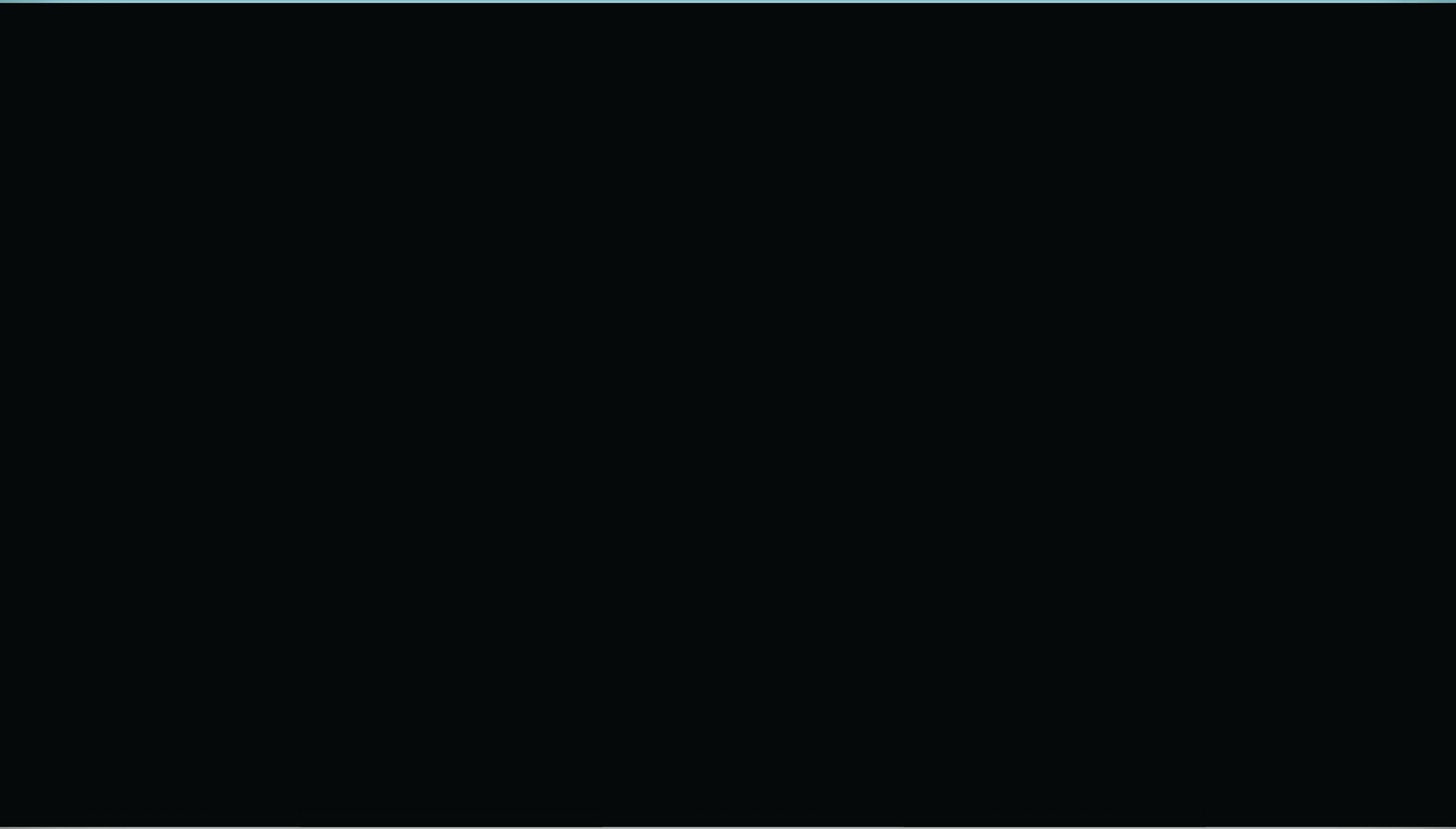
Preparedness Now



Available on YouTube

What’s at Stake?

Dr. Lucy Jones

Founder, Dr. Lucy Jones Center for Science and Society

SCAG™

INNOVATING FOR A BETTER TOMORROW

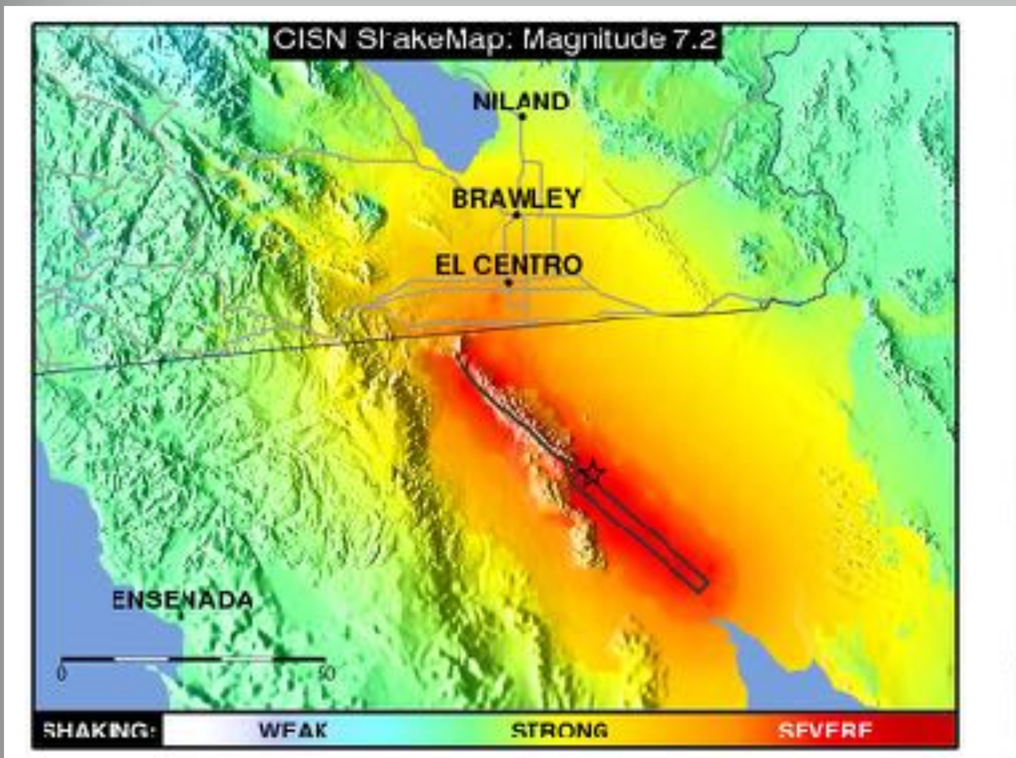
Living on the plate boundary

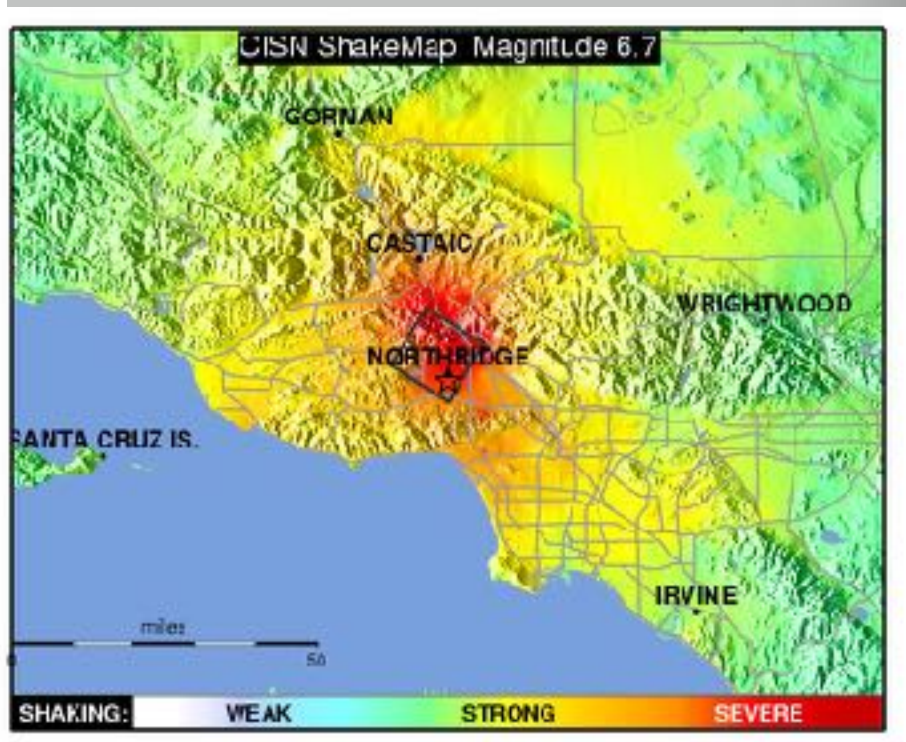
Moving to San Francisco at 1 3/4 inches per year

