Hazus: Earthquake Global Risk Report

Region Name: SanJacintoSBVtoSM

Earthquake Scenario: sanjacintosbvsjvsacc_m7p76_se

Print Date: June 25, 2024

Disclaimer:

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

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

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General Description of the Region

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

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

California

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

The geographical size of the region is 72,137.75 square miles and contains 5,579 census tracts. There are over 8,104 thousand households in the region which has a total population of 24,255,037 peopleF. The distribution of population by Total Region and County is provided in Appendix B.

There are an estimated 6,907 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 291,343 and 191,616 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

Hazus estimates that there are 6,907 thousand buildings in the region which have an aggregate total replacement value of (millions of dollars) . Appendix B provides a general distribution of the building value by Total Region and County.

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

Critical Facility Inventory

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

For essential facilities, there are 343 hospitals in the region with a total bed capacity of 63,503 beds. There are 7,753 schools, 1,379 fire stations, 463 police stations and 122 emergency operation facilities. With respect to high potential loss facilities (HPL), there are no dams identified within the inventory. The inventory also includes no hazardous material sites, no military installations and no nuclear power plants.

Transportation and Utility Lifeline Inventory

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

The total value of the lifeline inventory is over 482,959.00 (millions of dollars). This inventory includes over 12,448.55 miles of highways, 11,965 bridges, 260,701.80 miles of pipes.

Table 1: Transportation System Lifeline Inventory

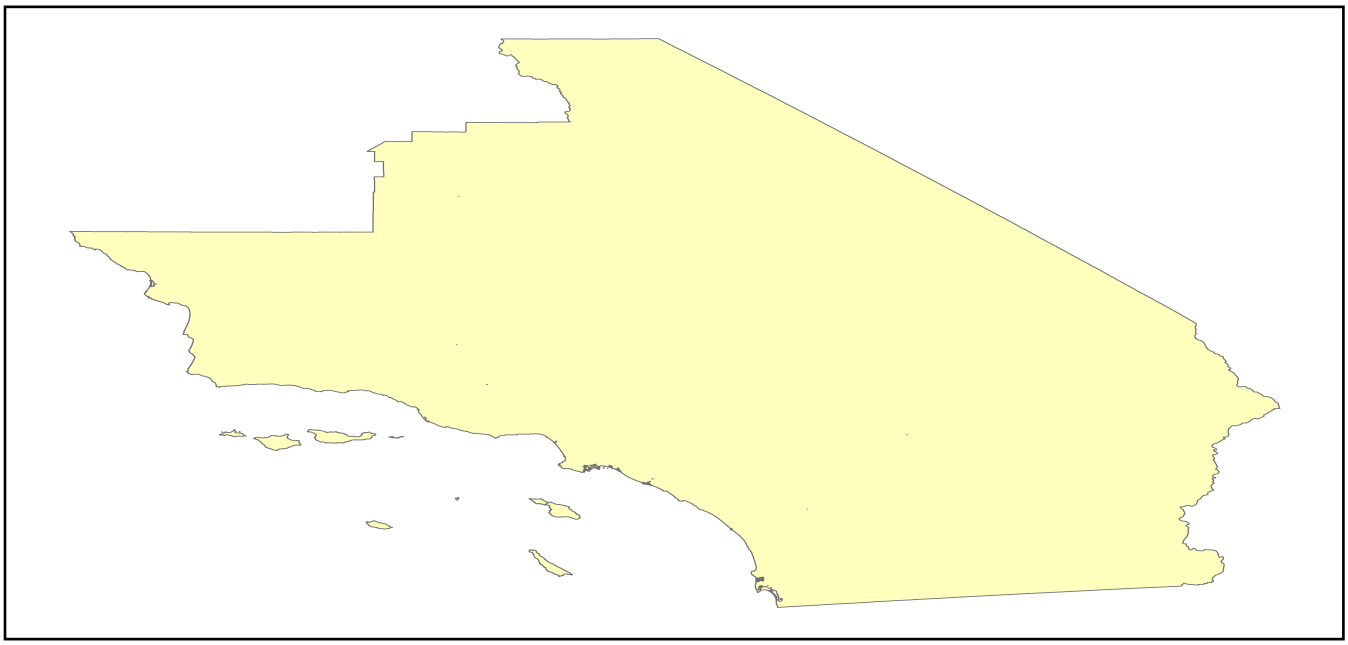
System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	11,965	67894.5194
	Segments	10,080	127361.2379
	Tunnels	62	553.5147
		Subtotal	**195809.2720**
Railways	Bridges	2,150	12233.5000
	Facilities	111	295.5930
	Segments	2,006	66096.0950
	Tunnels	0	0.0000
		Subtotal	**78625.1880**
Light Rail	Bridges	51	13.2750
	Facilities	149	3200.8000
	Segments	8	5399.1047
	Tunnels	0	0.0000
		Subtotal	**8613.1797**
Bus	Facilities	43	92.9996
		Subtotal	**92.9996**
Ferry	Facilities	22	29.2820
		Subtotal	**29.2820**
Port	Facilities	354	1349.3930
		Subtotal	**1349.3930**
Airport	Facilities	163	4807.4463
	Runways	183	2016.7465
		Subtotal	**6824.1928**
		Total	**291,343.50**

Table 2: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	5177.5126
	Facilities	53	2082.5820
	Pipelines	0	0.0000
		Subtotal	**7260.0946**
Waste Water	Distribution Lines	NA	3106.5076
	Facilities	136	23385.4448
	Pipelines	0	0.0000
		Subtotal	**26491.9524**
Natural Gas	Distribution Lines	NA	2071.0050
	Facilities	42	1475.0374
	Pipelines	340	18871.3998
		Subtotal	**22417.4422**
Oil Systems	Facilities	67	7.9060
	Pipelines	0	0.0000
		Subtotal	**7.9060**
Electrical Power	Facilities	612	135383.8728
		Subtotal	**135383.8728**
Communication	Facilities	472	55.6960
		Subtotal	**55.6960**
		Total	**191,617.00**

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	sanjacintosbvsjvsacc_m7p76_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	7.76
Depth (km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Direct Earthquake Damage

Building Damage

Hazus estimates that about 175,768 buildings will be at least moderately damaged. This is over 3.00 % of the buildings in the region. There are an estimated 12,529 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

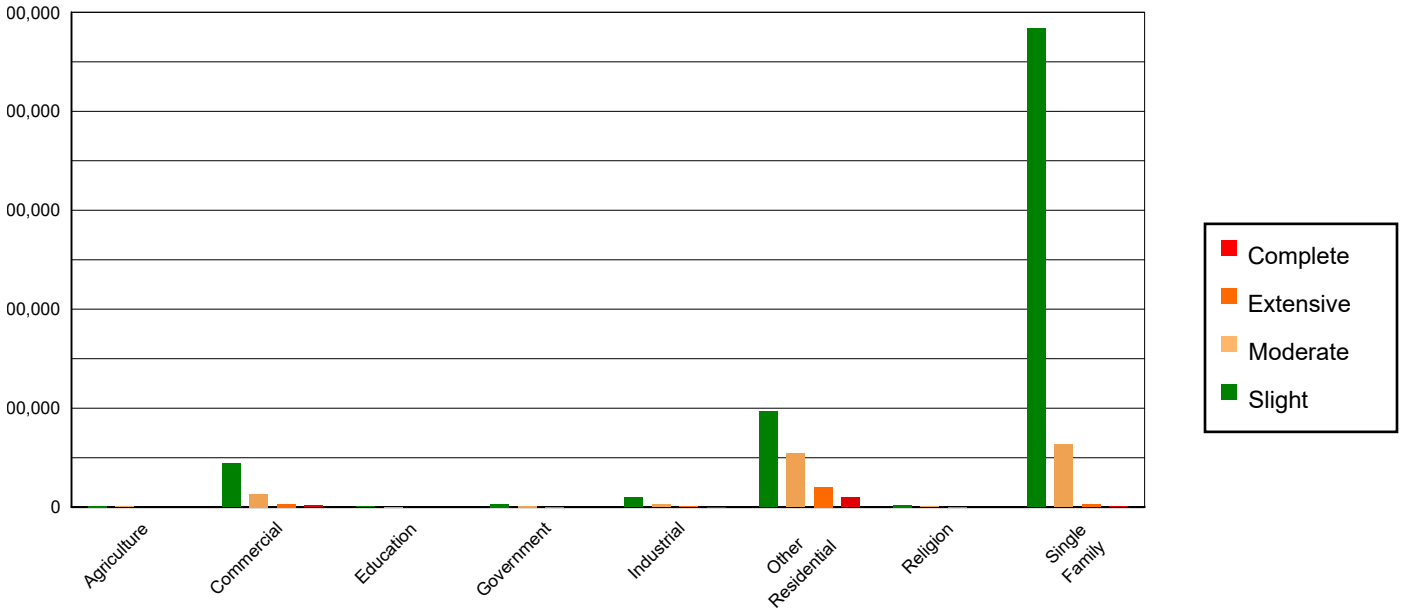


Table 3: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	17225.56	0.28	1115.60	0.17	307.04	0.23	65.57	0.24	24.23	0.19
Commercial	409061.24	6.72	43912.25	6.85	13327.30	9.81	3252.77	11.87	1369.44	10.93
Education	12284.69	0.20	635.57	0.10	176.72	0.13	28.15	0.10	6.87	0.05
Government	31151.16	0.51	3079.19	0.48	1141.78	0.84	233.54	0.85	44.33	0.35
Industrial	109166.17	1.79	9730.46	1.52	2911.53	2.14	617.19	2.25	216.64	1.73
Other Residential	892015.13	14.64	96616.45	15.08	54136.70	39.85	20464.10	74.69	9935.61	79.30
Religion	21070.53	0.35	2120.04	0.33	769.74	0.57	236.14	0.86	84.55	0.67
Single Family	4598955.97	75.50	483432.03	75.46	63069.54	46.43	2501.92	9.13	847.53	6.76
Total	**6,090,930**		**640,642**		**135,840**		**27,399**		**12,529**	

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

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	5401477.91	88.68	556767.93	86.91	75949.18	55.91	2561.37	9.35	426.57	3.40
Steel	103874.35	1.71	14071.43	2.20	7331.63	5.40	2084.11	7.61	678.25	5.41
Concrete	110518.28	1.81	10681.66	1.67	3246.68	2.39	623.33	2.27	145.11	1.16
Precast	53274.96	0.87	4443.28	0.69	1349.33	0.99	212.14	0.77	65.23	0.52
RM	280564.35	4.61	15892.93	2.48	7009.90	5.16	3082.13	11.25	802.49	6.40
URM	21085.81	0.35	5906.86	0.92	2104.87	1.55	706.26	2.58	1393.57	11.12
MH	120134.81	1.97	32877.47	5.13	38848.77	28.60	18130.03	66.17	9017.99	71.98
Total	**6,090,930**		**640,642**		**135,840**		**27,399**		**12,529**	

