Concrete Coalition

A Program of EERI, PEER and ATC
Progress with the California Inventory Project

CA Inventory Project

- Website has more information:

  www.concretecoalition.org

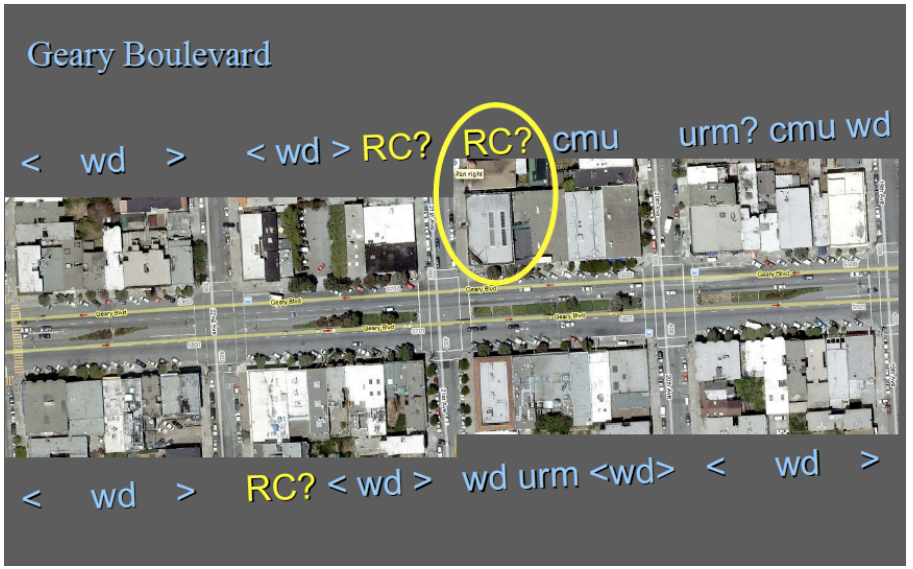
- Building on LA work
- Funded with a FEMA Hazard Mitigation Grant through CAL EMA (formerly OES)
- Goal to ESTIMATE size of the problem as a first step

Focus on highest seismic risk counties

350+ cities in 22 counties, representing
~ 32 million people

Pilot Cities

- Los Angeles
- San Francisco
- Long Beach
- Berkeley



Kick-off Meetings

- To recruit volunteers
- In Los Angeles and San Francisco
- Volunteer coordinators in Northern & Southern CA

Guidance on what to count

Concrete Building Types	Count Data	Optional – Other Databases Available[1]	Do Not Count Data
City Buildings	X		
County Buildings	X		
State Buildings		X	
Post Offices	X		
County and State Courthouses		X	
Federal Office Buildings and Courthouses		X	
Hospitals Regulated by OSHPD		X	
Utility-owned Buildings	X		
Grade K-12 Public Schools		X	
UC and CSU		X	
Community Colleges	X		
Private Schools and Colleges	X		
Military, Prisons, Regional Parks	X		

Ultimate GOAL—4 Estimates

Your City	
Category	Estimate
Total Number of Buildings	
Total Number of Concrete Buildings	
Pre-1980 Buildings	
Pre-1980 Concrete Buildings	

Community Risk Profile Summary

County: Alameda

City/Town: Alameda

Population:

Year of Incorporation:

Population Density:

Population, Year of Incorporation and Population Density will be provided.

Data Sources (select all that apply)

Counts & Surveys:
- Discussion with Building official
- Assessors data
- Loss estimates

Other (describe):