Shaking Intensity ≠ Magnitude

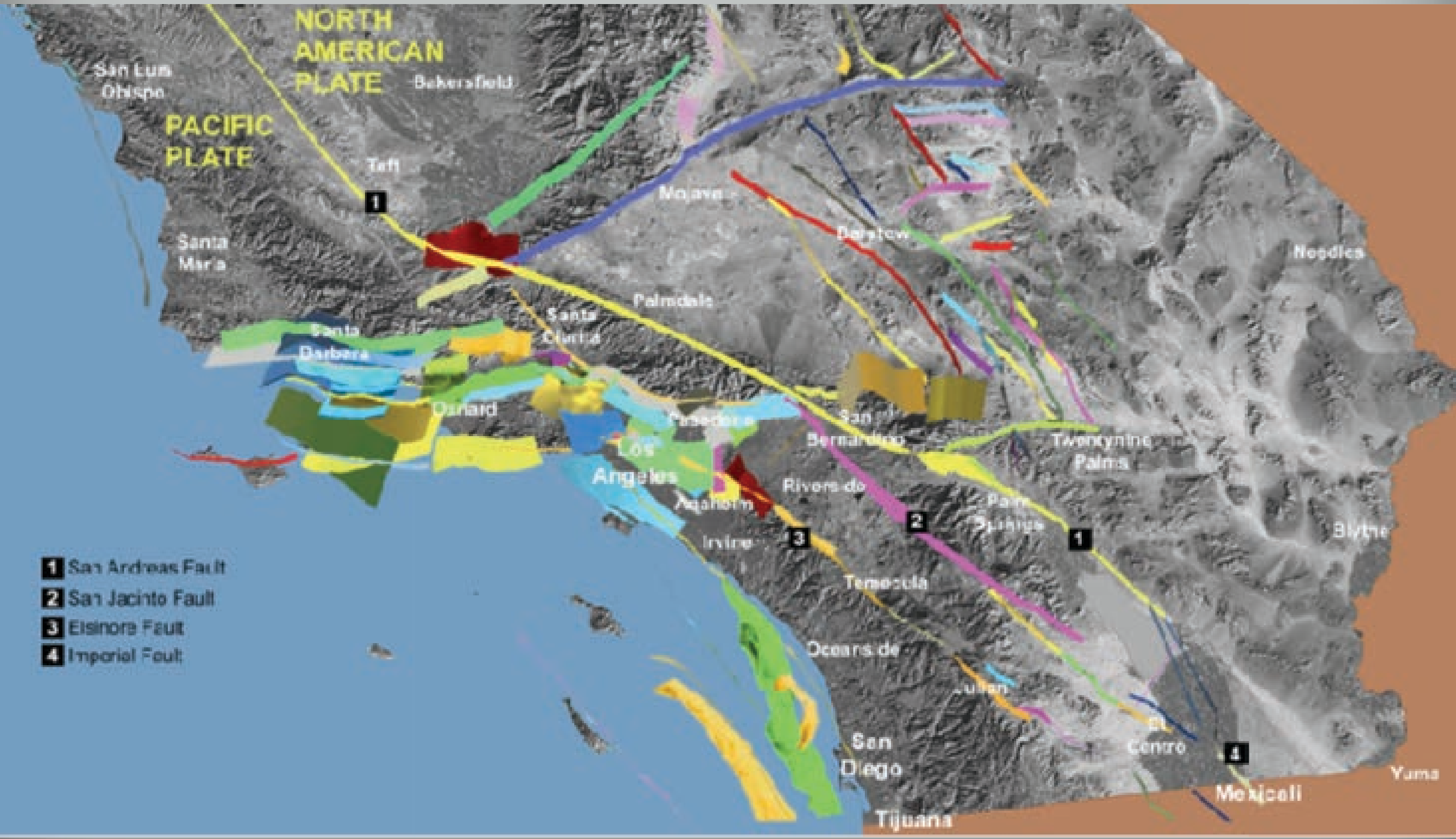
Easter 2010 M7.2
El Mayor Cucaipa

January 1994 M6.7
Northridge

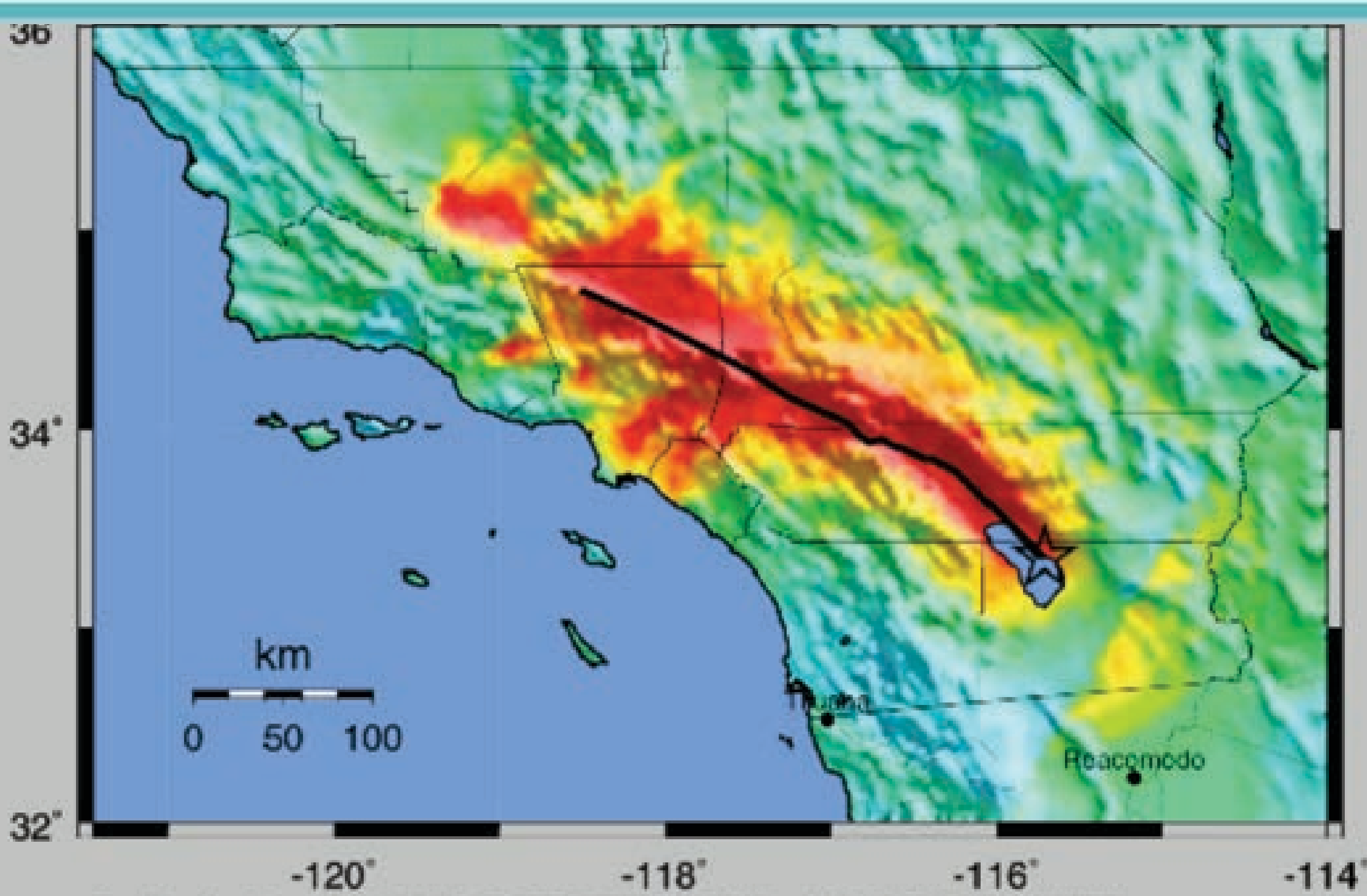




The other faults of southern California



ShakeOut Simulation of M7.8 on San Andreas

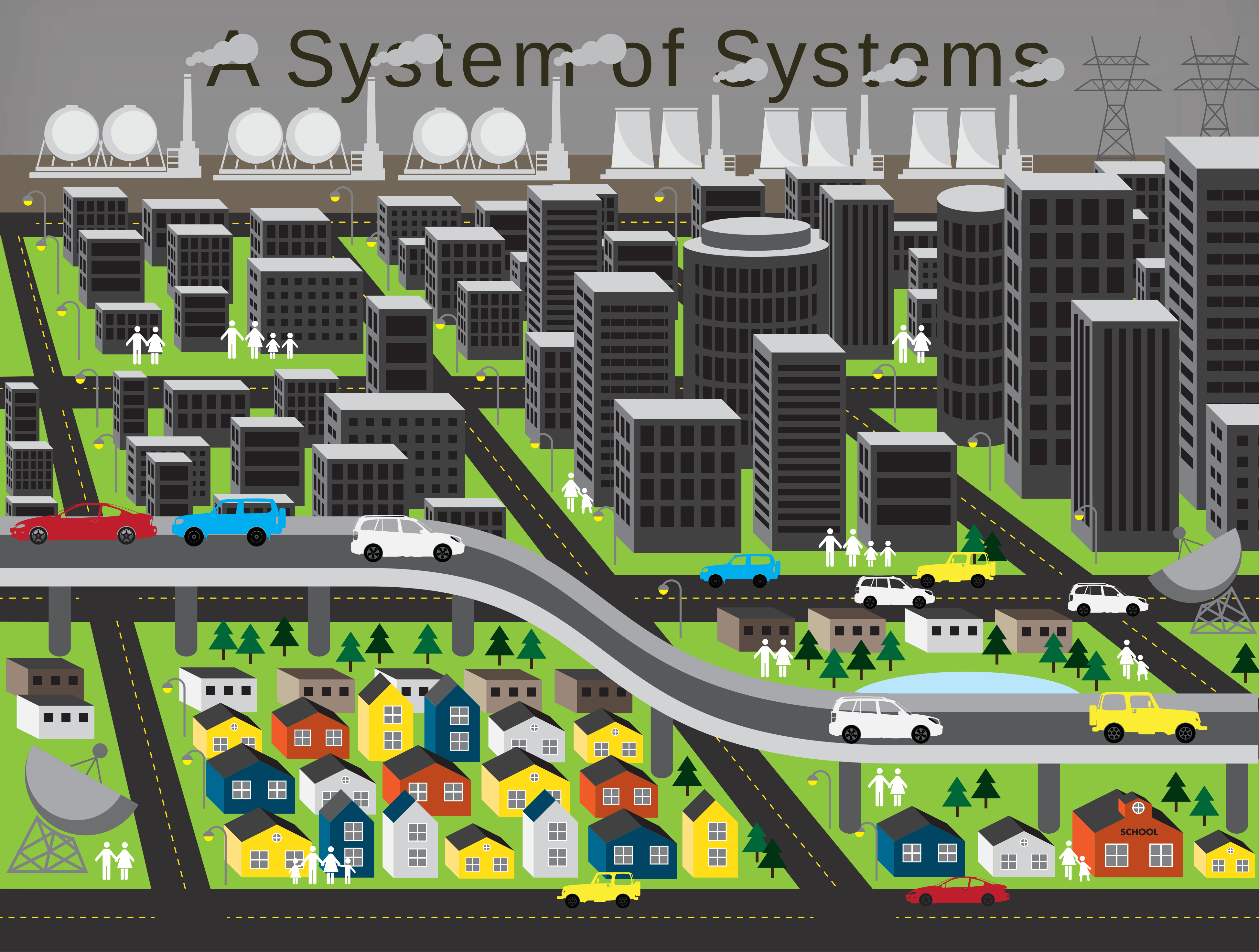


PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<.17	.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