*Note:
RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 63,503 hospital beds available for use. On the day of the earthquake, the model estimates that only 56,125 hospital beds (88.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 94.00% of the beds will be back in service. By 30 days, 97.00% 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	343	12	2	316
Schools	7,753	239	35	7,224
EOCs	122	8	1	110
PoliceStations	463	28	5	422
FireStations	1,379	32	6	1,290

Transportation Lifeline Damage

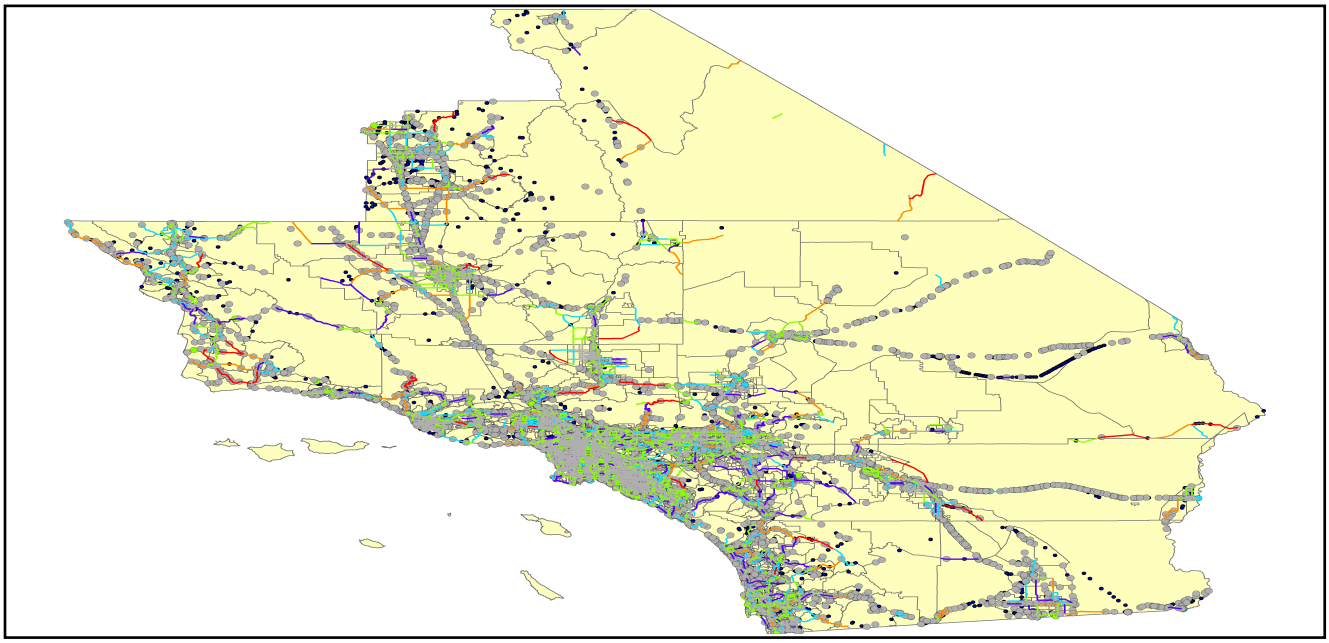


Table 6: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	10,080	0	0	10,080	10,080
	Bridges	11,965	165	20	11,825	11,911
	Tunnels	62	0	0	62	62
Railways	Segments	2,006	0	0	2,006	2,006
	Bridges	2,150	0	0	2,150	2,150
	Tunnels	0	0	0	0	0
	Facilities	111	3	0	111	111
Light Rail	Segments	8	0	0	8	8
	Bridges	51	0	0	51	51
	Tunnels	0	0	0	0	0
	Facilities	149	0	0	149	149
Bus	Facilities	43	2	0	43	43
Ferry	Facilities	22	0	0	22	22
Port	Facilities	354	0	0	354	354
Airport	Facilities	163	3	0	163	163
	Runways	183	0	0	183	183

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	53	6	0	44	53
Waste Water	136	11	0	109	136
Natural Gas	42	1	0	41	42
Oil Systems	67	0	0	67	67
Electrical Power	612	89	0	556	598
Communication	472	29	0	461	472

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

System	Total Pipelines Length (miles)	Number of Leaks	Number of Breaks
Potable Water	160,858	17189	4297
Waste Water	96,515	8635	2159
Natural Gas	3,329	0	0
Oil	0	0	0

Table 9: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	8,104,062	257,955	240,380	208,509	63,902	0
Electric Power		386,028	257,817	113,465	12,101	502

Induced Earthquake Damage

Fire Following Earthquake

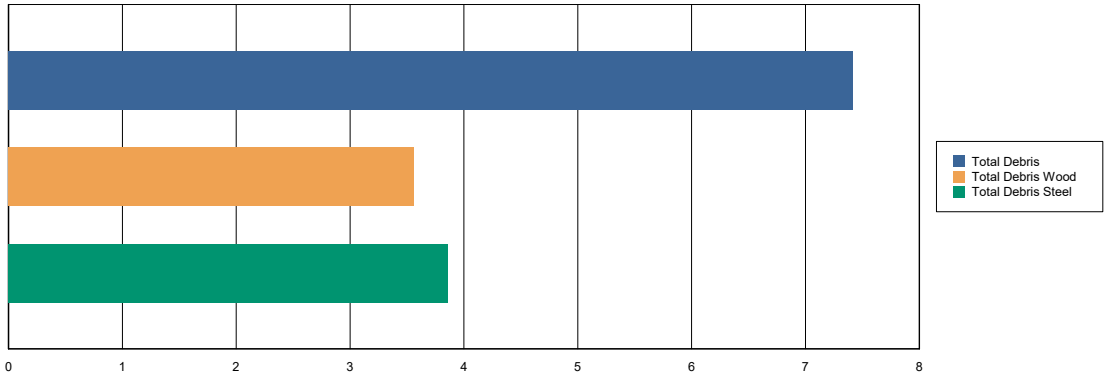
Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. Hazus uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 95 ignitions that will burn about 1.22 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 12,753 people and burn about 1,229 (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 7,420,000 tons of debris will be generated. Of the total amount, Brick/Wood comprises 48.00% 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 296,800 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Earthquake Debris (millions of tons)



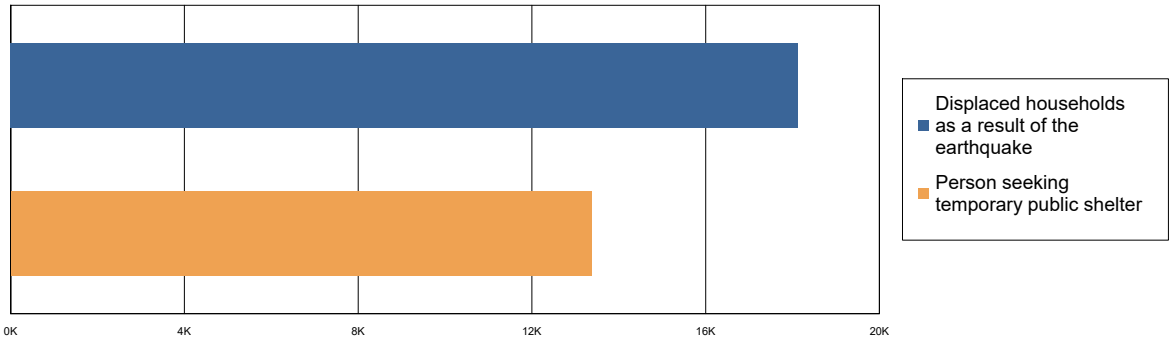
Brick/ Wood	Reinforced Concrete/Steel	Total Debris	Truck Load
3.56	3.86	7.42	296,800 (@25 tons/truck)

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 18,121 households to be displaced due to the earthquake. Of these, 13,374 people (out of a total population of 24,255,037) 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
18,121	13,374

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	54.18	11.70	1.60	3.14
	Commuting	0.82	1.17	1.89	0.37
	Educational	0.00	0.00	0.00	0.00
	Hotels	1.75	0.34	0.05	0.10
	Industrial	40.95	8.37	1.10	2.15
	Other-Residential	4063.89	825.12	65.17	116.79
	Single Family	1705.67	188.08	19.86	39.17
	Total	**5,867**	**1,035**	**90**	**162**
2 PM	Commercial	3645.04	782.28	106.83	207.87
	Commuting	7.41	10.54	17.00	3.33
	Educational	1703.56	361.38	50.38	97.68
	Hotels	0.34	0.07	0.01	0.02
	Industrial	300.99	61.76	8.14	15.78
	Other-Residential	1295.84	268.87	22.96	40.60
	Single Family	503.80	60.72	6.92	13.05
	Total	**7,457**	**1,546**	**212**	**378**
5 PM	Commercial	2529.73	542.09	74.31	142.73
	Commuting	131.44	186.24	301.14	58.98
	Educational	408.44	94.98	14.36	27.82
	Hotels	0.52	0.10	0.01	0.03
	Industrial	188.12	38.60	5.09	9.86
	Other-Residential	1488.26	305.05	25.39	44.72
	Single Family	640.73	75.47	8.47	15.95
	Total	**5,387**	**1,243**	**429**	**300**

Economic Loss

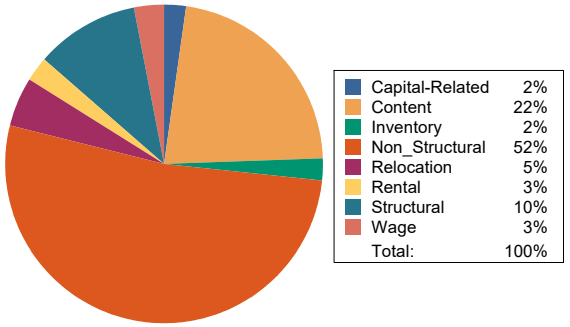
The total economic loss estimated for the earthquake is 70,508.11 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

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 54,990.57 (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 43 % 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)