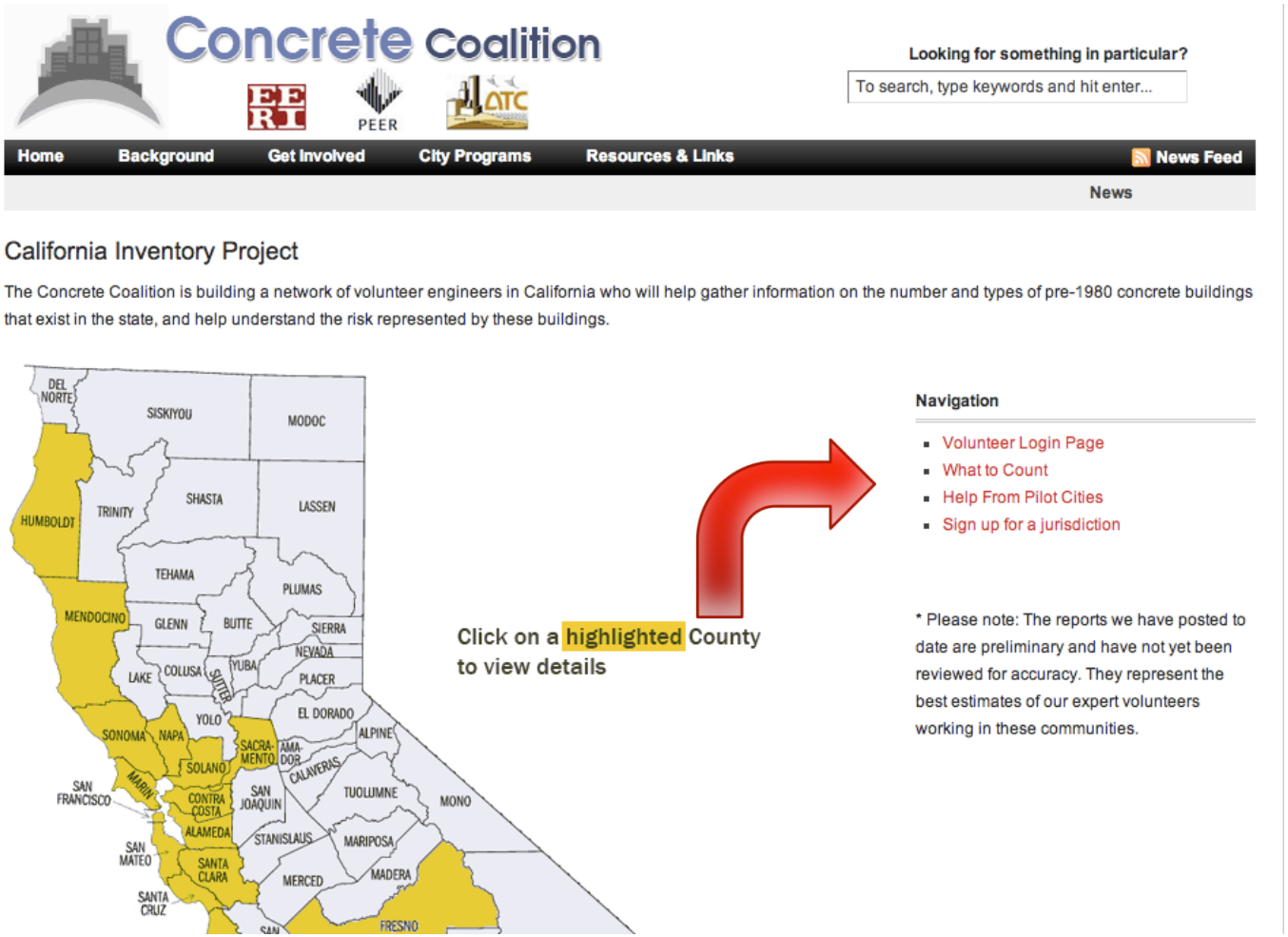
Plans and Histories:
- Zoning maps
- Past & current land use plans
- Historic accounts & preservation studies
- Housing & economic reports
- Engineering firm archives
- Sanborn Maps

Field Work:
- Selected sample areas
- All relevant districts in city

Google Earth:
- Google Earth (if possible, attach kml/z file)