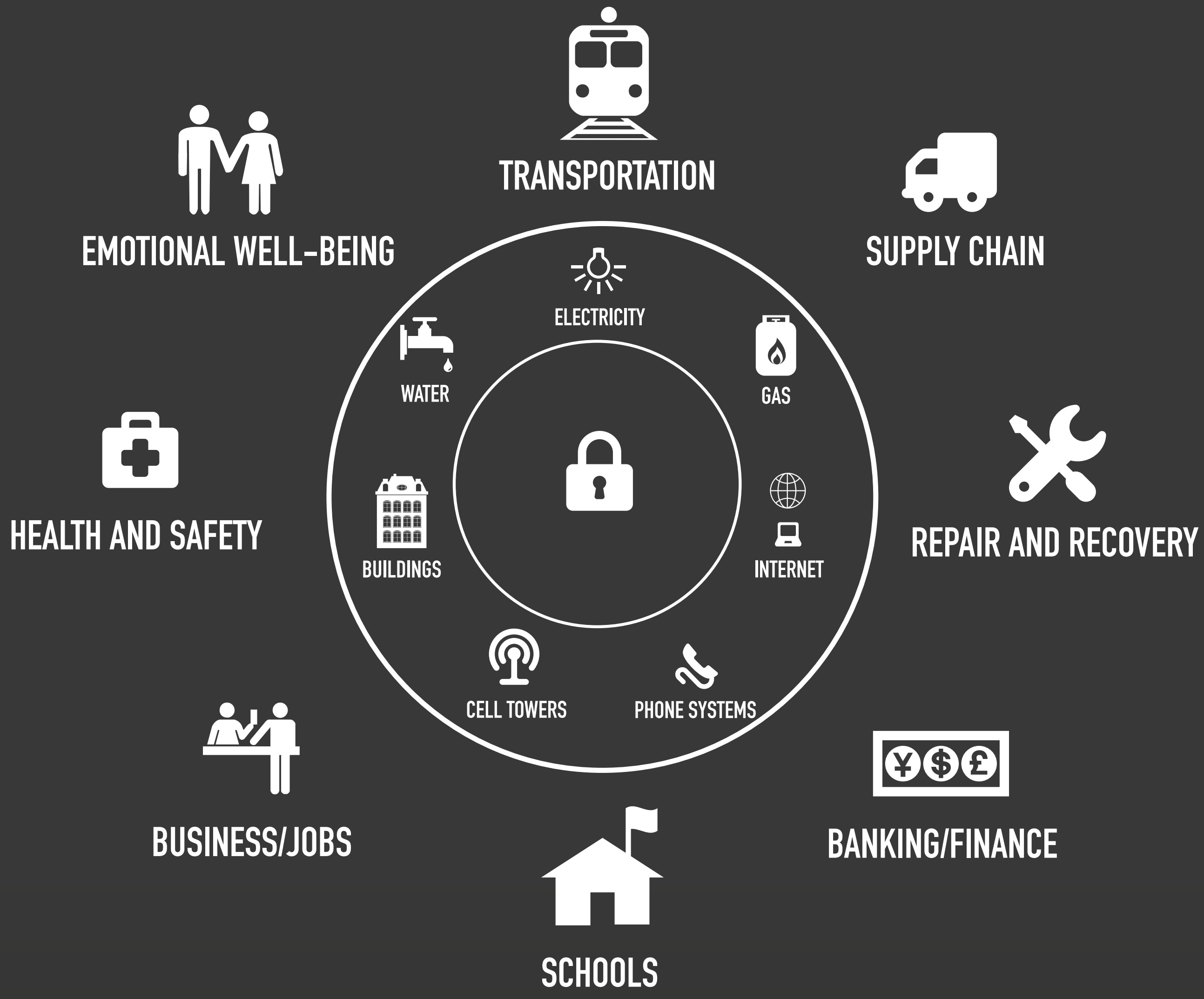
Our Urban Society Is At Risk

Urban Disaster Resilience is having a society that functions after the disaster

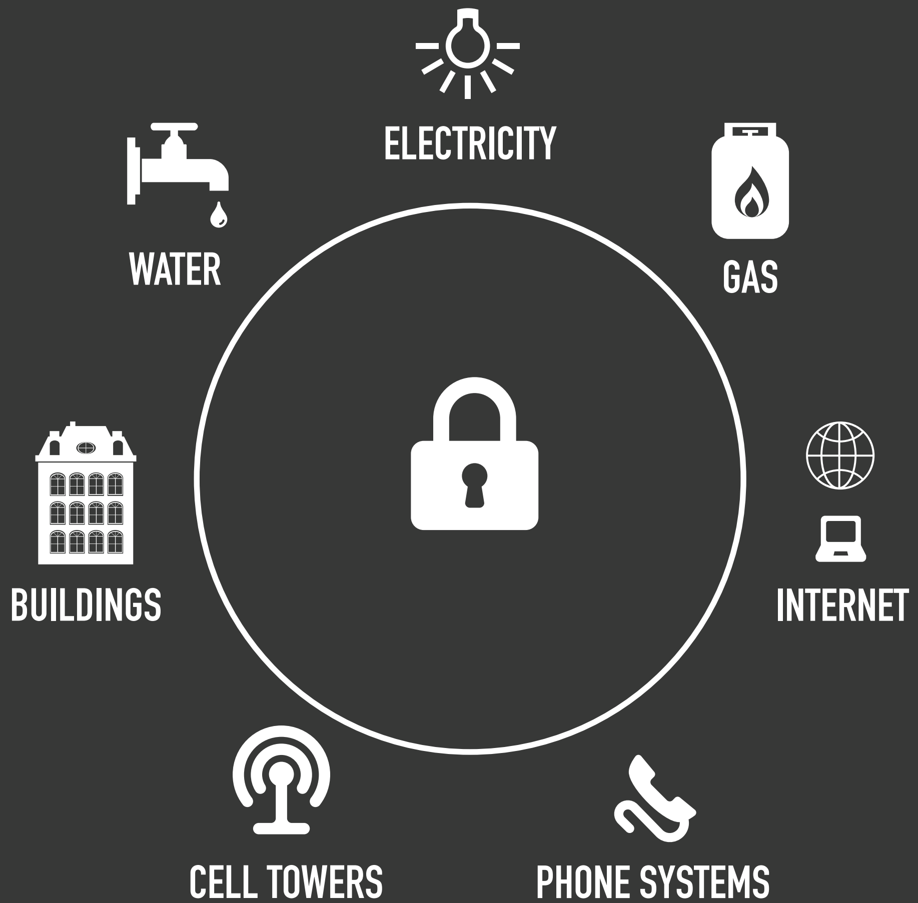
A System of Systems



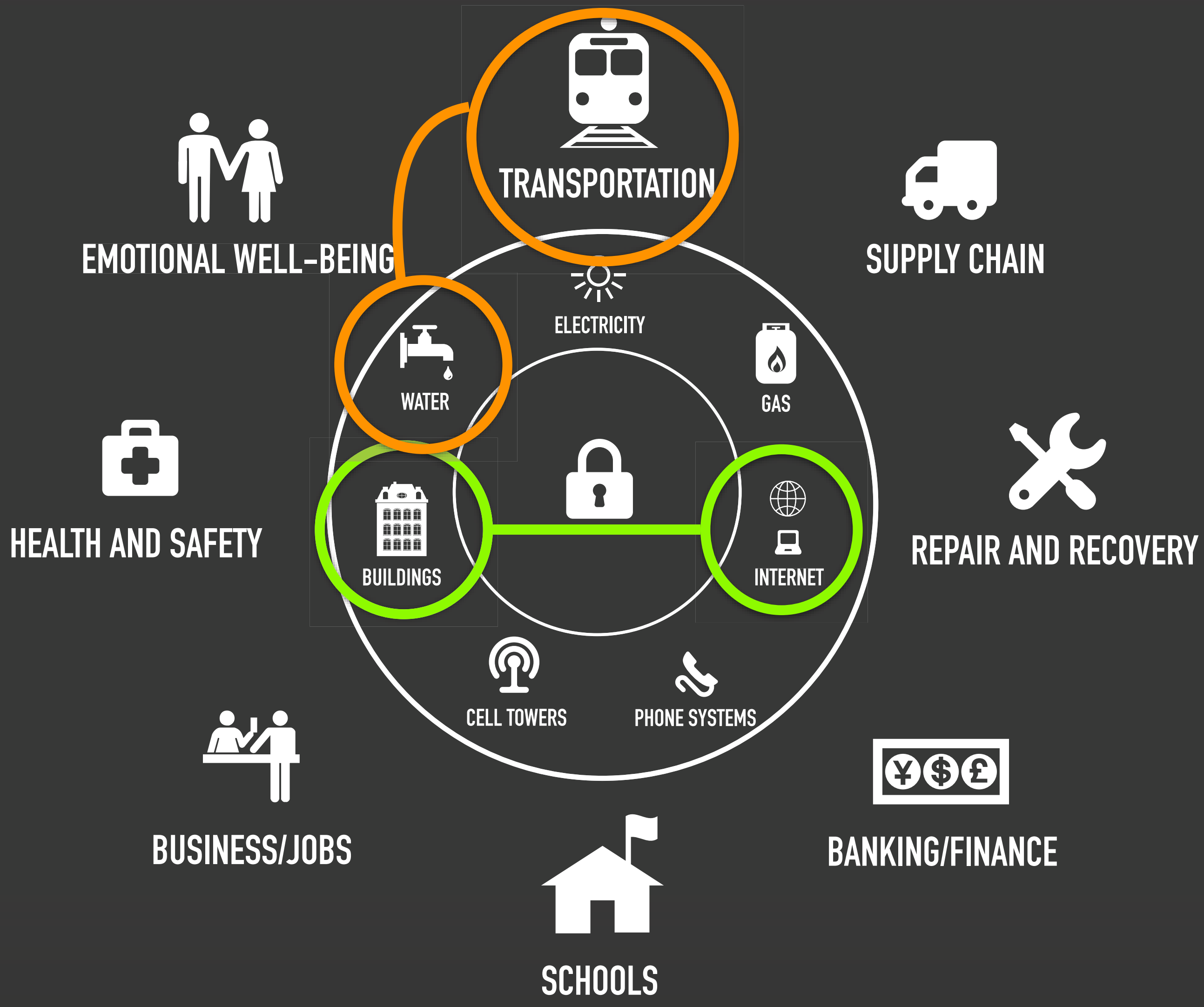
NECESSARY SYSTEMS



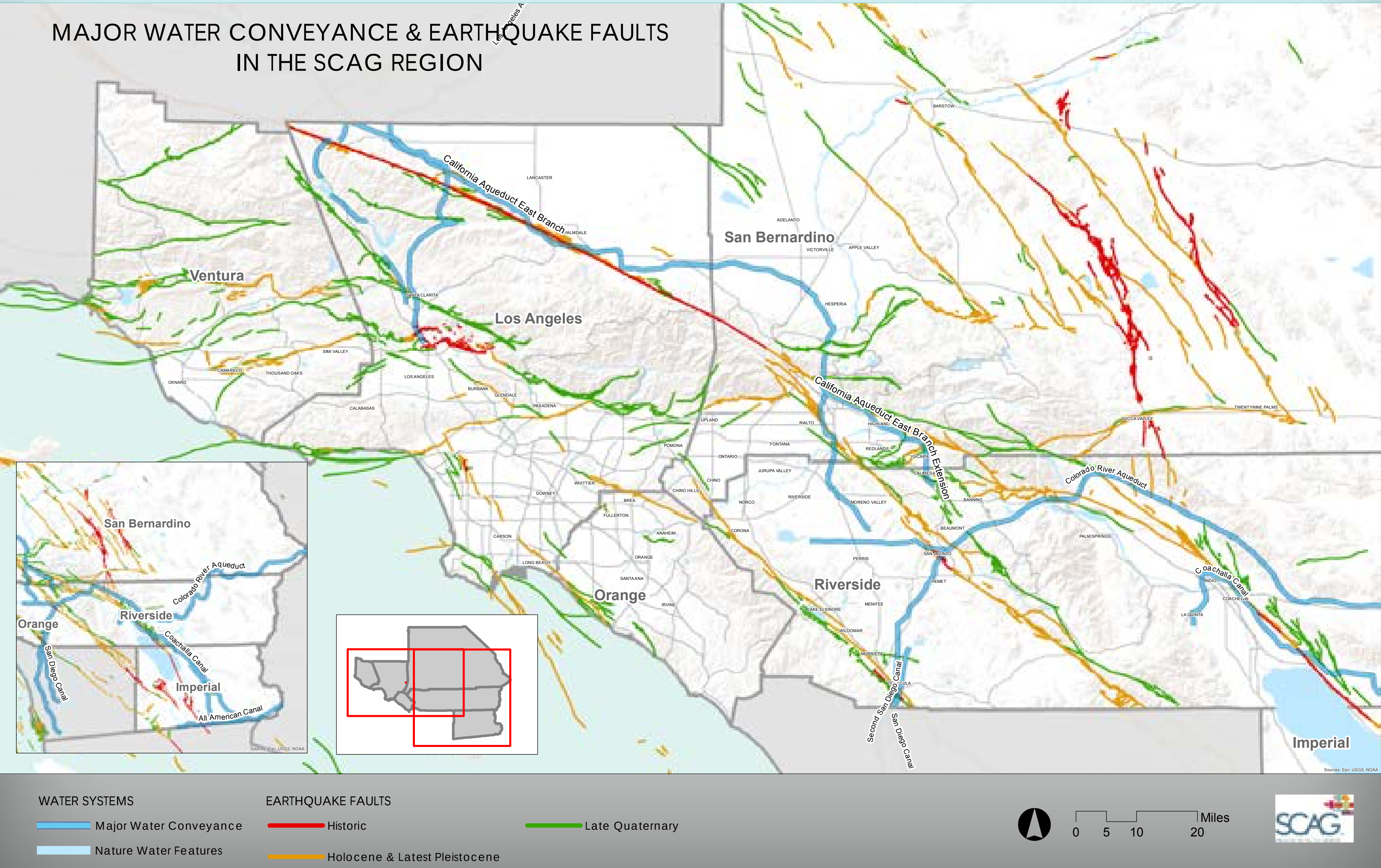
CRITICAL INFRASTRUCTURE



NECESSARY SYSTEMS



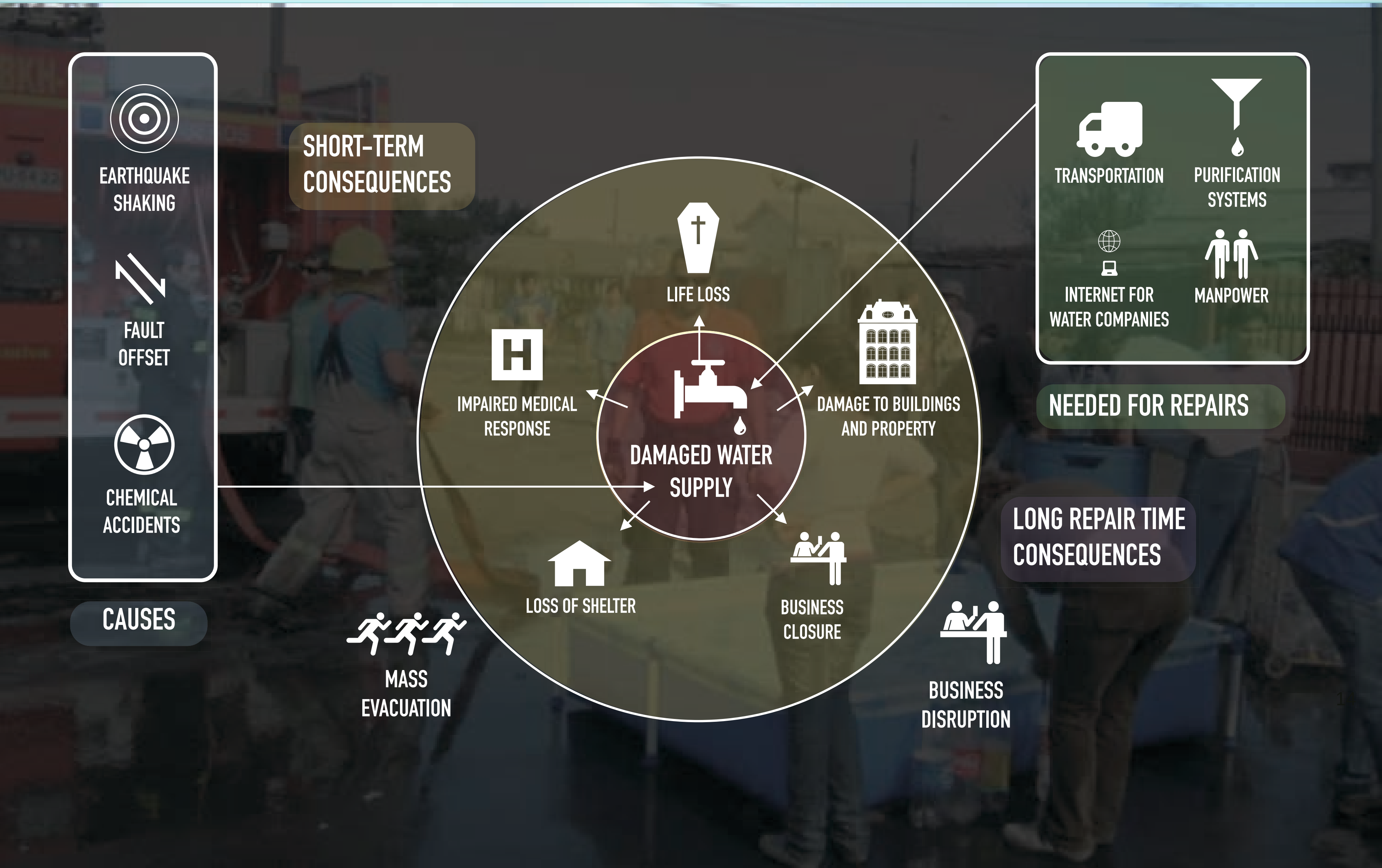
Water and the San Andreas Fault



Damaged Water Supply Network

- All aqueducts cross the San Andreas to get to southern California and will be broken.
  - 18 months to repair