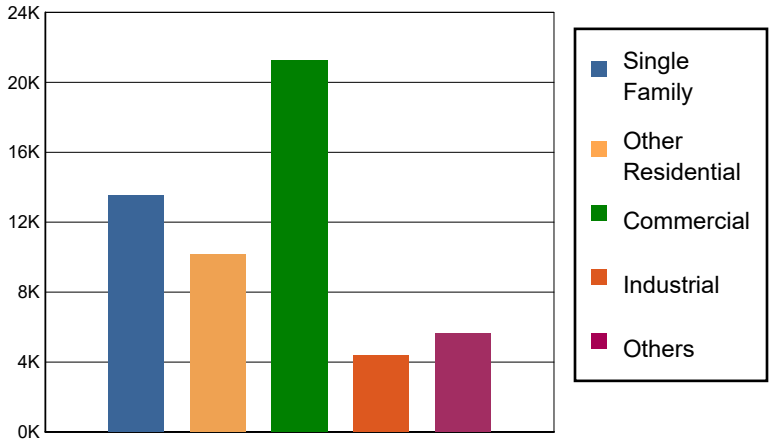


Table 11: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Losses							
	Wage	0.0000	198.1332	1268.9981	46.8129	163.2423	1,677.1865
	Capital-Related	0.0000	84.2951	1042.7070	29.2099	41.0047	1,197.2167
	Rental	144.8306	446.8161	733.6529	21.4978	83.2033	1,430.0007
	Relocation	453.1821	502.9287	1092.9760	104.7703	545.6370	2,699.4941
	Subtotal	**598.0127**	**1232.1731**	**4138.3340**	**202.2909**	**833.0873**	**7003.8980**
Capital Stock Losses							
	Structural	1372.7173	1185.3311	2240.3105	405.0064	551.0997	5,754.4650
	Non_Structural	8560.6083	6309.7892	8940.5685	2100.6440	2779.4903	28,691.1003
	Content	3028.9415	1438.9263	5014.5447	1459.5421	1366.6713	12,308.6259
	Inventory	0.0000	0.0000	927.9755	222.8402	81.6677	1,232.4834
	Subtotal	**12962.2671**	**8934.0466**	**17123.3992**	**4188.0327**	**4778.9290**	**47986.6746**
	Total	**13560.28**	**10166.22**	**21261.73**	**4390.32**	**5612.02**	**54990.57**

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	127361.2379	0.0000	0.00
	Bridges	67894.5194	671.5995	0.99
	Tunnels	553.5147	0.5556	0.10
	Subtotal	**195809.2720**	**672.1551**	
Railways	Segments	66096.0950	0.0000	0.00
	Bridges	12233.5000	76.5826	0.63
	Tunnels	0.0000	0.0000	0.00
	Facilities	295.5930	26.9899	9.13
	Subtotal	**78625.1880**	**103.5725**	
Light Rail	Segments	5399.1047	0.0000	0.00
	Bridges	13.2750	0.0008	0.01
	Tunnels	0.0000	0.0000	0.00
	Facilities	3200.8000	145.4666	4.54
	Subtotal	**8613.1797**	**145.4674**	
Bus	Facilities	92.9996	7.5435	8.11
	Subtotal	**92.9996**	**7.5435**	
Ferry	Facilities	29.2820	1.0261	3.50
	Subtotal	**29.2820**	**1.0261**	
Port	Facilities	1349.3930	48.9962	3.63
	Subtotal	**1349.3930**	**48.9962**	
Airport	Facilities	4807.4463	281.3192	5.85
	Runways	2016.7465	0.0000	0.00
	Subtotal	**6824.1928**	**281.3192**	
	Total	**291,343.51**	**1,260.08**	

Table 13: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.0000	0.0000	0.00
	Facilities	2082.5820	106.7471	5.13
	Distribution Lines	5177.5126	77.3523	1.49
	Subtotal	**7260.0946**	**184.0994**	
Waste Water	Pipelines	0.0000	0.0000	0.00
	Facilities	23385.4448	1009.0140	4.31
	Distribution Lines	3106.5076	38.8561	1.25
	Subtotal	**26491.9524**	**1047.8701**	
Natural Gas	Pipelines	18871.3998	0.0000	0.00
	Facilities	1475.0374	22.9864	1.56
	Distribution Lines	2071.0050	13.3118	0.64
	Subtotal	**22417.4422**	**36.2982**	
Oil Systems	Pipelines	0.0000	0.0000	0.00
	Facilities	7.9060	0.0763	0.97
	Subtotal	**7.9060**	**0.0763**	
Electrical Power	Facilities	135383.8728	12986.0497	9.59
	Subtotal	**135383.8728**	**12986.0497**	
Communication	Facilities	55.6960	3.0624	5.50
	Subtotal	**55.6960**	**3.0624**	
	Total	**191,616.96**	**14,257.46**	

Appendix A: County Listing for the Region

Imperial,CA

Inyo,CA

Kern,CA

Los Angeles,CA

Orange,CA

Riverside,CA

San Bernardino,CA

San Diego,CA

San Luis Obispo,CA

Santa Barbara,CA

Tulare,CA

Ventura,CA

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
California					
	Imperial	179,702	20,945	12,603	33,548
	Inyo	19,016	2,951	1,970	4,921
	Kern	909,235	87,567	59,168	146,736
	Los Angeles	10,014,009	950,697	566,995	1,517,692
	Orange	3,186,989	363,381	176,806	540,188
	Riverside	2,418,185	281,482	137,249	418,731
	San Bernardino	2,181,654	225,045	152,557	377,602
	San Diego	3,298,634	375,834	193,238	569,072
	San Luis Obispo	282,424	41,720	20,896	62,616
	Santa Barbara	448,229	49,971	28,481	78,452
	Tulare	473,117	43,262	31,210	74,472
	Ventura	843,843	99,299	52,072	151,371
Total Region		**24,255,037**	**2,542,154**	**1,433,245**	**3,975,401**

San Jacinto: SBV+SJV+s+A+CC+B+SM

Building Inspection Tagging (Counts)

Inspected		Restricted		Unsafe	
Residential	117K	Residential	23K	Residential	10.8K
Commercial	13.3K	Commercial	3.25K	Commercial	1.37K
Industrial	2.91K	Industrial	617	Industrial	217
Agricultural	307	Agricultural	65.6	Agricultural	24.2
Educational	177	Educational	28.1	Educational	6.87
Government	1.14K	Government	234	Government	44.3
Religious	770	Religious	236	Religious	84.6

Total Economic Loss

Total: $55B

Top Counties	State	Total
San Bernardino	CA	$27.2B
Riverside	CA	$16B
Los Angeles	CA	$6.36B
Orange	CA	$3.16B
Imperial	CA	$1.46B
San Diego	CA	$827M
Ventura	CA	$19.5M

Injuries & Fatalities

Total Day: 9.59K
Total Night: 7.15K

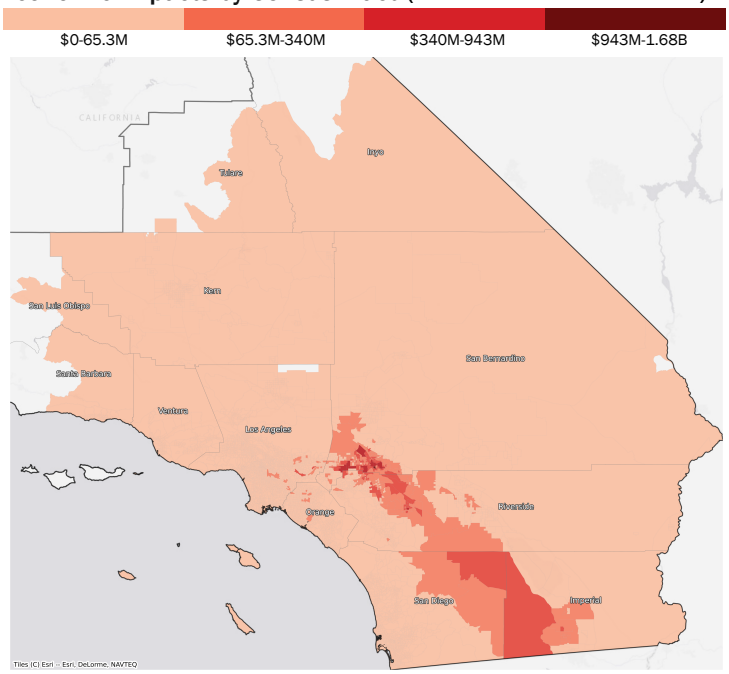
Top Counties	State	Injuries (day/night)	Fatalities (day/night)
San Bernardino	CA	5.73K/3.42K	304/99.8
Riverside	CA	2.36K/2.96K	69.6/60.4
Los Angeles	CA	610/316	3.04/0.365
Orange	CA	235/150	0.668/0.197
San Diego	CA	146/26.1	0.257/0.0673
Imperial	CA	126/112	1.04/0.819
Ventura	CA	0.499/0.371	0.000061/0.000026

Displaced Households & Short-Term Shelter Needs

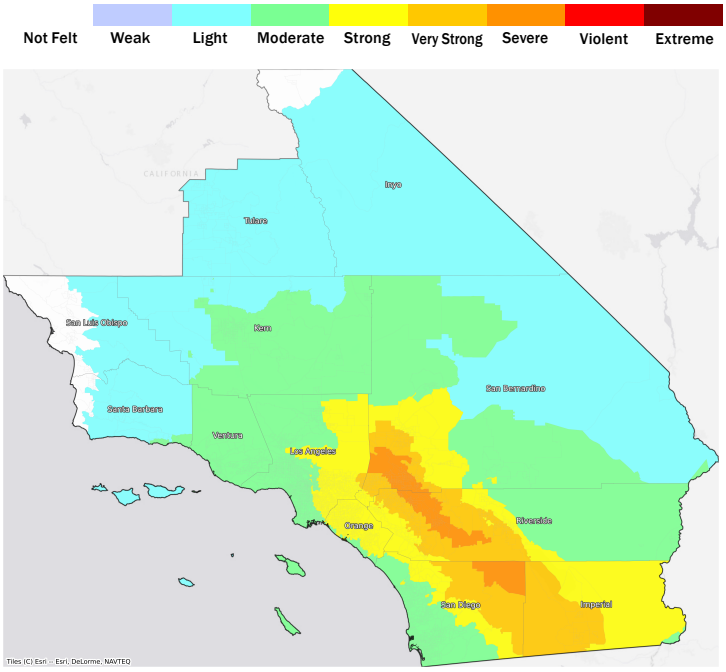
Total Displaced: 18.1K
Total Needing Shelter: 13.4K

Top Counties	State	Displaced	Needing Shelter
San Bernardino	CA	14K	9.97K
Riverside	CA	3.38K	2.89K
Los Angeles	CA	387	251
Orange	CA	224	153
Imperial	CA	151	109
San Diego	CA	17.3	7.45
Kern	CA	0.0118	0.00834