Form provided online

Website provides guidance



Different Approaches

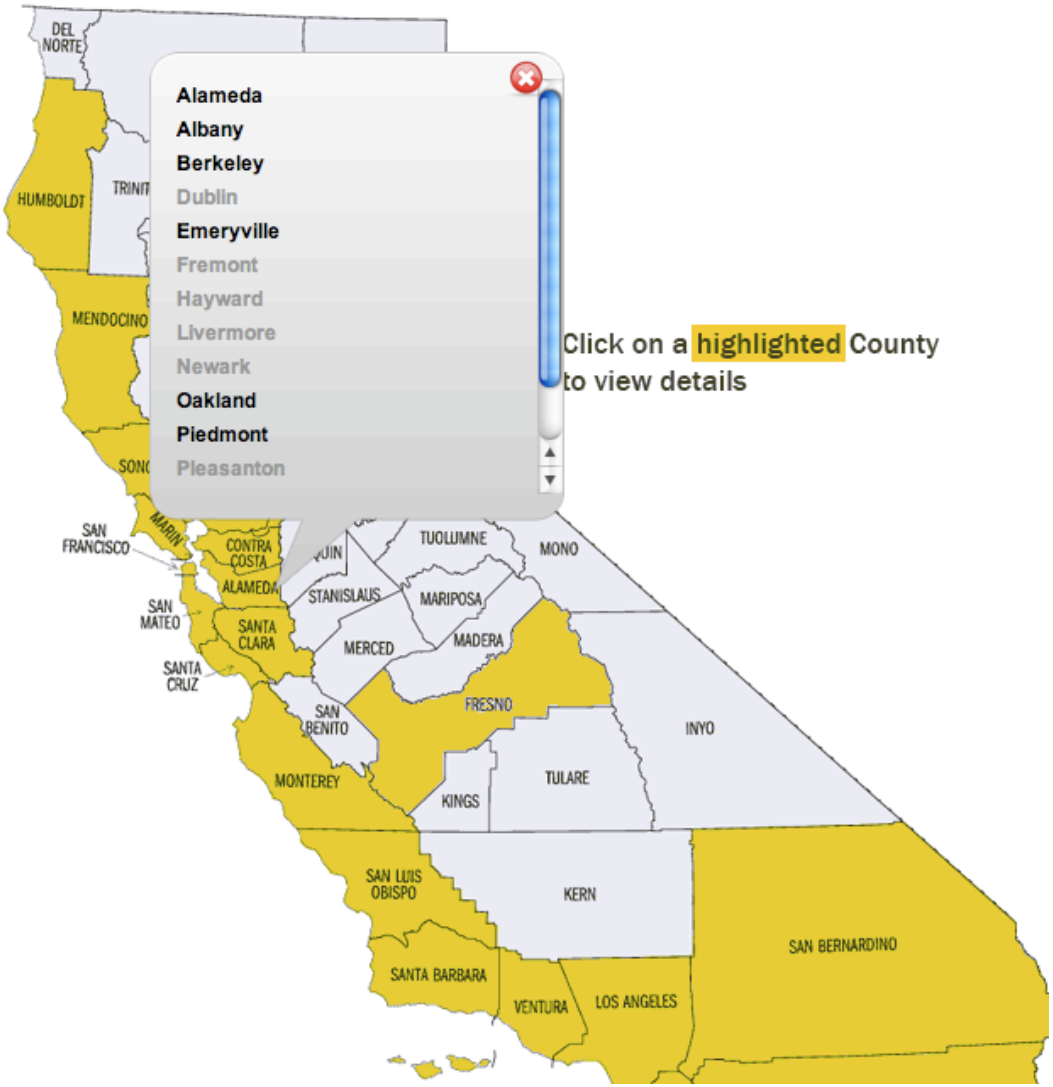
- Most everyone used:
- Sanborn Maps
- Google Earth
- Field Work
  - Bicycling through the city
  - Walking or driving sample areas

Areas and locations of possible concrete buildings
(based on scanning in Google Earth for non-single-family-home-looking roofs)

Currently have estimates from volunteers in 30+ cities

- 22 from Northern CA
- 9 from Southern CA
- Largest cities:
  - Los Angeles--1500
  - San Francisco--3000
  - San Jose--350
  - Oakland--1300
- Representing 25% of population in highest risk counties

Reports by City on website



Regression Model (developed by Peter May, UW)