- Widespread damage to pipes in the ground
  - 6 months to restore all service

Damaged Water Supply Network

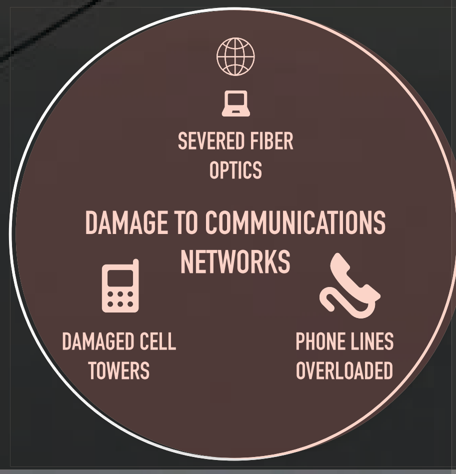


Fire Following the Earthquake

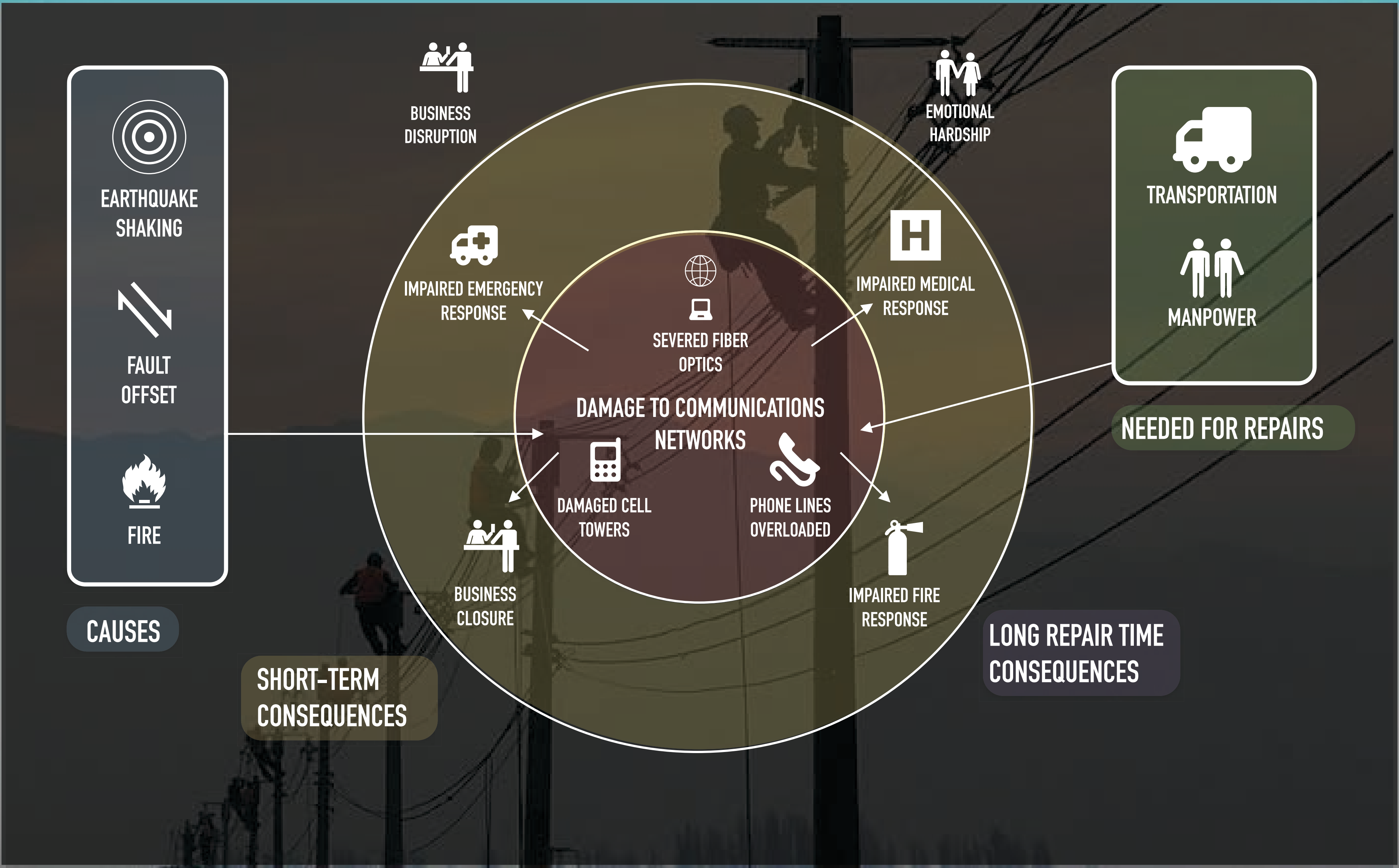
- 1,600 ignitions requiring a fire engine
- 1,200 exceed capability of 1st engine
- 200 million square feet burnt
  ≈ 133,000 single family dwellings
  - ~1.5% of total building stock
- Property loss: $65 billion

Communication disruption

- Electricity could be out for weeks
- Cell tower backup power lasts 4 hours
- Two-thirds of Internet bandwidth in fiber cables across the San Andreas