Economic Impacts by Census Tract (5.34K Tracts with Losses)



Ground Shaking



Debris

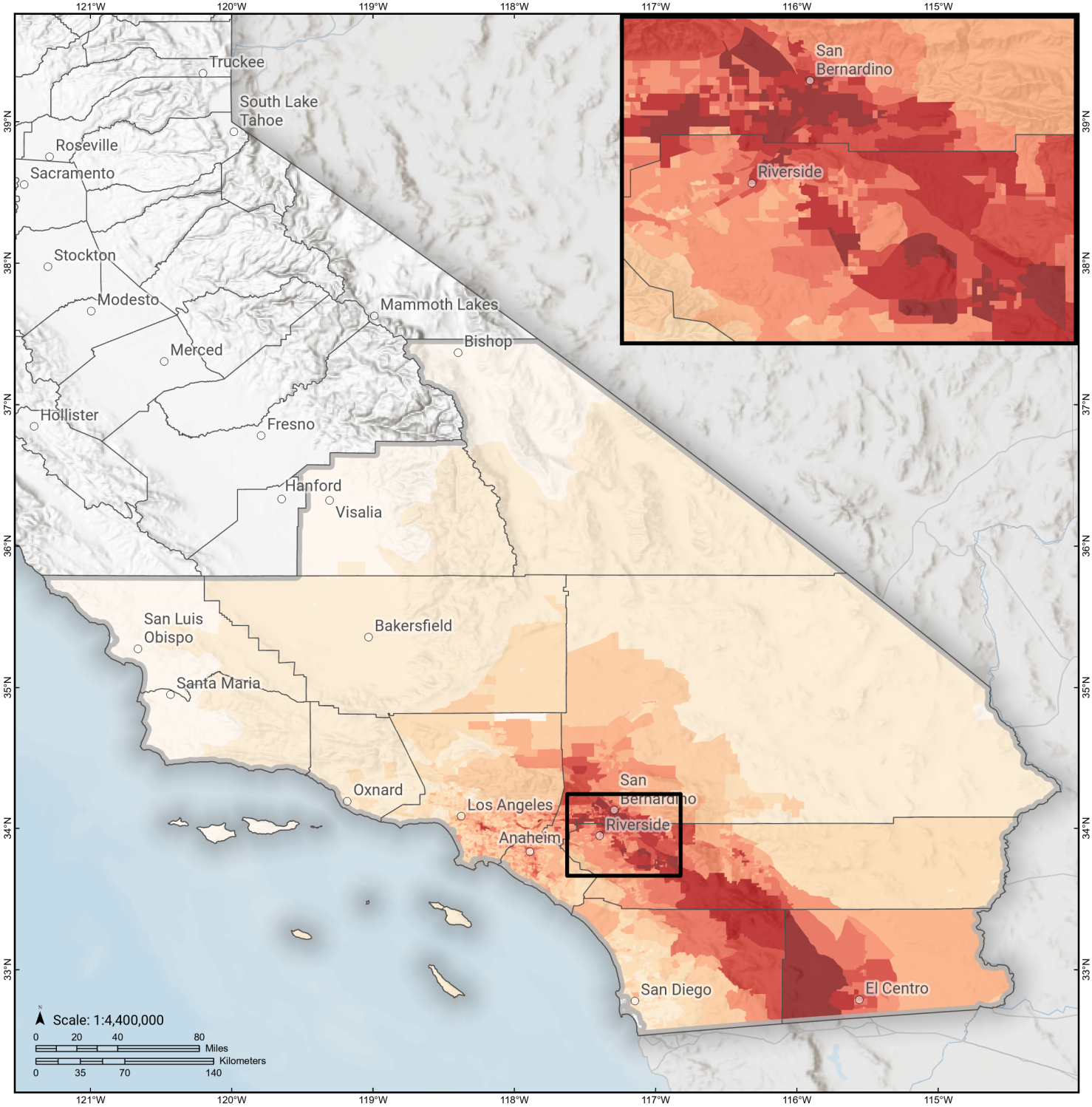
Total Tons: 7.42M
Total Truckloads: 297K

Type	Tons
Brick, Wood, and Other	3.54M
Concrete & Steel	3.88M

San Jacinto: SBV+SJV+s+A+CC+B+SM

Debris Generated by Census Tract

California Department of Conservation
California Geological Survey



Study Region: San Jacinto: SBV+SJV+s+A+CC+B+SM
Scenario: sanjacintosbvsjvsacc_m7p76_se

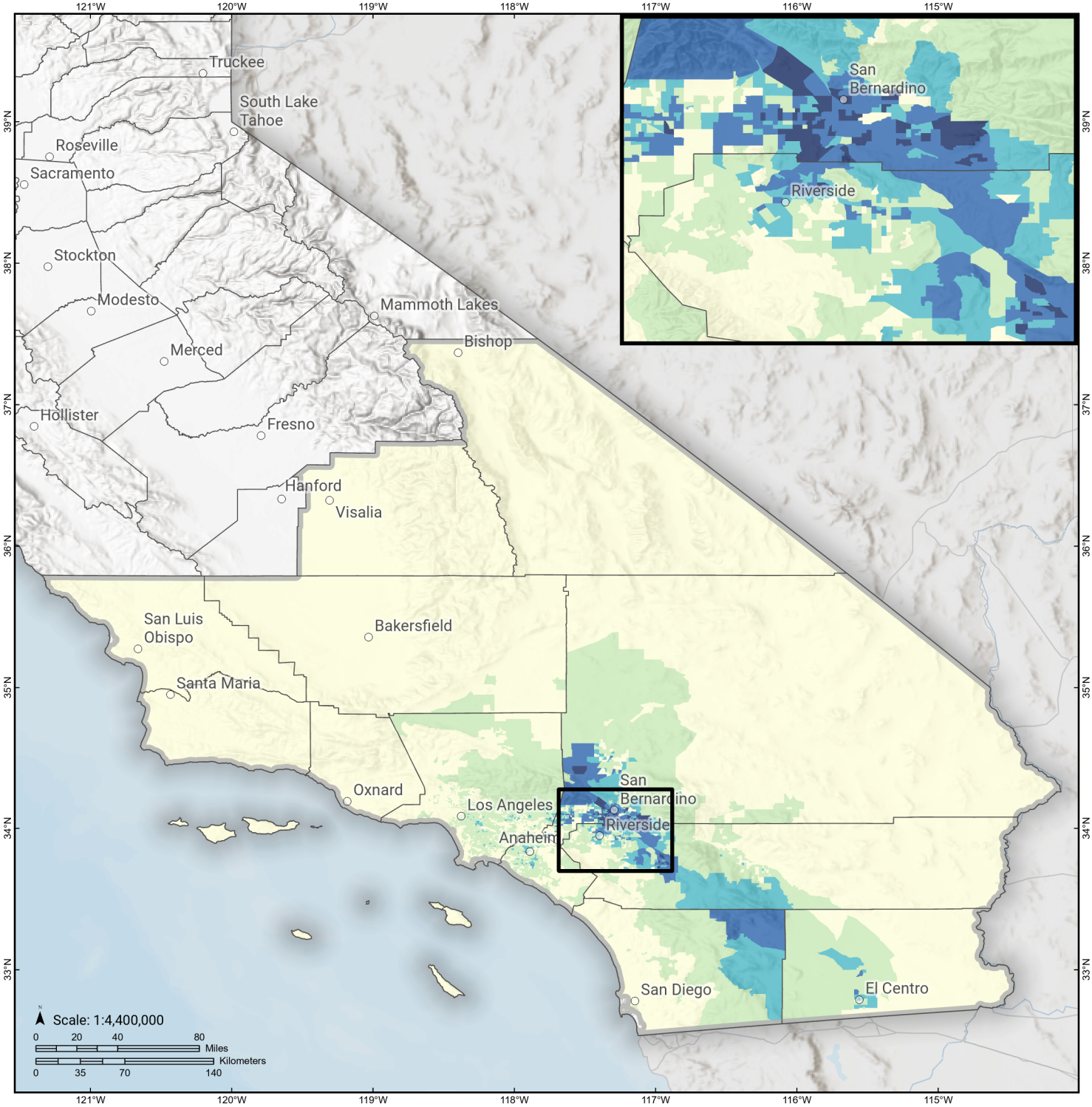
Debris Generated *(in tons)*

- 0
- >0 - 10
- >10 - 50
- >50 - 150
- >150 - 500
- >500 - 2,000
- >2,000 - 5,000
- >5,000 - 10,000
- >10,000 - 25,000
- >25,000 - 220,700

San Jacinto: SBV+SJV+s+A+CC+B+SM

Displaced Households by Census Tract

California Department of Conservation
California Geological Survey



Study Region: San Jacinto: SBV+SJV+s+A+CC+B+SM
Scenario: sanjacintosbvsjvsacc_m7p76_se