- Use estimates from volunteer cities to extrapolate to remaining cities
- Tried MANY different combinations of census data
- Model now using total number of housing units; % 20 units or more; % built before 1939

POPULATION
70,576
16,444
100,744
39,328
6,882
200,468
140,293
78,409
41,956
395,274
10,952
65,950
78,178
69,176
100,631
23,302
10,762
123,252
41,852
23,171
19,488
23,908
35,916
16,290
27,177
17,599
19,039
62,547
33,153
102,186
31,004
49,999
64,196
17,294
1,135
25,579

LAND AREA (square miles)	POPULATION DENSITY (per square miles)	Data from 2000 Census	% 20 UNITS +	% built before 1939	REPORTED PRE-80 CONCRETE BUILDINGS
10.8	6,534.8		16.2	37.1	150
1.7	9,672.9	x	16.4	41.9	36
10.5	9,594.7		13.4	55.8	275
12.6	3,121.3		10.9	0.1	
1.2	5,735.0	x	69.0	14.0	44
76.7	2,613.7		14.7	1.7	
44.3	3,166.9		20.5	3.5	
23.9	3,280.7		4.4	4.1	
14.0	2,996.9		8.2	2.7	
56.1	7,045.9		16.9	42.5	1300
1.7	6,442.4	x	0.0	70.5	8
21.7	3,039.2		7.6	1.3	
13.1	5,967.8		14.6	9.9	40
19.3	3,584.2		8.3	1.2	
27.0	3,727.1		7.2	3.2	
11.6	2,008.8		2.9	1	
3.9	2,759.5	x	0.4	1.5	
30.1	4,094.8		15.4	1.7	
18.1	2,312.3		1.9	0.3	
3.6	6,436.4		6.3	10.8	22
6.5	2,998.2		0.01	0.3	
15.2	1,572.9		5.9	2.4	
12.3	2,920.0		5.9	9.8	
9.3	1,751.6	x	3.6	0.5	
12.4	2,191.7		0.7	4	
12.6	1,396.7	x	3.1	8.1	
5.2	3,661.3	x	5.5	3.7	
15.6	4,009.4	x	6.8	3.8	
7.1	4,669.4		11.2	0.9	
30.0	3,406.2		7.9	14.2	
2.6	11,924.6		13.4	8.1	
11.6	4,310.3		5.2	0.5	
19.9	3,225.9		15.4	1.1	
9.2	1,879.8	x	8.6	10.7	
0.6	1,891.7	x	0.01	27.8	
9.5	2,692.5		3.8	35.5	10

MODEL USING %20+ UNITS
160.7745218
53.23912588
252.7726129
1.077137742
45.34703708
35.65540511
52.73359925
13.32857352
8.381684697
682.4394825
0.250004824
8.193928578
61.61247438
6.751184449
18.59894688
2.260620176
0.251772468
26.30584017
0.773520811
14.86106213
0.011345895
4.679307907
17.20650955
0.763212391
1.456265778
5.115181594
4.572473116
13.35446211
5.260313422
59.81970823
19.77137354
2.918358134
14.48531622
13.42266657
0.027384965
25.72560805

Model to date

- Indicates a focused problem
  - Many cities have a very small number
  - Significant problem for larger, older cities
- Finding anomalies with some of the data coming from volunteers—more investigation
- Looking fairly reasonable at this point

Next Steps

- Incorporating public school, university, state buildings and hospital data
- Encouraging volunteers in 30+ more cities
- Develop way of incorporating certainty/ uncertainty into total estimates
  - Peer reviewing estimates—a few need further explanation
  - More certain of volunteer estimates than model
- Refine the model
- Build on technical work that PEER doing—develop politically, socially & economically acceptable strategies to reduce risk

For more information

- Marjorie Greene, EERI staff: mgreene@eeri.org
- Craig Comartin, Project Director: ccomartin@comartin.net
- David McCormick, Northern CA volunteer coordinator: dlmccormick@sgh.com
- David Bonowitz, statewide database curator: dbonowitz@att.net