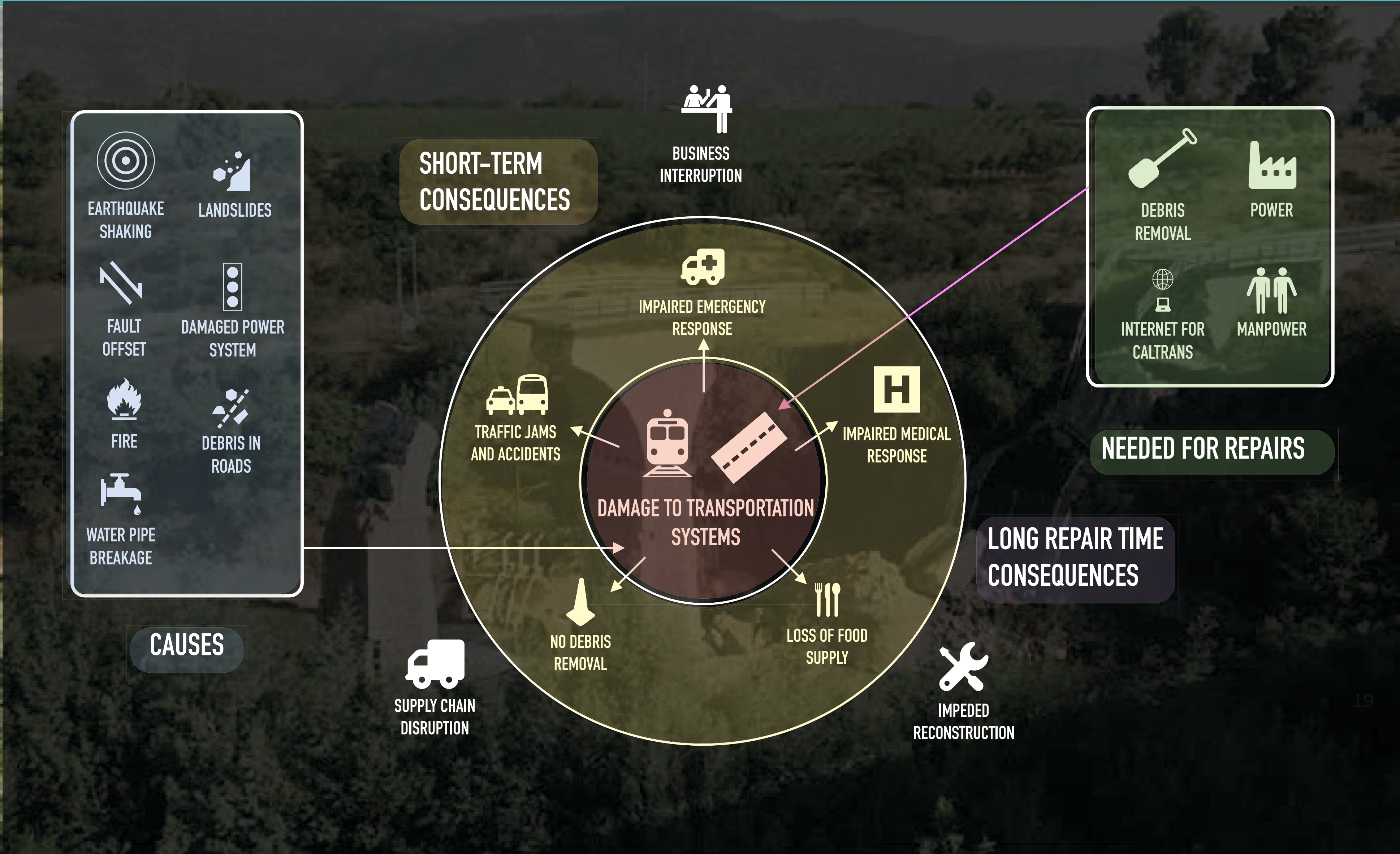
Communication disruption



Damaged Transportation

Maule, Chile, M8.8
February 27, 2010

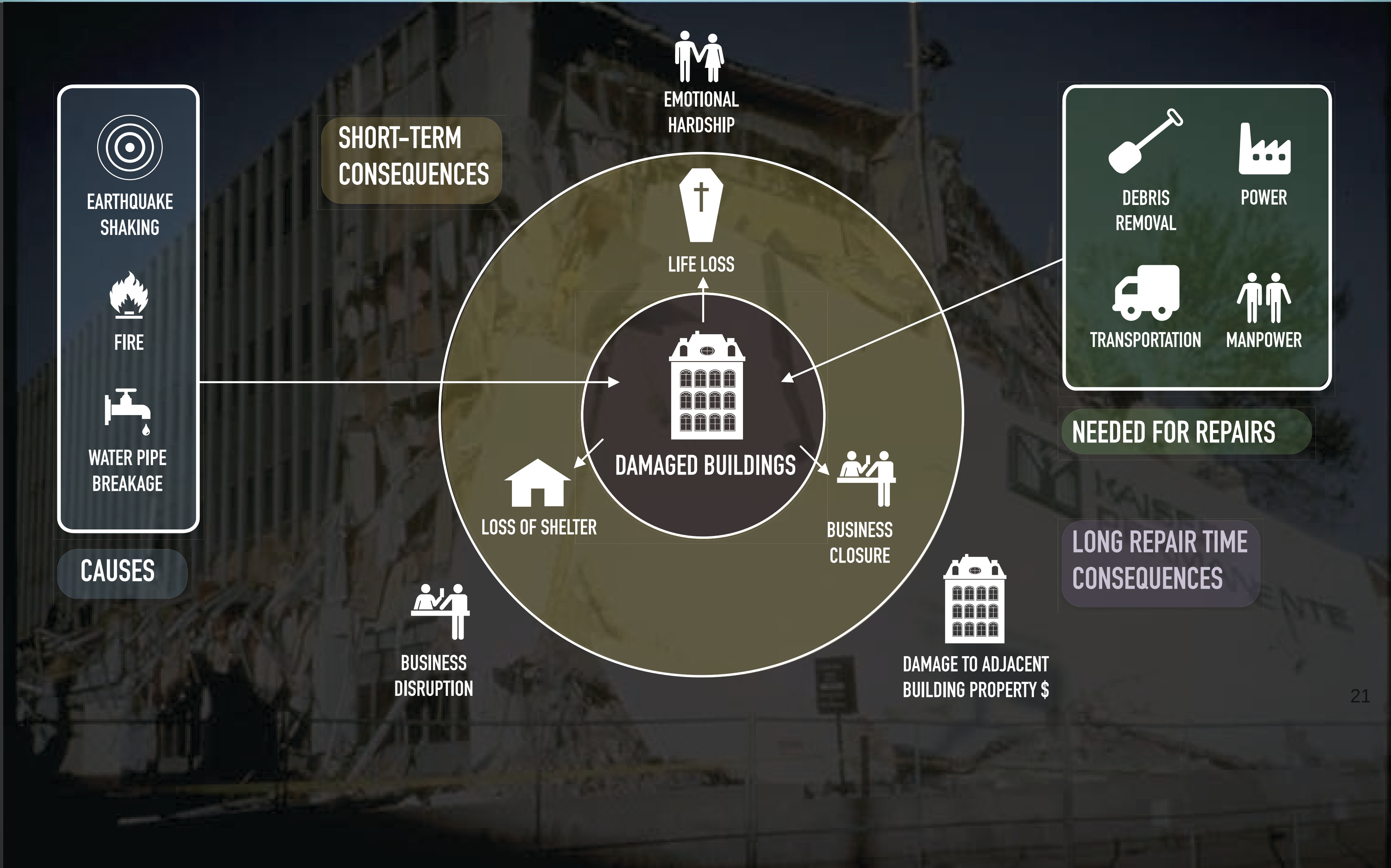
Damaged Transportation



ShakeOut Damage to Buildings

- Concrete buildings:
  - Commercial buildings from 1950s and 1960s
  - In highest shaking areas, 10% collapse
  - Biggest life loss in scenario
- Unreinforced masonry
  - Collapse of 300+ buildings
  - Complete financial loss for 90% within 30 km of fault
- Pre-1994 steel frame high rises could collapse
- 300,000 buildings with loss >10% of value

Building Damage and Destruction



Retrofitting URMs has saved lives

- In the Northridge earthquake:
  - No one died in a URM
  - Only 19% of inspected URMs needed repairs compared to 33% of buildings overall
- Statewide
  - Jurisdictions have retrofitted or demolished 88% of URMs with mandatory programs
  - Only 22% with voluntary programs

Buildings that Can Kill

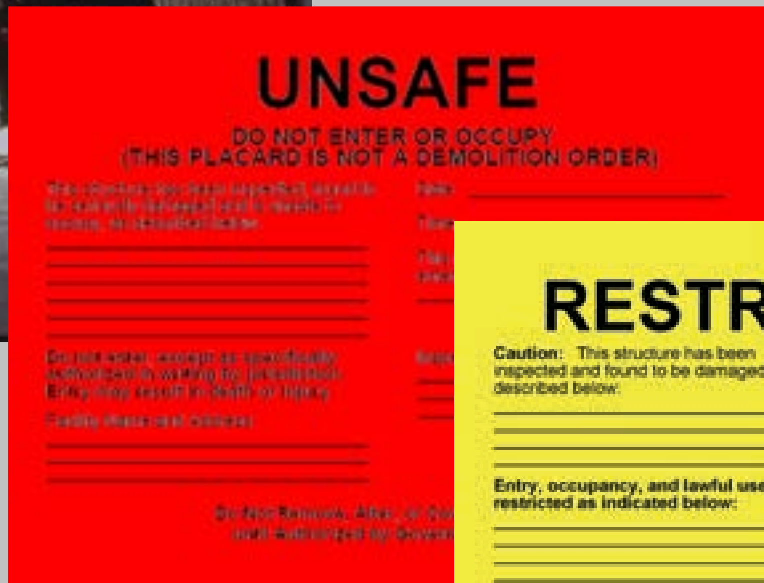
- Unreinforced masonry (pre-1935)
- Soft-first-story (pre-1980)
- Non-ductile concrete (pre-1980)
- Steel moment frames (pre-1997)



Current building code

- In worst earthquake, 90% probability of not collapsing
- 10% probability of collapse = 10% of new buildings collapsing

Impaired buildings are economic loss



UNSAFE

DO NOT ENTER OR OCCUPY
(THIS PLACARD IS NOT A DEMOLITION ORDER)

RESTRICTED USE

Caution: This structure has been inspected and found to be damaged as described below:

Entry, occupancy, and lawful use are restricted as indicated below:

Facility Name and Address:

Date

Time

(**Caution:** Aftershocks since inspection may increase damage and risk.)

This facility was inspected under emergency conditions for:

(Jurisdiction)

Inspector ID / Agency

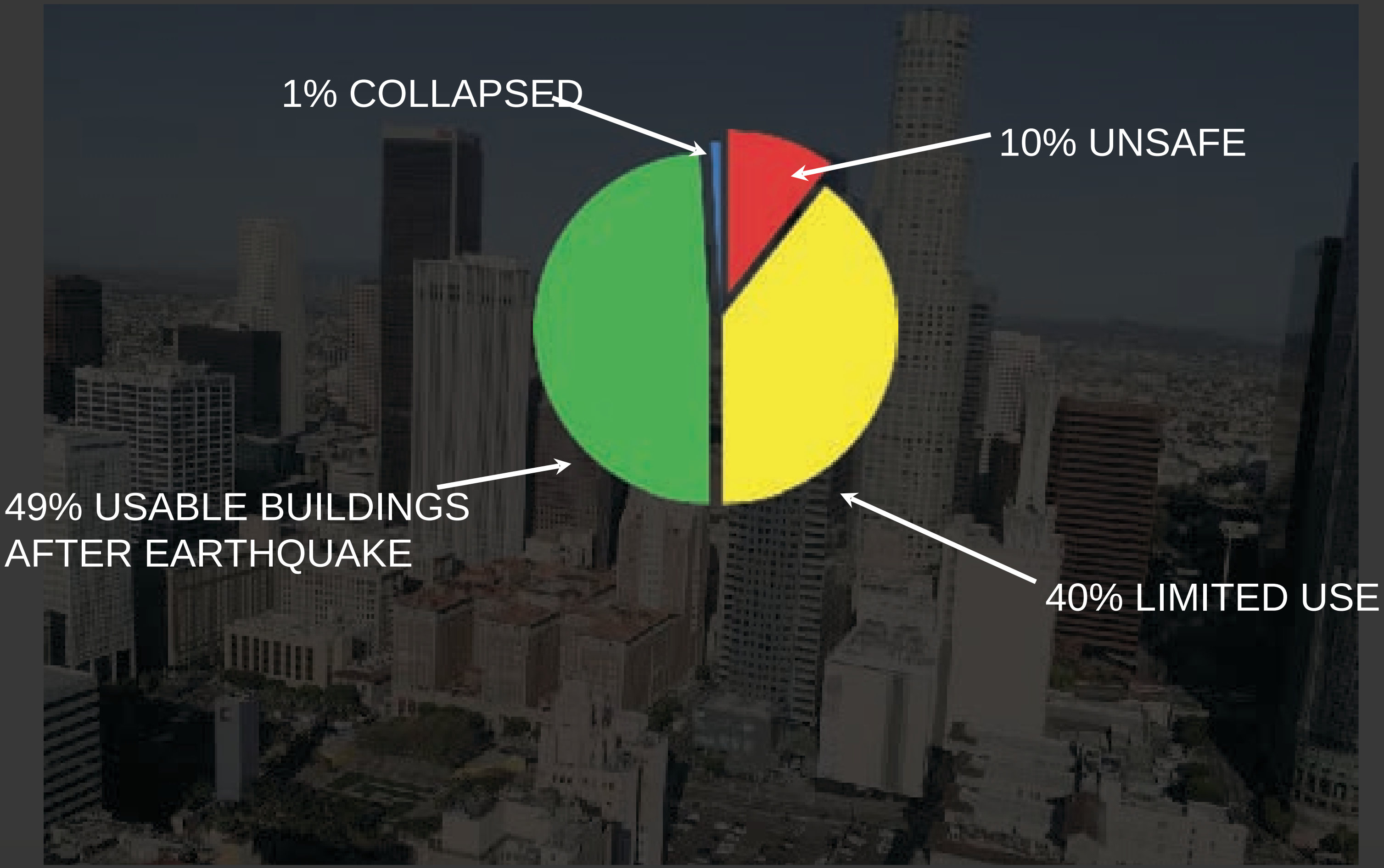
Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

In California, many more buildings impaired

- Average of Loma Prieta & Northridge
- For each collapse
  + 13 red tags
- For each red tag,
  + 3.8 yellow tags
- = 63 impaired per collapse

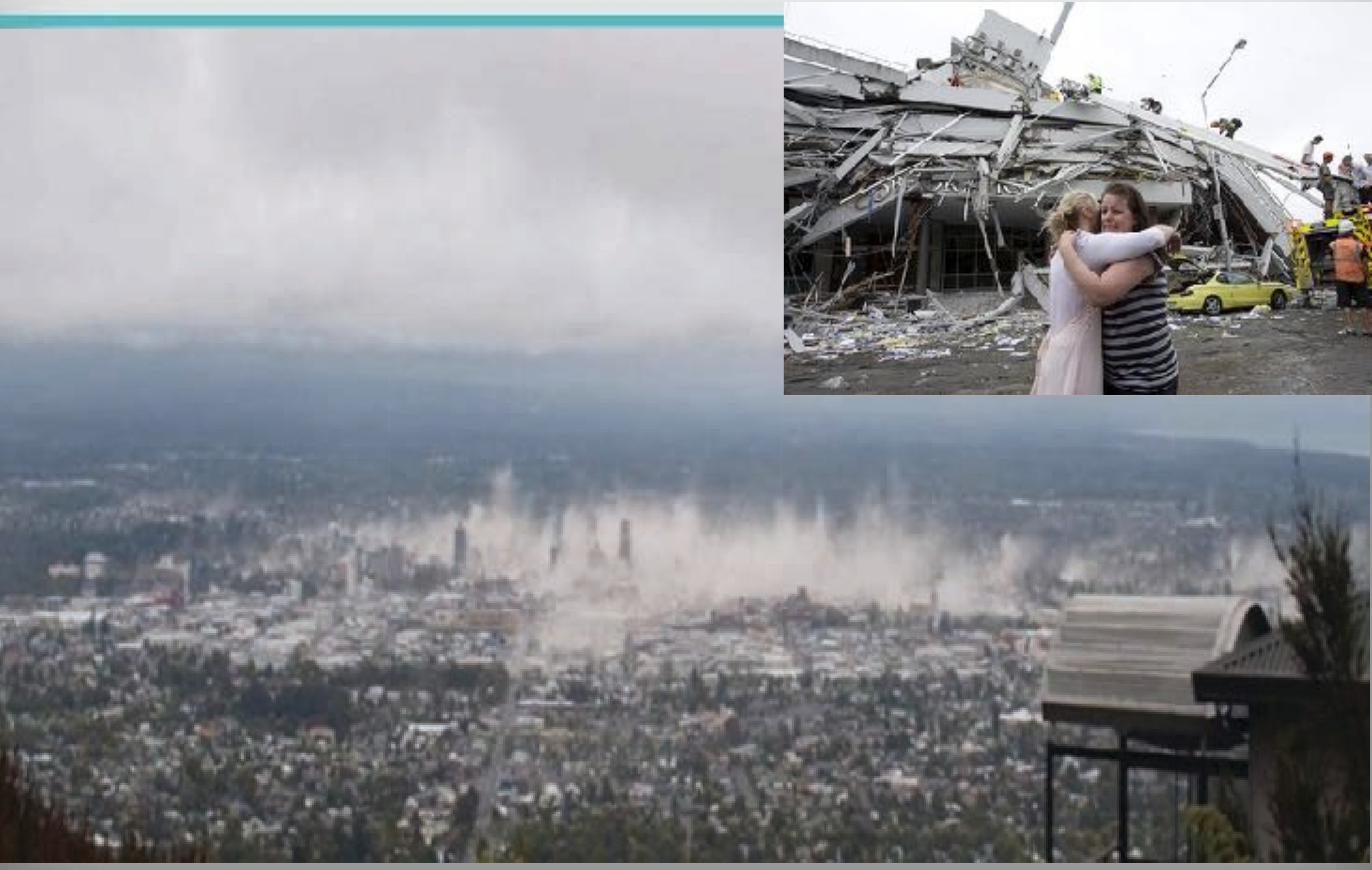
Check: Napa 2014 had 57 impaired per collapse

CAN WE SURVIVE "THE "BIG ONE"?