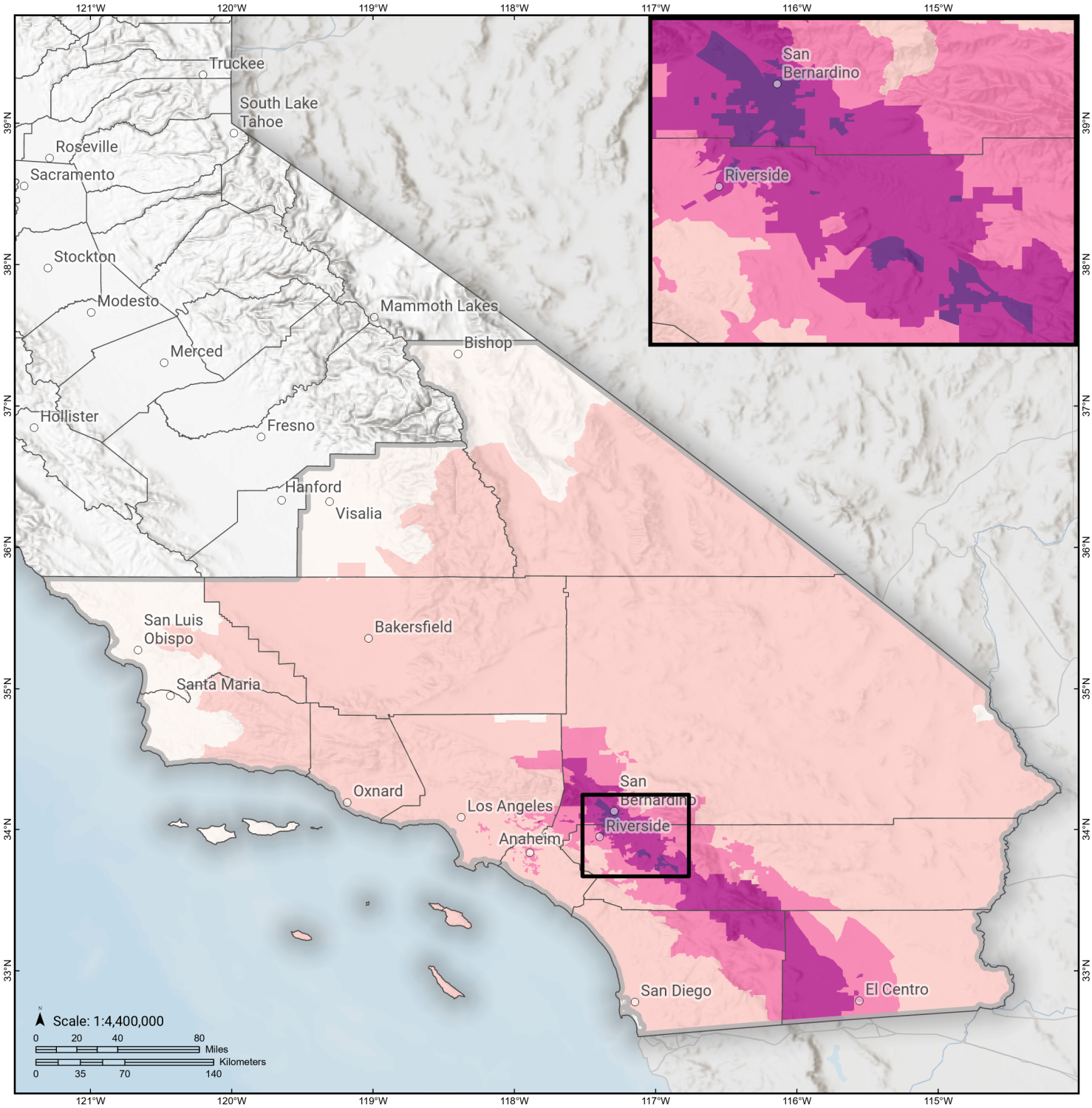
Displaced Households

- 0
- 1
- 2 - 10
- 11 - 100
- 101 - 500

San Jacinto: SBV+SJV+s+A+CC+B+SM

Loss Ratio by Census Tract

California Department of Conservation
California Geological Survey



Study Region: San Jacinto: SBV+SJV+s+A+CC+B+SM
Scenario: sanjacintosbvsjvsacc_m7p76_se

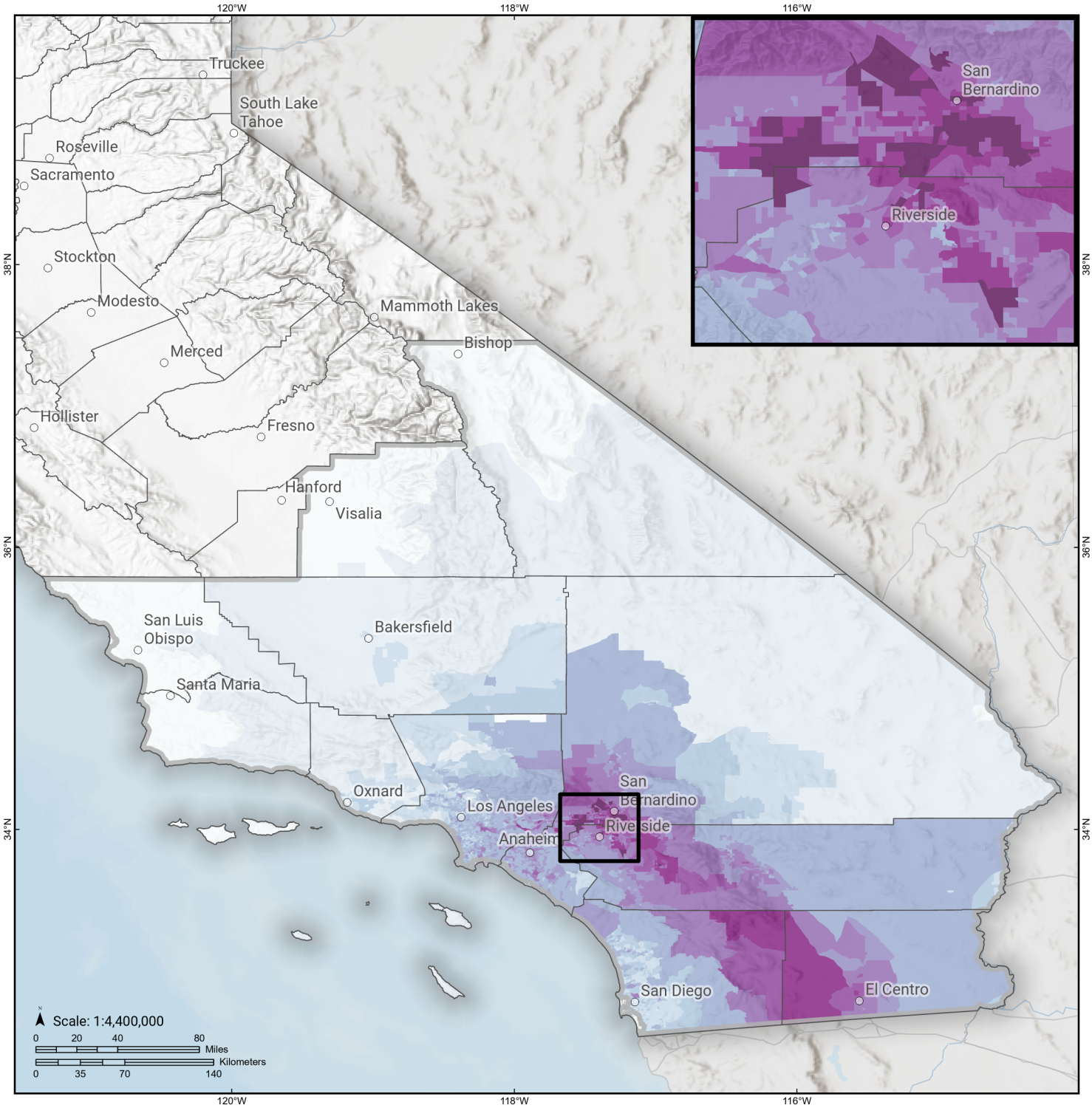
Loss Ratio *(ratio of building related economic loss to exposed value of buildings)*

- 0%
- >0 - 1%
- >1 - 5%
- >5 - 15%
- >15 - 55%

San Jacinto: SBV+SJV+s+A+CC+B+SM

Total Building Related Economic Loss by Census Tract

California Department of Conservation
California Geological Survey



Study Region: San Jacinto: SBV+SJV+s+A+CC+B+SM
Scenario: sanjacintosbvsjvsacc_m7p76_se

Economic Loss *(in thousands of USD $)*

- 0
- >0 - 100
- >100 - 500
- >500 - 1,000
- >1,000 - 5,000
- >5,000 - 15,000
- >15,000 - 50,000
- >50,000 - 100,000
- >100,000 - 200,000
- >200,000 - 1,675,500

Building Damage by Count by General Occupancy

RiskMAP
Increasing Resilience Together

June 25, 2024

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
California						
Imperial						
Agriculture	68	44	21	4	0	138
Commercial	1,715	1,266	571	88	5	3,646
Education	74	21	4	0	0	99
Government	124	44	26	7	0	202
Industrial	249	205	106	18	1	580
Religion	147	93	46	9	0	295
Other Residential	2,794	1,851	1,498	1,140	235	7,518
Single Family	21,055	13,528	819	3	0	35,405
Inyo						
Agriculture	32	0	0	0	0	32
Commercial	721	0	0	0	0	721
Education	41	0	0	0	0	41
Government	101	0	0	0	0	101
Industrial	257	0	0	0	0	257
Religion	57	0	0	0	0	57
Other Residential	4,050	0	0	0	0	4,050
Single Family	4,446	0	0	0	0	4,446
Kern						

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Agriculture	*4,643*	*2*	*0*	*0*	*0*	*4,645*
Commercial	*15,553*	*13*	*1*	*0*	*0*	*15,567*
Education	*462*	*0*	*0*	*0*	*0*	*462*
Government	*442*	*0*	*0*	*0*	*0*	*443*
Industrial	*6,040*	*6*	*0*	*0*	*0*	*6,047*
Religion	*1,522*	*2*	*0*	*0*	*0*	*1,524*
Other Residential	*54,323*	*184*	*13*	*0*	*0*	*54,520*
Single Family	*205,071*	*68*	*0*	*0*	*0*	*205,139*
Los Angeles						
Agriculture	*1,879*	*113*	*36*	*4*	*0*	*2,032*
Commercial	*175,392*	*12,780*	*2,516*	*168*	*5*	*190,861*
Education	*5,316*	*139*	*29*	*2*	*0*	*5,486*
Government	*2,754*	*227*	*47*	*3*	*0*	*3,031*
Industrial	*48,728*	*3,375*	*915*	*105*	*3*	*53,126*
Religion	*9,601*	*848*	*188*	*13*	*0*	*10,651*
Other Residential	*457,037*	*21,165*	*3,246*	*220*	*3*	*481,671*
Single Family	*1,741,965*	*60,134*	*1,020*	*19*	*1*	*1,803,140*
Orange						
Agriculture	*998*	*105*	*27*	*5*	*0*	*1,135*
Commercial	*61,024*	*5,901*	*1,275*	*137*	*3*	*68,340*
Education	*1,828*	*51*	*10*	*1*	*0*	*1,890*
Government	*565*	*69*	*15*	*1*	*0*	*650*
Industrial	*16,533*	*1,858*	*371*	*31*	*1*	*18,795*
Religion	*1,809*	*192*	*49*	*6*	*0*	*2,057*
Other Residential	*73,155*	*10,132*	*2,352*	*77*	*1*	*85,718*

