	4,900	2,100	77,000
Minor	12,300	2,300	920	15,520
Major	2,700	450	160	3,310
Destroyed	220	90	20	330
Total	85,220	7,740	3,200	96,160

Estimated Casualties : Day Time

Severity Level	Description	# Persons
Level 1	Medical Aid	200 - 1,000
Level 2	Hospital Care	40 - 160
Level 3	Life-threatening	10 - 20
Level 4	Fatalities	10 - 30

Estimated Shelter Needs

Type	Households	People
Displaced Households	400 - 1,600	1,000 - 4,000
Public Shelter	200	500

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:

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Earthquake Information

Location :

Origin Time:

Magnitude : 7.21

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 0.00

Information Sources:

Comments :

Population and Building Exposure

Population: 17,832,696

Building Exposure : ($ Millions)

Residential	1,845,284
Commercial	583,413
Other	490,124
Total	2,918,821

Counties : See Appendix

Major Metro Area :

Time of report: June 11, 2024 10:04 am

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	1.60 - 6.40
	Building Contents	0.20 - 0.80
	Business Interruption	0.30 - 1.30
Infrastructure	Lifelines Damage	
	Total	2.60 - 10.40

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	70,000	4,900	2,100	77,000
Minor	12,300	2,300	920	15,520
Major	2,700	450	160	3,310
Destroyed	220	90	20	330
Total	85,220	7,740	3,200	96,160

Estimated Casualties : Commute Time

Severity Level	Description	# Persons
Level 1	Medical Aid	170 - 700
Level 2	Hospital Care	30 - 140
Level 3	Life-threatening	20 - 60
Level 4	Fatalities	10 - 30

Estimated Shelter Needs

Type	Households	People
Displaced Households	400 - 1,600	1,000 - 4,000
Public Shelter	200	500

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 : 7.21

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 0.00

Information Sources:

Comments :

Population and Building Exposure

Population: 17,832,696

Building Exposure : ($ Millions)

Residential	1,845,284
Commercial	583,413
Other	490,124
Total	2,918,821

Counties : See Appendix

Major Metro Area :

Time of report: June 11, 2024 10:04 am

HAZUS™

FEMA

RiskMAP
Increasing Resilience Together

Shelter Summary Report

June 11, 2024

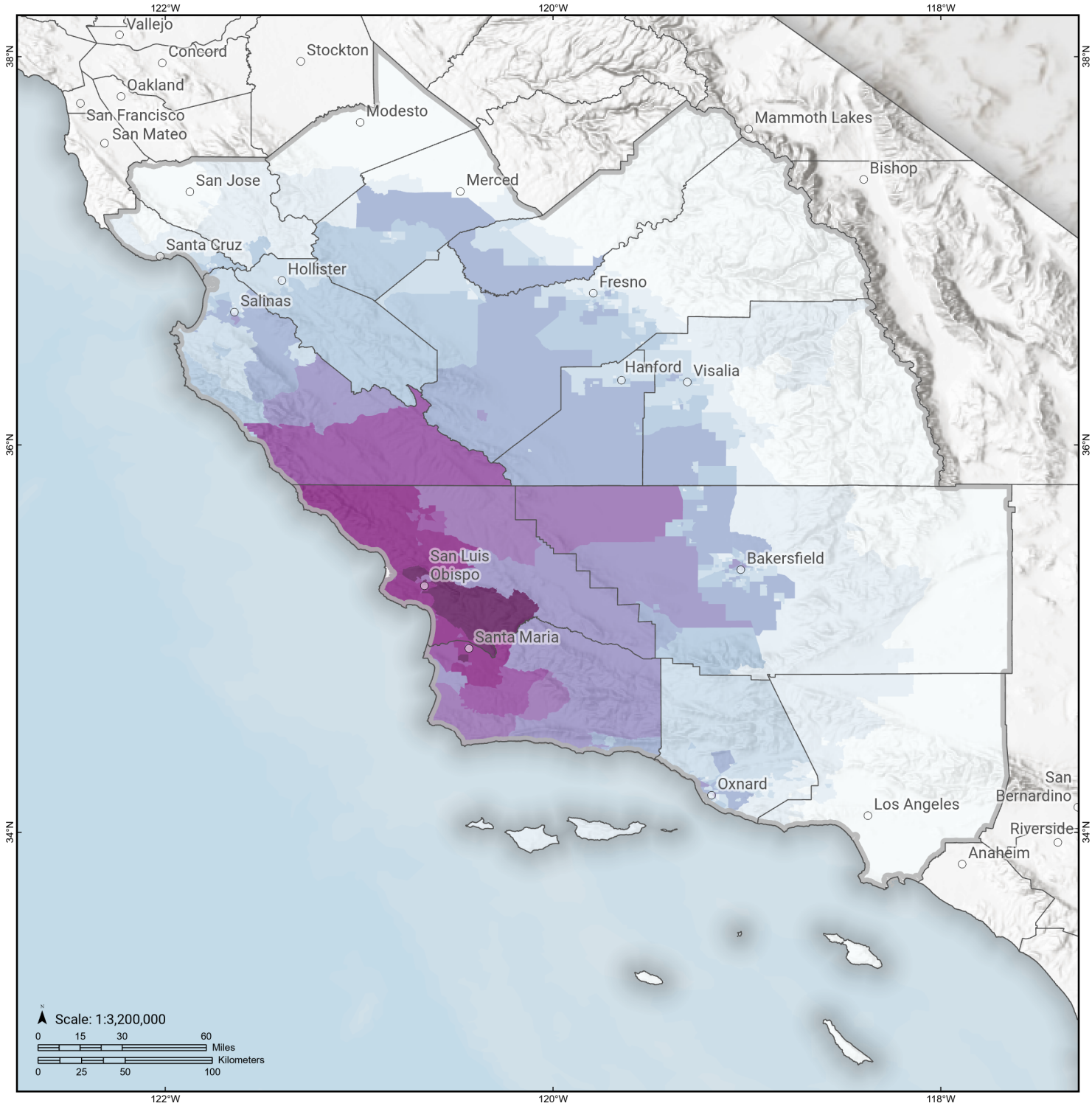
	# of Displaced Households	# of People Needing Short Term Shelter
California		
Fresno	0	0
Kings	0	0
San Luis Obispo	542	299
Madera	0	0
Tulare	0	0
Ventura	0	0
Kern	0	0
Santa Cruz	0	0
Monterey	0	0
Los Angeles	0	0
Stanislaus	0	0
Santa Barbara	264	196
Santa Clara	0	0
San Benito	0	0
Merced	0	0
Total	**806**	**495**
Region Total	**806**	**495**

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.

Oceanic - West Huasna

Total Building Related Economic Loss by Census Tract

California Department of Conservation
California Geological Survey



Study Region: Oceanic - West Huasna
Scenario: oceanicwesthuasnasha_m7p21_se

Economic Loss *(in thousands of USD $)*

0	>500 - 2,000
>0 - 10	>2,000 - 7,500
>10 - 50	>7,500 - 25,000
>50 - 100	>25,000 - 100,000
>100 - 500	>100,000 - 348,500