Christchurch 2010

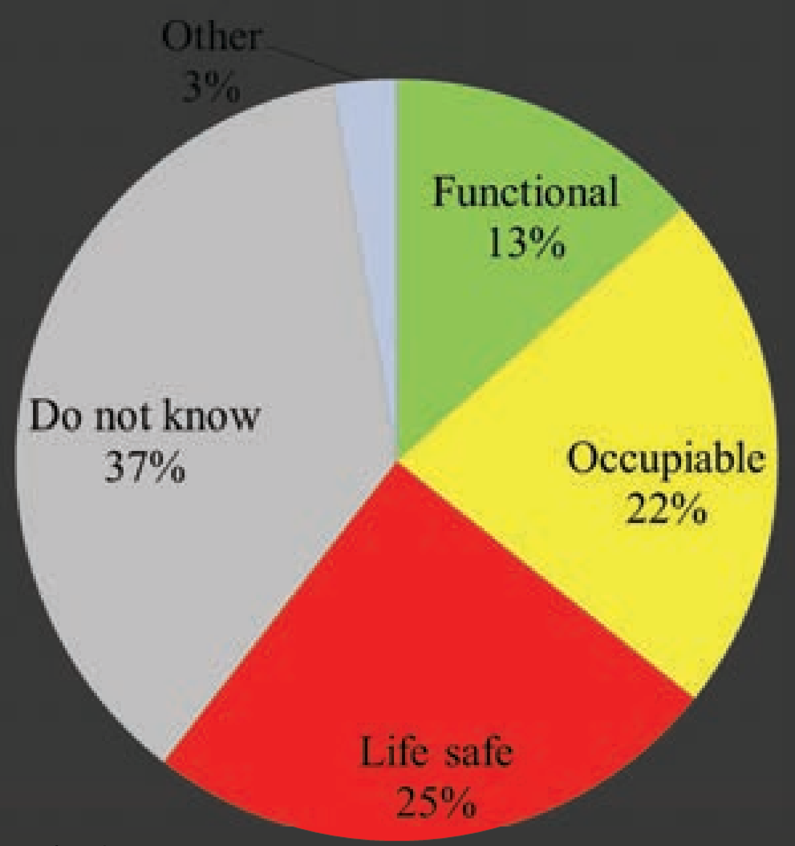
Christchurch, February 22, 2011 M6.3



Christchurch 2015

Most people don't know what the code provides

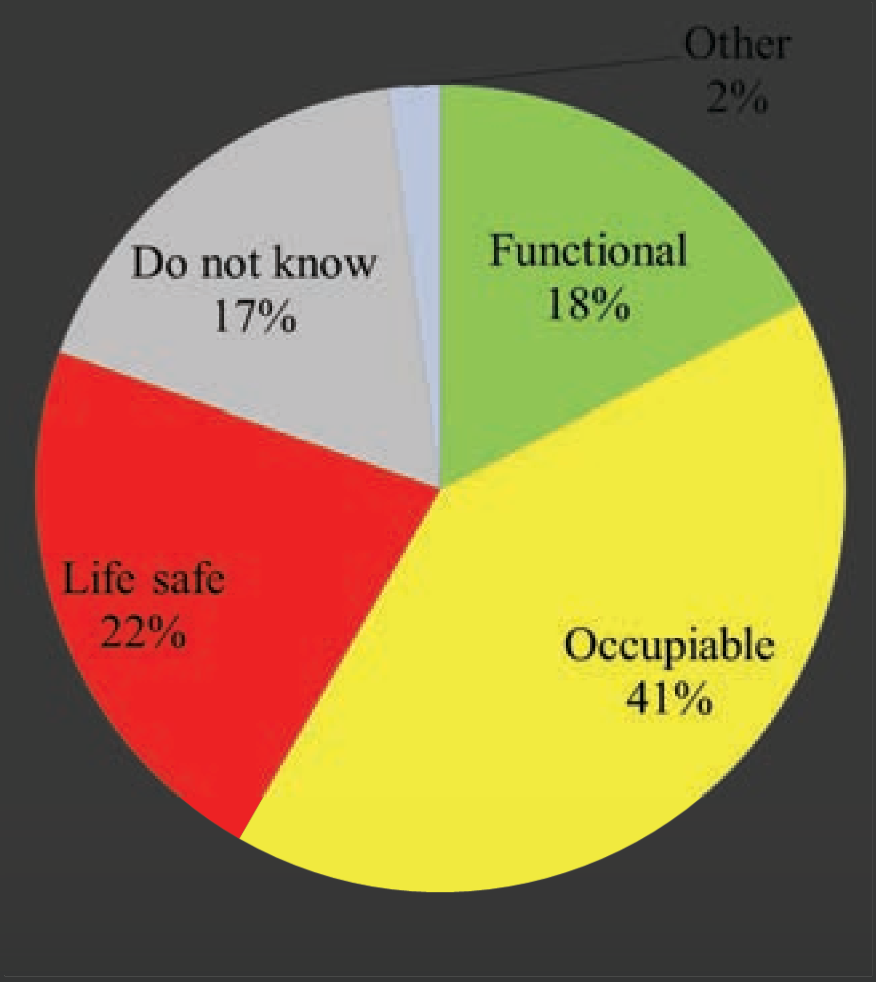
What is the building code's objective?



Survey of 814 people by Dr. Keith Porter, U. Colorado:

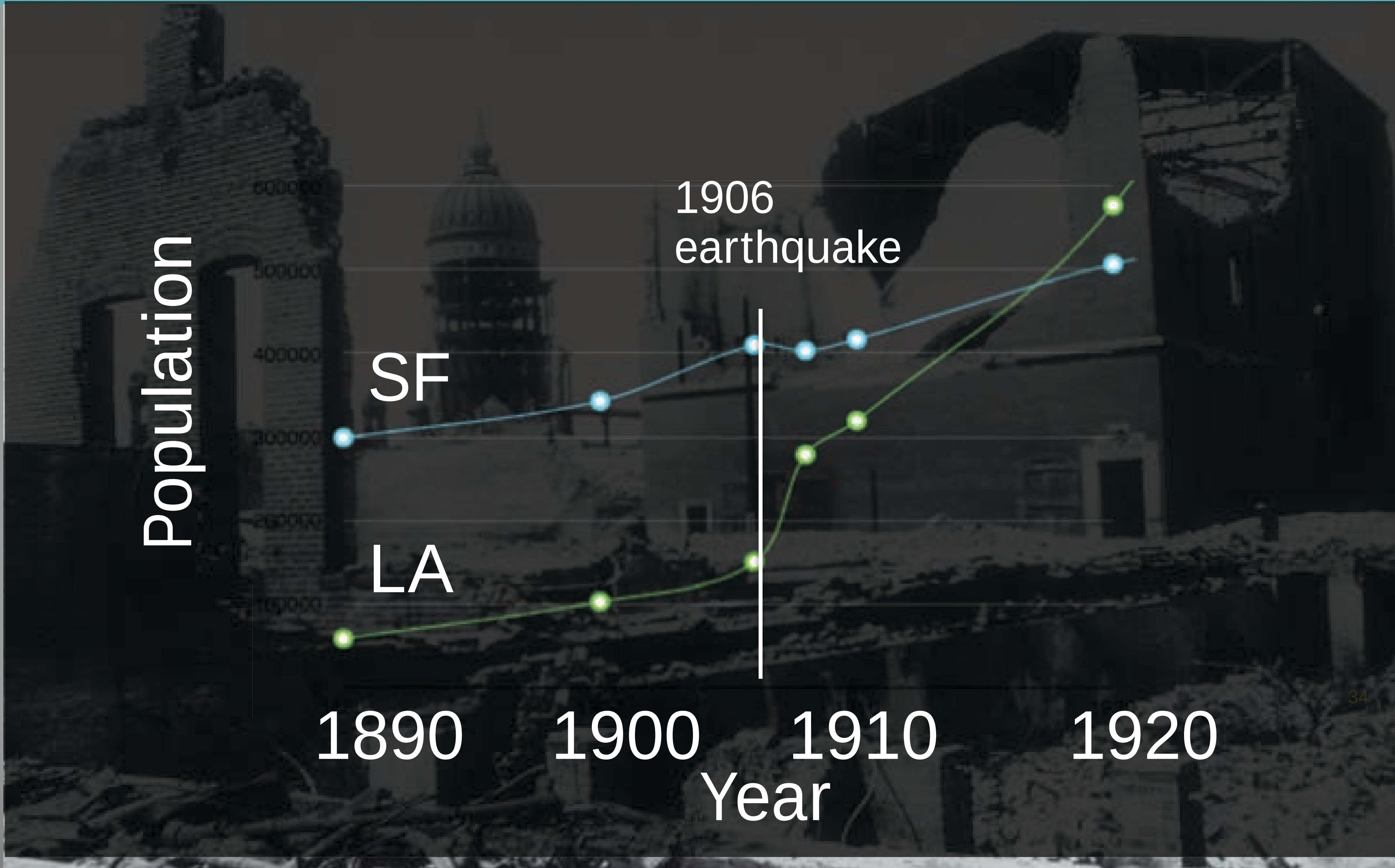
Most people want more than the code provides

What should it ensure?