	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Single Family	*668,673*	*37,163*	*374*	*3*	*0*	*706,212*
Riverside						
Agriculture	*1,281*	*337*	*82*	*11*	*2*	*1,713*
Commercial	*29,698*	*11,731*	*3,820*	*862*	*246*	*46,357*
Education	*752*	*181*	*48*	*7*	*2*	*990*
Government	*4,573*	*1,707*	*744*	*135*	*17*	*7,175*
Industrial	*4,298*	*1,571*	*426*	*91*	*24*	*6,409*
Religion	*790*	*357*	*132*	*30*	*11*	*1,319*
Other Residential	*42,377*	*32,867*	*29,198*	*12,465*	*5,891*	*122,799*
Single Family	*399,998*	*182,515*	*22,084*	*683*	*174*	*605,455*
San Bernardino						
Agriculture	*1,132*	*486*	*137*	*39*	*21*	*1,815*
Commercial	*20,286*	*11,567*	*5,085*	*1,992*	*1,110*	*40,041*
Education	*642*	*235*	*86*	*17*	*5*	*985*
Government	*651*	*327*	*153*	*80*	*27*	*1,238*
Industrial	*5,271*	*2,568*	*1,078*	*371*	*187*	*9,474*
Religion	*1,131*	*588*	*351*	*178*	*73*	*2,320*
Other Residential	*44,483*	*26,977*	*17,127*	*6,445*	*3,789*	*98,821*
Single Family	*299,539*	*184,803*	*38,578*	*1,776*	*671*	*525,367*
San Diego						
Agriculture	*2,156*	*28*	*3*	*3*	*1*	*2,190*
Commercial	*61,677*	*629*	*58*	*5*	*0*	*62,369*
Education	*1,923*	*8*	*1*	*0*	*0*	*1,932*
Government	*20,056*	*704*	*157*	*7*	*0*	*20,924*
Industrial	*14,161*	*135*	*15*	*1*	*0*	*14,313*

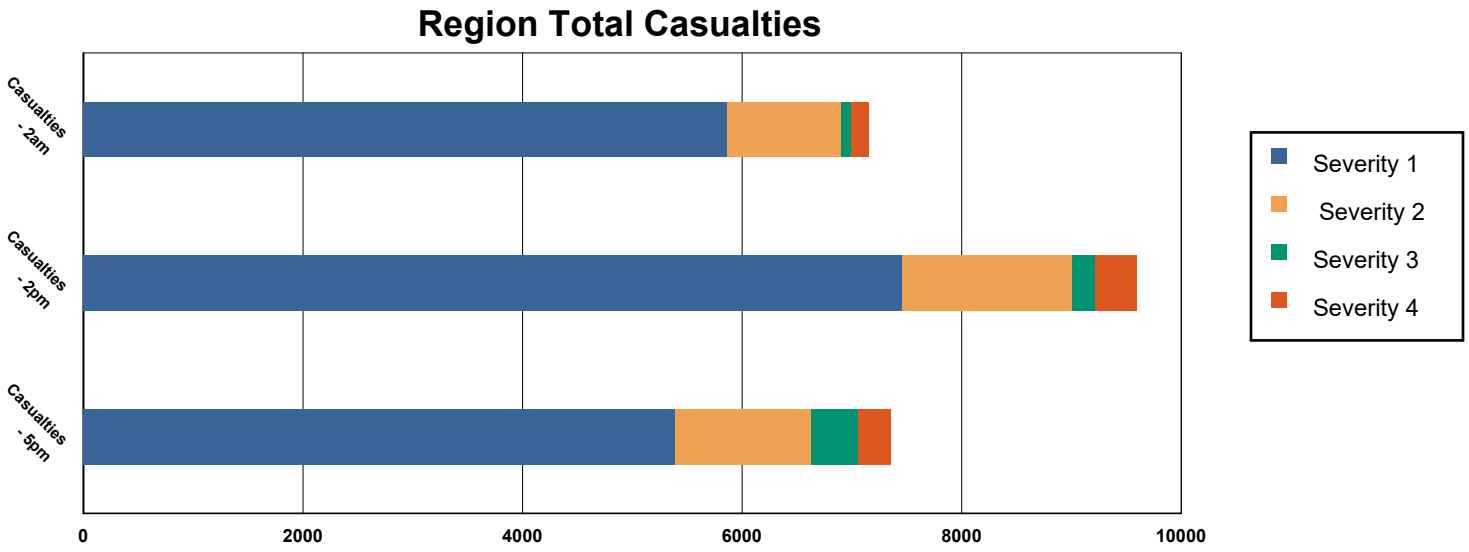
	# of Buildings					
	None	Slight	Moderate	Extensive	Complete	Total
Religion	*3,021*	*38*	*4*	*0*	*0*	*3,063*
Other Residential	*123,359*	*3,368*	*700*	*116*	*16*	*127,559*
Single Family	*757,693*	*5,114*	*194*	*17*	*1*	*763,020*
San Luis Obispo						
Agriculture	*421*	*0*	*0*	*0*	*0*	*421*
Commercial	*9,375*	*0*	*0*	*0*	*0*	*9,375*
Education	*182*	*0*	*0*	*0*	*0*	*182*
Government	*185*	*0*	*0*	*0*	*0*	*185*
Industrial	*2,556*	*0*	*0*	*0*	*0*	*2,556*
Religion	*360*	*0*	*0*	*0*	*0*	*360*
Other Residential	*20,216*	*0*	*0*	*0*	*0*	*20,216*
Single Family	*85,639*	*0*	*0*	*0*	*0*	*85,639*
Santa Barbara						
Agriculture	*464*	*0*	*0*	*0*	*0*	*464*
Commercial	*9,820*	*0*	*0*	*0*	*0*	*9,820*
Education	*299*	*0*	*0*	*0*	*0*	*299*
Government	*239*	*0*	*0*	*0*	*0*	*239*
Industrial	*2,840*	*0*	*0*	*0*	*0*	*2,840*
Religion	*621*	*0*	*0*	*0*	*0*	*621*
Other Residential	*24,110*	*1*	*0*	*0*	*0*	*24,111*
Single Family	*98,982*	*0*	*0*	*0*	*0*	*98,982*
Tulare						
Agriculture	*3,555*	*0*	*0*	*0*	*0*	*3,555*
Commercial	*8,873*	*0*	*0*	*0*	*0*	*8,873*
Education	*269*	*0*	*0*	*0*	*0*	*269*

		# of Buildings					
		None	Slight	Moderate	Extensive	Complete	Total
	Government	*461*	*0*	*0*	*0*	*0*	*461*
	Industrial	*2,148*	*0*	*0*	*0*	*0*	*2,148*
	Religion	*827*	*0*	*0*	*0*	*0*	*827*
	Other Residential	*20,022*	*0*	*0*	*0*	*0*	*20,022*
	Single Family	*112,034*	*0*	*0*	*0*	*0*	*112,034*
Ventura							
	Agriculture	*597*	*1*	*0*	*0*	*0*	*598*
	Commercial	*14,927*	*25*	*1*	*0*	*0*	*14,953*
	Education	*497*	*0*	*0*	*0*	*0*	*497*
	Government	*1,000*	*1*	*0*	*0*	*0*	*1,001*
	Industrial	*6,085*	*11*	*0*	*0*	*0*	*6,097*
	Religion	*1,185*	*1*	*0*	*0*	*0*	*1,187*
	Other Residential	*26,089*	*71*	*3*	*0*	*0*	*26,163*
	Single Family	*203,861*	*107*	*0*	*0*	*0*	*203,968*
Total		**6,090,930**	**640,642**	**135,840**	**27,399**	**12,529**	**6,907,341**
Region Total		**6,090,930**	**640,642**	**135,840**	**27,399**	**12,529**	**6,907,341**

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 25, 2024



	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Imperial					
Casualties - 2am					
Commercial	1	0	0	0	1
Other-Residential	66	11	1	1	78
Educational	0	0	0	0	0
Single Family	32	1	0	0	33
Commuting	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	1	0	0	0	1
Total Casualties - 2am	**100**	**12**	**1**	**1**	**113**
Casualties - 2pm					
Educational	17	2	0	0	19
Industrial	4	1	0	0	5
Hotels	0	0	0	0	0
Other-Residential	19	3	0	0	22
Single Family	9	0	0	0	9
Commercial	63	7	0	1	71
Commuting	0	0	1	0	1

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Imperial					
Total Casualties - 2pm	**112**	**13**	**1**	**1**	**127**
Casualties - 5pm					
Single Family	12	0	0	0	12
Other-Residential	23	4	0	0	28
Commercial	42	5	0	0	47
Commuting	4	5	9	2	20
Educational	1	0	0	0	1
Hotels	0	0	0	0	0
Industrial	3	0	0	0	3
Total Casualties - 5pm	**84**	**14**	**9**	**2**	**110**
Inyo					
Casualties - 2am					
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Other-Residential	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Other-Residential	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Kern					
Casualties - 2am					
Commercial	0	0	0	0	0

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Kern					
Casualties - 2am					
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Other-Residential	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Educational	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commercial	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Los Angeles					
Casualties - 2am					
Hotels	0	0	0	0	0
Industrial	5	0	0	0	5
Educational	0	0	0	0	0
Single Family	111	1	0	0	112
Commuting	0	0	0	0	0
Other-Residential	184	10	0	0	194
Commercial	4	0	0	0	5
Total Casualties - 2am	**304**	**12**	**0**	**0**	**317**
Casualties - 2pm					
Industrial	35	3	0	0	38
Other-Residential	56	3	0	0	59
Commercial	280	19	1	1	300
Commuting	0	0	0	0	0
Educational	165	17	1	2	185

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Los Angeles					
Casualties - 2pm					
Single Family	30	0	0	0	31
Hotels	0	0	0	0	0
Total Casualties - 2pm	**565**	**43**	**2**	**3**	**613**
Casualties - 5pm					
Other-Residential	68	4	0	0	72
Industrial	22	2	0	0	24
Commuting	1	2	3	1	7
Single Family	40	1	0	0	40
Commercial	191	14	0	1	205
Hotels	0	0	0	0	0
Educational	56	7	0	1	64
Total Casualties - 5pm	**378**	**28**	**4**	**2**	**413**
Orange					
Casualties - 2am					
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Industrial	3	0	0	0	3
Other-Residential	74	5	0	0	79
Commercial	2	0	0	0	2
Single Family	66	0	0	0	66
Total Casualties - 2am	**145**	**6**	**0**	**0**	**151**
Casualties - 2pm					
Industrial	22	2	0	0	23
Other-Residential	20	1	0	0	22
Commuting	0	0	0	0	0
Commercial	114	8	0	0	123
Single Family	17	0	0	0	17
Hotels	0	0	0	0	0
Educational	47	3	0	0	50
Total Casualties - 2pm	**220**	**15**	**0**	**1**	**236**
Casualties - 5pm					
Hotels	0	0	0	0	0
Educational	10	0	0	0	10
Commuting	1	1	2	0	4
Single Family	23	0	0	0	24
Commercial	80	6	0	0	86
Other-Residential	27	2	0	0	29
Industrial	14	1	0	0	15
Total Casualties - 5pm	**154**	**10**	**2**	**1**	**167**

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
Riverside					
Casualties - 2am					
Industrial	6	1	0	0	8
Commercial	11	2	0	1	14
Other-Residential	1,897	396	29	50	2,373
Educational	0	0	0	0	0
Commuting	0	0	0	0	1
Single Family	561	51	5	9	626
Hotels	1	0	0	0	1
Total Casualties - 2am	**2,476**	**451**	**34**	**60**	**3,022**
Casualties - 2pm					
Commercial	773	145	18	34	969
Other-Residential	651	140	11	20	822
Educational	312	49	5	10	375
Single Family	176	18	2	4	199
Commuting	2	3	4	1	10
Hotels	0	0	0	0	0
Industrial	47	8	1	2	57
Total Casualties - 2pm	**1,960**	**362**	**41**	**70**	**2,433**
Casualties - 5pm					
Industrial	29	5	1	1	36
Other-Residential	687	145	11	19	863
Educational	49	6	0	1	56
Single Family	209	21	2	4	236
Hotels	0	0	0	0	0
Commercial	542	100	12	23	677
Commuting	33	49	77	15	175
Total Casualties - 5pm	**1,551**	**325**	**103**	**63**	**2,043**
San Bernardino					
Casualties - 2am					
Hotels	1	0	0	0	1
Single Family	928	134	15	30	1,106
Commercial	34	9	1	3	47
Commuting	1	1	1	0	3
Educational	0	0	0	0	0
Other-Residential	1,828	402	36	65	2,331
Industrial	26	7	1	2	36
Total Casualties - 2am	**2,818**	**552**	**54**	**100**	**3,524**
Casualties - 2pm					
Industrial	192	49	7	14	263
Hotels	0	0	0	0	0
Commuting	5	7	12	2	26
Other-Residential	544	121	11	20	697

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Bernardino					
Casualties - 2pm					
Educational	1,160	291	44	86	1,580
Single Family	269	42	5	9	325
Commercial	2,290	594	88	172	3,145
Total Casualties - 2pm	**4,461**	**1,104**	**168**	**304**	**6,036**
Casualties - 5pm					
Other-Residential	678	150	14	25	866
Commercial	1,606	414	62	118	2,200
Single Family	354	54	6	12	426
Educational	292	82	14	26	414
Hotels	0	0	0	0	0
Commuting	92	129	209	41	471
Industrial	120	31	4	9	164
Total Casualties - 5pm	**3,142**	**859**	**310**	**231**	**4,542**
San Diego					
Casualties - 2am					
Commercial	2	0	0	0	2
Other-Residential	15	1	0	0	16
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	8	0	0	0	8
Industrial	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**25**	**1**	**0**	**0**	**26**
Casualties - 2pm					
Hotels	0	0	0	0	0
Educational	3	0	0	0	3
Commuting	0	0	0	0	0
Commercial	125	8	0	0	134
Other-Residential	6	0	0	0	6
Single Family	3	0	0	0	3
Industrial	1	0	0	0	1
Total Casualties - 2pm	**137**	**9**	**0**	**0**	**146**
Casualties - 5pm					
Other-Residential	5	0	0	0	6
Commercial	69	5	0	0	74
Commuting	0	0	0	0	0
Single Family	3	0	0	0	3
Educational	1	0	0	0	1
Hotels	0	0	0	0	0
Industrial	1	0	0	0	1

	Injury Severity Level				
	Severity 1	Severity 2	Severity 3	Severity 4	Total
California					
San Diego					
Total Casualties - 5pm	**78**	**5**	**0**	**0**	**84**
San Luis Obispo					
Casualties - 2am					
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Industrial	0	0	0	0	0
Single Family	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Single Family	0	0	0	0	0
Educational	0	0	0	0	0
Other-Residential	0	0	0	0	0
Hotels	0	0	0	0	0
Commuting	0	0	0	0	0
Commercial	0	0	0	0	0
Industrial	0	0	0	0	0
Total Casualties - 2pm	**0**	**0**	**0**	**0**	**0**
Casualties - 5pm					
Industrial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Single Family	0	0	0	0	0
Commercial	0	0	0	0	0
Hotels	0	0	0	0	0
Educational	0	0	0	0	0
Total Casualties - 5pm	**0**	**0**	**0**	**0**	**0**
Santa Barbara					
Casualties - 2am					
Industrial	0	0	0	0	0
Commercial	0	0	0	0	0
Other-Residential	0	0	0	0	0
Commuting	0	0	0	0	0
Educational	0	0	0	0	0
Single Family	0	0	0	0	0
Hotels	0	0	0	0	0
Total Casualties - 2am	**0**	**0**	**0**	**0**	**0**
Casualties - 2pm					
Commercial	0	0	0	0	0

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

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

June 25, 2024

All values are in thousands of tons.

	Brick, Wood & Others	Concrete & Steel	Total
California			
San Luis Obispo	0	0	0
Tulare	0	0	0
Inyo	0	0	0
Riverside	1,297	1,082	2,379
San Bernardino	1,667	2,183	3,850
Imperial	85	114	199
Ventura	1	0	1
Kern	1	0	1
Orange	109	161	269
San Diego	25	24	49
Los Angeles	355	319	673
Santa Barbara	0	0	0
Total	**3,537**	**3,883**	**7,420**
Region Total	**3,537**	**3,883**	**7,420**

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 : SanJacintoSBVtoSM

Scenario : sanjacintosbvsjvsacc_m7p76_se

Direct Economic Losses For Buildings

June 25, 2024

All values are in thousands of dollars

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
California										
Inyo	0	2	1	0	0.00	0	0	0	0	3
Imperial	168,979	729,014	316,322	66,042	2.68	64,951	39,946	44,030	30,320	1,459,605
San Bernardino	3,048,033	13,767,681	5,681,663	694,122	4.45	1,516,272	663,360	1,008,252	777,922	27,157,305
Riverside	1,703,358	8,744,483	3,482,902	205,723	2.50	794,684	298,453	366,458	393,610	15,989,673
San Luis Obispo	0	0	0	0	0.00	0	0	0	0	0
Tulare	0	1	1	0	0.00	0	0	0	0	2
Santa Barbara	4	186	133	26	0.00	0	0	0	1	351
Kern	485	7,695	4,060	507	0.01	68	49	56	87	13,008
Ventura	613	11,738	5,993	787	0.01	46	92	106	119	19,494

Study Region : SanJacintoSBVtoSM

Scenario : sanjacintosbvsjvsacc_m7p76_se

	Capital Stock Losses					Income Losses				
	Cost Structural Damage	Cost Non-struct. Damage	Cost Contents Damage	Inventory Loss	Loss Ratio %	Relocation Loss	Capital Related Loss	Wages Losses	Rental Income Loss	Total Loss
Orange	248,081	1,713,346	861,199	79,950	0.36	72,293	58,338	68,118	60,828	3,162,154
San Diego	42,509	472,718	247,482	14,785	0.09	19,119	3,967	14,332	12,097	827,009
Los Angeles	542,402	3,244,236	1,708,871	170,540	0.25	232,060	133,011	175,834	155,017	6,361,971
Total	**5,754,465**	**28,691,101**	**12,308,626**	**1,232,483**	**0.86**	**2,699,494**	**1,197,217**	**1,677,187**	**1,430,001**	**54,990,574**
Region Total	**5,754,465**	**28,691,101**	**12,308,626**	**1,232,483**	**0.86**	**2,699,494**	**1,197,217**	**1,677,187**	**1,430,001**	**54,990,574**

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 25, 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	17,607	12,256	0					29,863
Tunnels	0	0	0					0
Facilities		1,387	0	0	0	0	8,976	10,363
Total	**17,607**	**13,644**	**0**	**0**	**0**	**0**	**8,976**	**40,227**
Inyo								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		0	0	0	0	0	74	74
Total	**0**	**0**	**0**	**0**	**0**	**0**	**74**	**74**
Kern								
Segments	0	0	0					0
Bridges	73	1	0					74
Tunnels	0	0	0					0
Facilities		180	0	113	0	0	1,749	2,042

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**73**	**180**	**0**	**113**	**0**	**0**	**1,749**	**2,116**
Los Angeles								
Segments	0	0	0					0
Bridges	33,562	520	1					34,083
Tunnels	179	0	0					179
Facilities		7,723	108,250	1,877	29,084	466	109,442	256,842
Total	**33,741**	**8,243**	**108,251**	**1,877**	**29,084**	**466**	**109,442**	**291,104**
Orange								
Segments	0	0	0					0
Bridges	11,494	237	0					11,731
Tunnels	22	0	0					22
Facilities		1,516	0	0	3,683	356	31,664	37,219
Total	**11,516**	**1,753**	**0**	**0**	**3,683**	**356**	**31,664**	**48,972**
Riverside								
Segments	0	0	0					0
Bridges	113,471	11,181	0					124,652
Tunnels	0	0	0					0
Facilities		3,130	0	4,057	0	0	29,905	37,092
Total	**113,471**	**14,311**	**0**	**4,057**	**0**	**0**	**29,905**	**161,744**
San Bernardino								
Segments	0	0	0					0
Bridges	494,624	52,369	0					546,993
Tunnels	354	0	0					354
Facilities		11,691	0	1,375	0	0	57,083	70,148

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**494,978**	**64,060**	**0**	**1,375**	**0**	**0**	**57,083**	**617,495**
San Diego								
Segments	0	0	0					0
Bridges	728	18	0					746
Tunnels	1	0	0					1
Facilities		1,158	37,217	89	15,397	164	41,492	95,516
Total	**729**	**1,177**	**37,217**	**89**	**15,397**	**164**	**41,492**	**96,264**
San Luis Obispo								
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**
Santa Barbara								
Segments	0	0	0					0
Bridges	0	0	0					0
Tunnels	0	0	0					0
Facilities		77	0	2	167	14	387	648
Total	**0**	**77**	**0**	**2**	**167**	**14**	**387**	**648**
Tulare								
Segments	0	0	0					0
Bridges	1	0	0					1
Tunnels	0	0	0					0
Facilities		0	0	9	0	0	28	38

	Highway	Railway	Light Rail	Bus Facility	Ports	Ferries	Airport	Total
Total	**1**	**0**	**0**	**9**	**0**	**0**	**28**	**38**
Ventura								
Segments	0	0	0					0
Bridges	39	0	0					39
Tunnels	0	0	0					0
Facilities		128	0	21	665	26	520	1,360
Total	**39**	**128**	**0**	**21**	**665**	**26**	**520**	**1,399**
Total	**672,155**	**103,572**	**145,467**	**7,544**	**48,996**	**1,026**	**281,319**	**1,260,080**
Region Total	**672,155**	**103,572**	**145,467**	**7,544**	**48,996**	**1,026**	**281,319**	**1,260,080**