SOCIAL REPERCUSSIONS

Social Repercussions



Biggest Issues from San Andreas

- Life loss in old buildings
- Fire following earthquake
- Loss of housing
- Business disruption
  - Unusable commercial properties
  - Transportation disruption
  - Utility outages

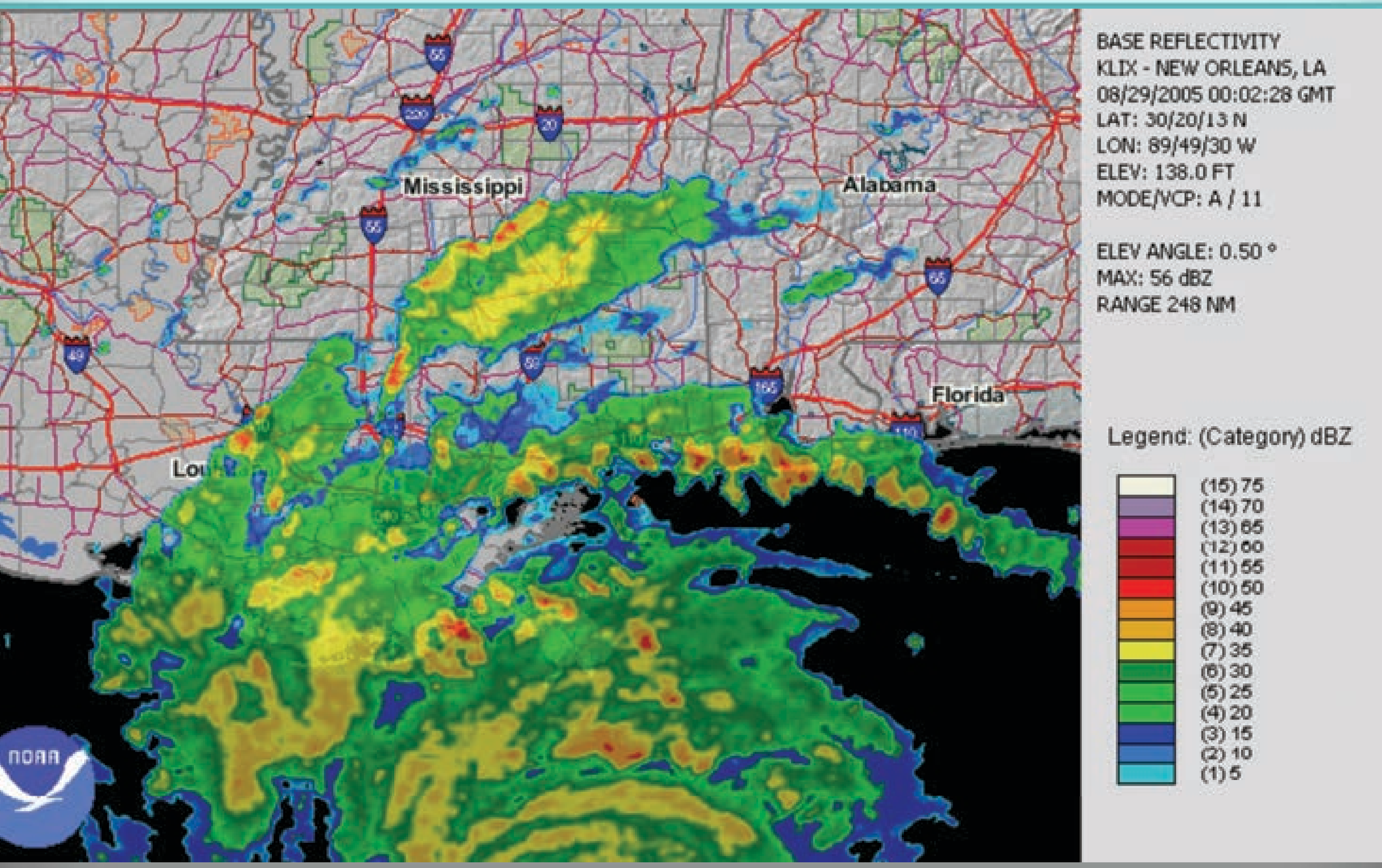
- Region-wide disruption

At-Risk Ranking

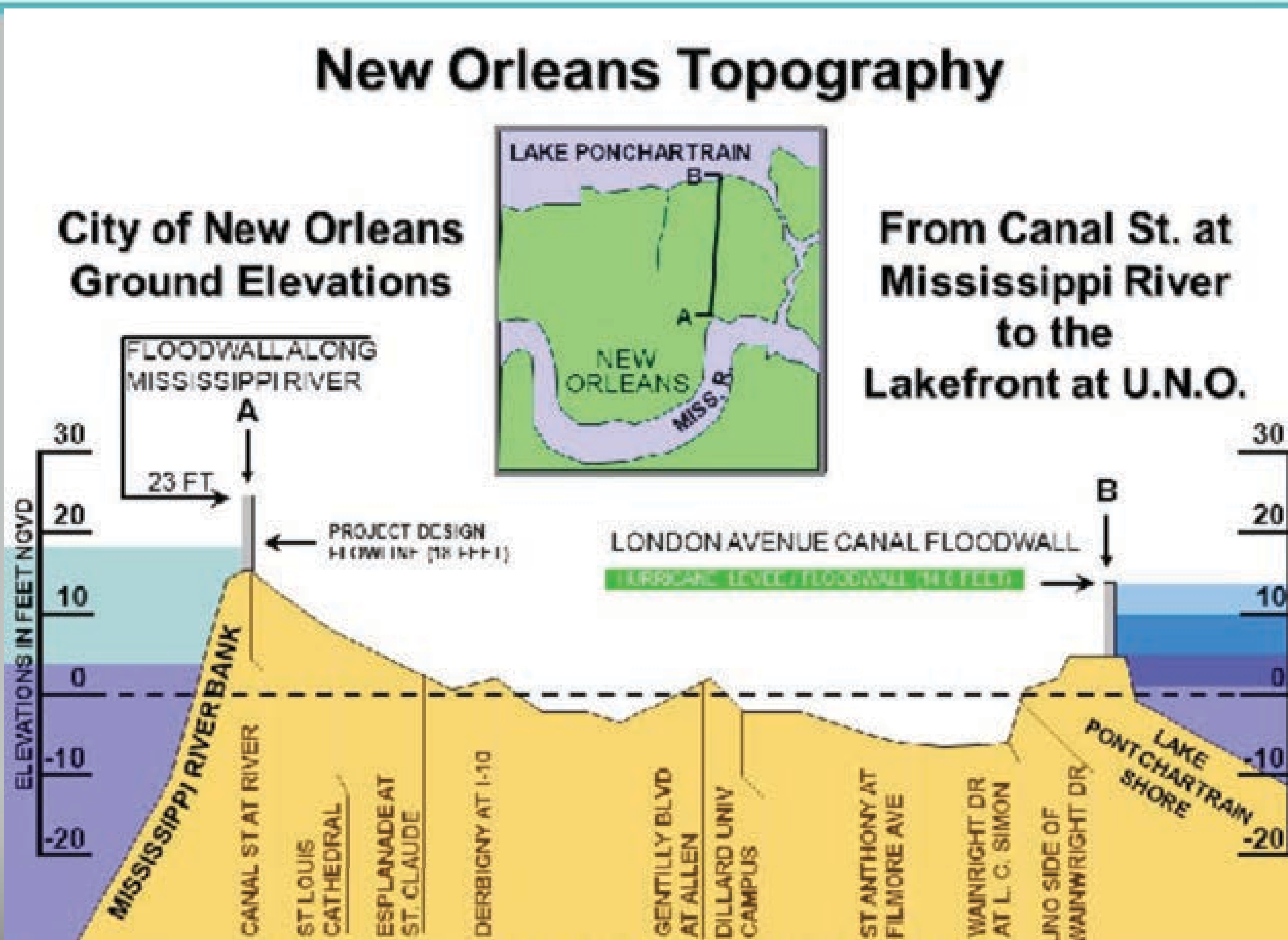
Community Asset	Individual Rank	Your City Rank	Responsible Entity
Water			
Electricity			
Hospitals			
Schools			
Parks and Cultural Venues			
Transportation Infrastructure Roads/Highways/Transit			
Community Landmarks (official or unofficial)			
Municipal Buildings			
Houses of Worship/Faith Community			
Non-Profit/Community Serving Organizations			
Job Base			
Business Base (Tax Base)			
Economic Stability			
Historical Character			
Public Health			
Housing Stock - Single Family Homes			
Housing Stock - Multi-family/ Rental			
Community Identity / Way of Life			
Other:			