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 25, 2024

All values are in thousands of dollars

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
California							
Imperial							
Facilities	4,852	304,679	0	0	2,794,120	372	3,104,023
Pipelines	8,150	4,094	0	0			12,244
Total	13,002	308,773	0	0	2,794,120	372	3,116,267
Inyo							
Facilities	0	0	0	0	500	0	500
Pipelines	72	36	0	0			108
Total	72	36	0	0	500	0	608
Kern							
Facilities	112	369	1	132	318,869	21	319,504
Pipelines	770	387	0	0			1,157
Total	882	756	1	132	318,869	21	320,661
Los Angeles							
Facilities	11,362	46,114	67	3,647	1,451,950	374	1,513,513

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Pipelines	5,223	2,623	0	0			7,846
Total	16,585	48,737	67	3,647	1,451,950	374	1,521,359
Orange							
Facilities	2,366	28,172	7	817	195,418	75	226,854
Pipelines	2,425	1,218	0	0			3,643
Total	4,791	29,390	7	817	195,418	75	230,497
Riverside							
Facilities	55,803	245,187	0	12,432	1,723,340	988	2,037,750
Pipelines	26,492	13,307	0	0			39,799
Total	82,294	258,494	0	12,432	1,723,340	988	2,077,549
San Bernardino							
Facilities	31,414	340,937	0	4,194	6,083,461	1,128	6,461,134
Pipelines	30,816	15,480	0	0			46,295
Total	62,230	356,417	0	4,194	6,083,461	1,128	6,507,429
San Diego							
Facilities	697	41,210	1	1,590	397,284	99	440,880
Pipelines	2,922	1,468	0	0			4,390
Total	3,619	42,678	1	1,590	397,284	99	445,270
San Luis Obispo							
Facilities	0	0	0	0	650	0	650
Pipelines	54	27	0	0			81

	Potable Water	Waste Water	Oil Systems	Natural Gas	Electric Power	Communication	Total
Total	54	27	0	0	650	0	732
Santa Barbara							
Facilities	0	738	0	88	354	1	1,181
Pipelines	72	36	0	0			108
Total	72	774	0	88	354	1	1,290
Tulare							
Facilities	1	8	0	0	61	0	70
Pipelines	121	61	0	0			182
Total	122	69	0	0	61	0	252
Ventura							
Facilities	140	1,601	0	87	20,043	4	21,876
Pipelines	236	119	0	0			355
Total	377	1,720	0	87	20,043	4	22,231
Total	**184,099**	**1,047,870**	**76**	**22,986**	**12,986,050**	**3,062**	**14,244,144**
Region Total	**184,099**	**1,047,870**	**76**	**22,986**	**12,986,050**	**3,062**	**14,244,144**

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	17.20 - 68.90
	Building Contents	2.20 - 8.80
	Business Interruption	3.50 - 14.00
Infrastructure	Lifelines Damage	
	Total	27.50 - 110.00

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	580,000	43,900	15,500	639,400
Minor	117,200	13,300	4,900	135,400
Major	23,000	3,300	1,200	27,500
Destroyed	10,800	1,400	380	12,580
Total	731,000	61,900	21,980	814,880

Estimated Casualties : Night Time

Severity Level	Description	# Persons
Level 1	Medical Aid	3,000 - 12,000
Level 2	Hospital Care	500 - 2,000
Level 3	Life-threatening	50 - 180
Level 4	Fatalities	80 - 300

Estimated Shelter Needs

Type	Households	People
Displaced Households	9,000 - 36,000	22,500 - 90,000
Public Shelter	5,350	13,380

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 : 7.76

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 24,255,037

Building Exposure : ($ Millions)

Residential	
Commercial	821,532
Other	611,717
Total	

Counties : See Appendix

Major Metro Area :

Time of report: June 25, 2024 12:39 pm

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	17.20 - 68.90
	Building Contents	2.20 - 8.80
	Business Interruption	3.50 - 14.00
Infrastructure	Lifelines Damage	
	Total	27.50 - 110.00

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	580,000	43,900	15,500	639,400
Minor	117,200	13,300	4,900	135,400
Major	23,000	3,300	1,200	27,500
Destroyed	10,800	1,400	380	12,580
Total	731,000	61,900	21,980	814,880

Estimated Casualties : Day Time

Severity Level	Description	# Persons
Level 1	Medical Aid	4,000 - 15,000
Level 2	Hospital Care	800 - 3,000
Level 3	Life-threatening	110 - 400
Level 4	Fatalities	190 - 800

Estimated Shelter Needs

Type	Households	People
Displaced Households	9,000 - 36,000	22,500 - 90,000
Public Shelter	5,350	13,380

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.*

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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 : 7.76

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 24,255,037

Building Exposure : ($ Millions)

Residential	
Commercial	821,532
Other	611,717
Total	

Counties : See Appendix

Major Metro Area :

Time of report: June 25, 2024 12:45 pm

Hazus Quick Assessment Report

Estimated Economic Loss ($ Billions)

Category	Description	Range
General Building Stock	Building Damage	17.20 - 68.90
	Building Contents	2.20 - 8.80
	Business Interruption	3.50 - 14.00
Infrastructure	Lifelines Damage	
	Total	27.50 - 110.00

Preliminary Damage Assessment (PDA) Estimates

Description	Residential	Commercial	Other	Total
Affected	580,000	43,900	15,500	639,400
Minor	117,200	13,300	4,900	135,400
Major	23,000	3,300	1,200	27,500
Destroyed	10,800	1,400	380	12,580
Total	731,000	61,900	21,980	814,880

Estimated Casualties : Commute Time

Severity Level	Description	# Persons
Level 1	Medical Aid	3,000 - 11,000
Level 2	Hospital Care	600 - 2,000
Level 3	Life-threatening	200 - 900
Level 4	Fatalities	150 - 600

Estimated Shelter Needs

Type	Households	People
Displaced Households	9,000 - 36,000	22,500 - 90,000
Public Shelter	5,350	13,380

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 : 7.76

Epicenter Latitude/Longitude :

/

Depth & Type : /U

Name :
NA

Ground Motion /Attenuation :

Maximum PGA: 1.00

Information Sources:

Comments :

Population and Building Exposure

Population: 24,255,037

Building Exposure : ($ Millions)

Residential	
Commercial	821,532
Other	611,717
Total	

Counties : See Appendix

Major Metro Area :

Time of report: June 25, 2024 12:47 pm

HAZUS™

FEMA

RiskMAP
Increasing Resilience Together

Shelter Summary Report

June 25, 2024

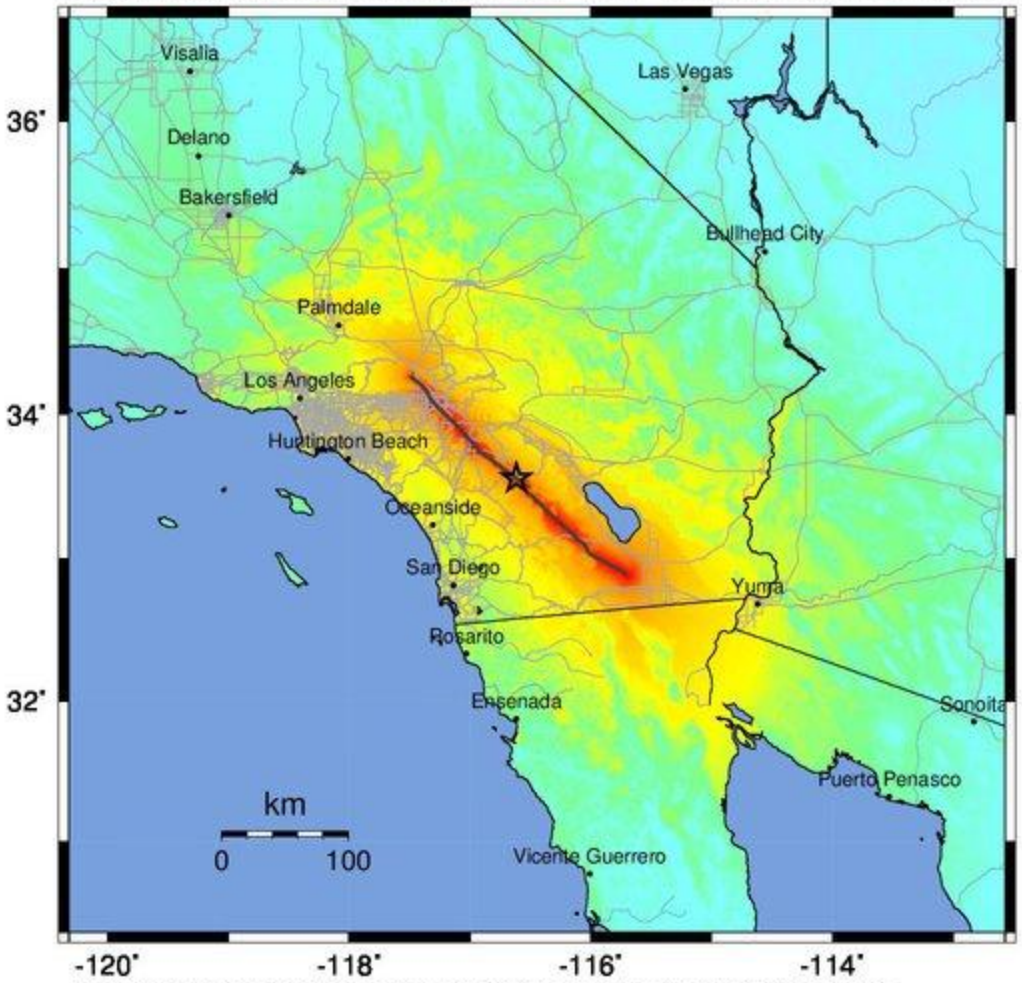
	# of Displaced Households	# of People Needing Short Term Shelter
California		
San Luis Obispo	0	0
Tulare	0	0
Inyo	0	0
Riverside	3,375	2,888
San Bernardino	13,966	9,967
Imperial	151	109
Ventura	0	0
Kern	0	0
Orange	224	153
San Diego	17	7
Los Angeles	387	251
Santa Barbara	0	0
Total	**18,121**	**13,375**
Region Total	**18,121**	**13,375**

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.

-- Earthquake Planning Scenario --

ShakeMap for San Jacinto: SBV+SJV+s+A+CC+B+SM - Median ground motions Scenario

Scenario Date: May 16, 2017 08:32:17 AM MDT M 7.8 N33.55 W116.62 Depth: 10.3km



PLANNING SCENARIO ONLY -- Map Version 14 Processed 2017-05-17 03:46:30 AM 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)