What happened in New Orleans

What happened physically



Knowing risk ≠ planning ahead

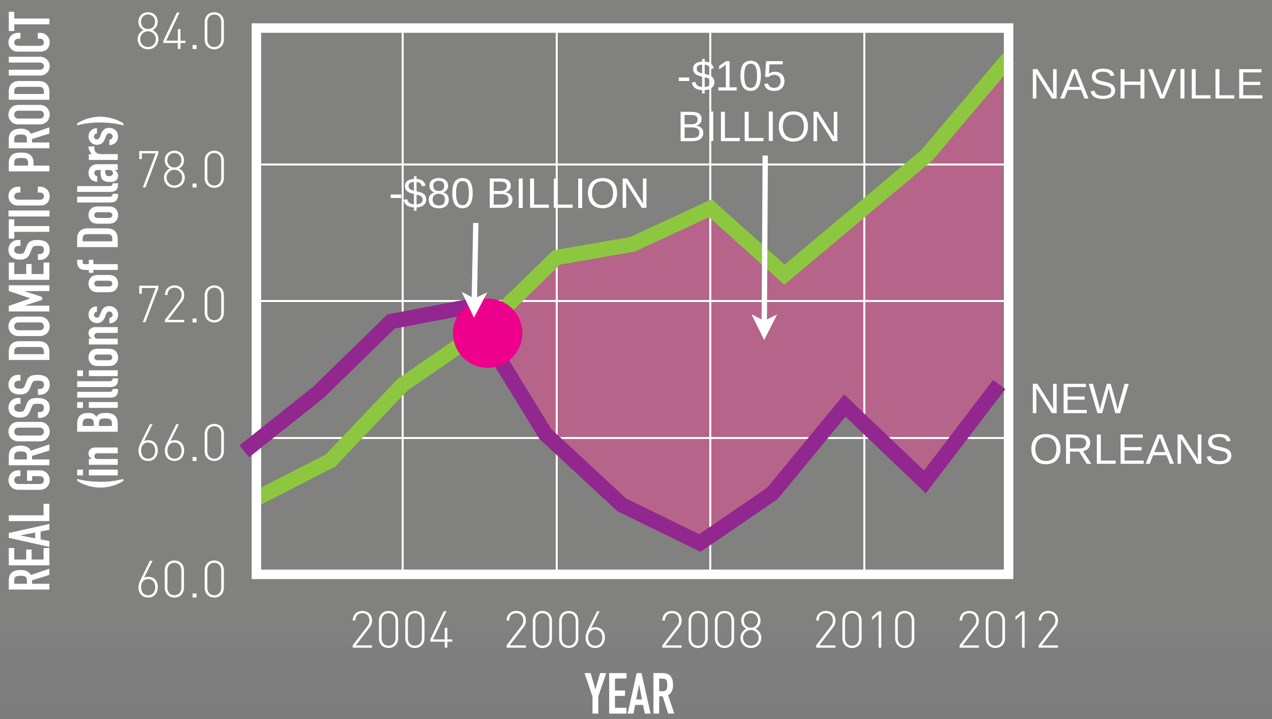


Cascading failures

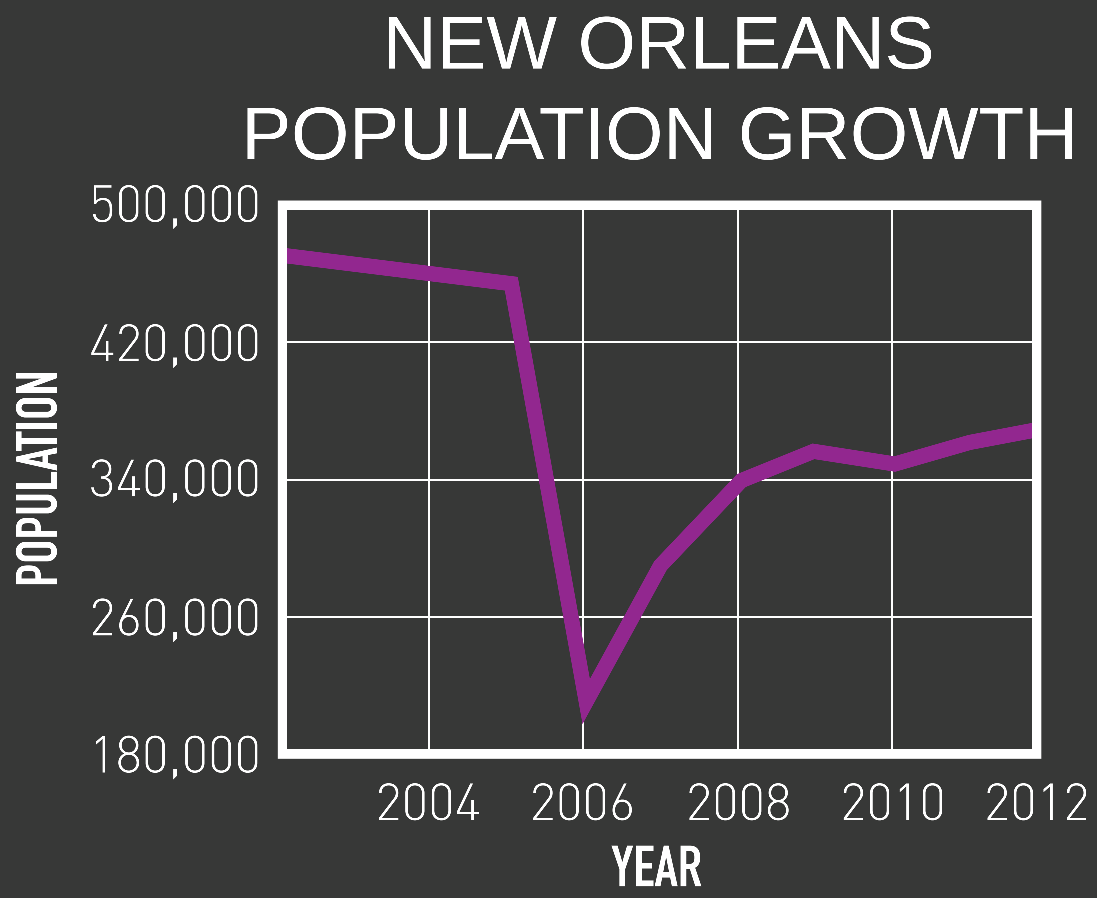
What happened politically

Economic consequences

NEW ORLEANS VS NASHVILLE
ECONOMIC GROWTH



SOCIAL REPERCUSSIONS



EARTHQUAKE PREPAREDNESS INITIATIVE

BUILDING SAFETY | INFRASTRUCTURE REINFORCEMENT | ECONOMIC RESILIENCE

Pitfalls

When tackling a complicated issue like seismic safety, city officials can face unique challenges. There are some common pitfalls that have occurred when addressing this issue and still others that may be unique to your specific jurisdiction. Below, first list the potential pitfalls you may face, and then, suggest ways you can mitigate those challenges.

Pitfalls	Ways to Address Them

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Unlikely Supporters

For the groups or organizations below, determine whether they will potential be supportive or be an obstacle in advance your seismic safety goals. Put an "S" (supporter) "O" (obstacle), "?" (unsure) or "N/A" (not applicable in your role) in the status column. For the supporters, explain what their role might be; for potential opponents, explain how could they be turned to supporters?

Organization or Group	Status	Potential Role
Homeowners Associations		
Renters Rights Advocates		
Housing Advocates		
Developers		
Apartment Owners		
Utility Operators		
Transit Advocates		
Transit Riders		
Older Adults		
Youth Advocates		
Animal Advocates		
Chambers of Commerce		
Large Business Owners		
Trade Associations		
College Students		
Renters		
Homeowners		
Social Service Nonprofits		
Disability Advocates		
Building Owners		
Structural Engineers Assn.		
American Institute of Architects (AIA)		
American Planning Assn. (APA)		

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Your Seismic Safety Priorities

List the top three issues/items that you have discussed that you could focus on to increase seismic safety in your jurisdiction.

- [ ] ______________________________
- [ ] ______________________________
- [ ] ______________________________

After listing the priorities, rank them 1, 2, and 3 in the box.

For each priority listed above, what are the main tasks that would need to be completed to increase seismic safety in this area in the short-, mid-, and long-term? Estimate duration it would take to complete them.

PRIORITY 1: ______________________________

Short-Term Tasks (less than 6 months)

TASK	DURATION IN WEEKS OR MONTHS

Mid-Term Tasks (6-12 months)

TASK	DURATION IN WEEKS OR MONTHS

Long-Term Tasks (more than 12 months)

TASK	DURATION IN WEEKS OR MONTHS

Earthquake Glossary

To understand earthquakes, here is a short primer on some of the terms scientists use and what they mean:

Earthquake is the sudden slip of one block of the earth's crust past another that produces shaking as one of its effects. Just like the slip of one finger past another when snapping your fingers produces a sound wave, the slip along a fault produces waves that are perceived as earthquake shaking.

Magnitude is a number that represents the total energy released during an earthquake. The smallest earthquake ever recorded is about magnitude -2 (yes, like temperature magnitudes can be negative), and the largest historical event was magnitude 9.5. Although there is no theoretical limit to magnitude, it is unlikely that an earthquake much larger than 9.5 will occur. Each unit of magnitude represents a 32 times increase in the energy released by the fault. So a magnitude 7 earthquake has 32 times more energy than a magnitude 6 earthquake, and more than thousand times (32 x 32) more energy than a magnitude 5.0 earthquake, and a million times more energy than a magnitude 3.0 earthquake. There are no "points on the scale". When seismologists say "point" it is to express the decimal point – "magnitude 6 point 5" means magnitude 6.5.

Intensity is a number (written as a Roman numeral) describing the severity of an earthquake in terms of its effects on the earth's surface and on humans and their structures. Several scales exist, but the ones most commonly used in the United States is the Modified Mercalli Intensity scale sometimes written "MMI". Unlike the magnitude, which has one value for each earthquake, the intensity depends on your distance from the earthquake and decreases with distance from the event.

The **fault** is the surface across which two blocks of crust slip in an earthquake. This planar surface may intersect the earth's surface as an identifiable fault trace. Faults vary in size from centimeters to thousands of kilometers long. A fault zone may be a complicated set of fractures up to hundreds of kilometers wide. The magnitude of an earthquake is proportional to the area of the fault that slips and how much it slips. A magnitude 3.0 happens over a fault surface of 1-10 square meters. A magnitude 5.0 requires slip on a fault a few kilometers across, while a magnitude 8.0 needs a fault several hundreds of kilometers long. Big earthquakes occur only on big faults, but a little earthquake could occur on a big fault if only part of it slips. Small quakes may also happen on a little "secondary" fault near a big fault or on a tiny fault.

The **slip** is the amount of movement that occurs between the two sides of the fault surface during an earthquake. The amount of slip can range from a few centimeters for a magnitude 4.0 up to 10 meters or more for a magnitude 8.0. For smaller quakes this slip may all occur miles deep in the earth and not reach the surface.

The **epicenter** is the point on the earth's surface above the hypocenter, which is the point at depth on the fault where the earthquake begins. When an earthquake occurs the slip doesn't happen all at once. The earthquake begins at a point and ruptures across the fault. The rupture moves at about 3 kilometers per second, so a bigger earthquake lasts for a longer time.

An earthquake **cluster**, or earthquake **sequence**, is a group of earthquakes that are close in time and space. Every earthquake changes the stress in the surrounding rock and increases the probability that another earthquake will occur nearby. This probability dies off quickly with both time and distance, so mostly they are near the fault surface that has been moving. A big earthquake is on a big fault and therefore produces more aftershocks.

Earthquake FAQs

1. When do fault locations matter?

All earthquakes occur on faults but often the faults are too small to be recognized at the surface – or even to extend to the surface at all. But to have a big earthquake, there has to be a big fault. So when an earthquake occurs near a big fault, it could trigger a bigger earthquake on that nearby big fault. The first earthquake need not be on the big fault to trigger another earthquake.

2. How are earthquakes assigned to faults?

The only way to be certain an earthquake occurred on a particular fault is to see actual surface slip on that fault, usually as cracks at the surface. Surface slip is almost never seen in an earthquake smaller than magnitude 5.0 and sometimes not for even larger earthquakes. If no surface slip is observed a focal mechanism can still allow scientists to estimate the orientation and direction of slip on the fault. If that is parallel to a mapped fault and the location is very near that fault, it might be on the fault – or it might be on a secondary fault around the main fault. Without surface slip, it may take quite a bit of research to make the assignment.

**The USGS usually doesn't try to assign a fault for earthquakes below magnitude 5.0.

3. How do you determine the depth of an earthquake?

When an earthquake happens, the seismic waves (ground shaking) travel from the earthquake and arrive at seismic stations distributed across southern California. By measuring the time these waves reach each station, we triangulate the location of the earthquake including the depth. Because all our stations are on the surface, we cannot determine the depth as accurately as the horizontal location. To determine the depth accurately, we need to have at least one station as close to the horizontal location as the earthquake is deep. So for the shallowest earthquakes, it can be very difficult to know exactly how deep they are.

4. What's the difference between an earthquake and an aftershock?

Nothing. An aftershock is an earthquake.

5. Can aftershocks trigger another earthquake?

Absolutely. An aftershock is an earthquake and every earthquake makes another one more likely.

6. Are we overdue for a big earthquake?

Earthquakes are not regular enough to talk about "overdue". On the central section of the San Andreas fault, there are intervals as short as 40 years and as long as 400 years between individual events at the same spot.

7. When smaller earthquakes happen, do they release pressure so big ones are less likely?

No. Seismologists have observed that for every magnitude 6.0 earthquake there are 10 of magnitude 5.0, 100 of magnitude 4.0, 1,000 of magnitude 3.0, and so forth as the events get smaller and smaller. This sounds like a lot of small earthquakes, but there are never enough small ones to eliminate the occasional large event. It would take 32 magnitude 5.0's, 1,000 magnitude 4.0's, 32,000 magnitude 3.0's to release the same energy as one magnitude 6.0 event. So even though there are more small events than large ones, there are never enough to release all the stress in the earth's crust and eliminate the need for the occasional large earthquake.

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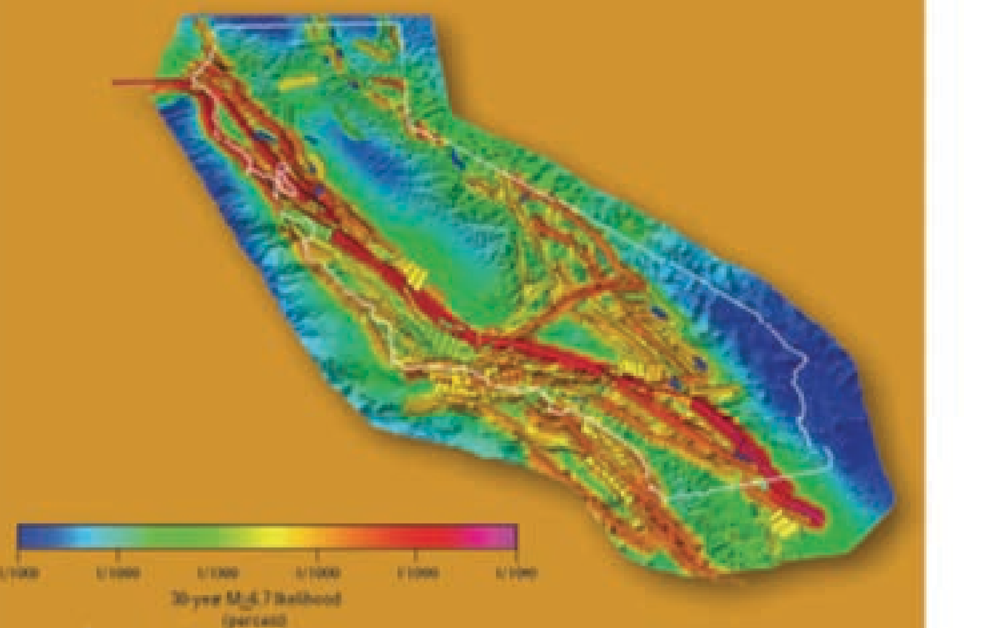
Realities for Southern California

UNIFORM CALIFORNIA EARTHQUAKE RUPTURE FORECAST

This model describes where large earthquakes (at least M6.7) are most likely to originate in California. Each of the little black boxes is a segment of a fault of the right size to produce a M6.7 earthquake. To be a larger earthquake, multiple segments need to move together. The areas with the highest likelihood are dark red where the chance of being part of a big earthquake is better than 10-50 for a 30-year period. This very high probability only occurs on the San Andreas fault which is the fastest moving fault in California.

Scientific Consensus

This model was developed by a large team of scientists working with the U.S. Geological Survey, Southern California Earthquake Center and the California Geological Survey and published in 2015. It compiles all the work scientists have done about faults, where they are and how fast they move, and has been extensively peer reviewed. It is the best estimate of where earthquakes are likely to originate. It does not tell you the chance of getting damaging earthquake shaking.



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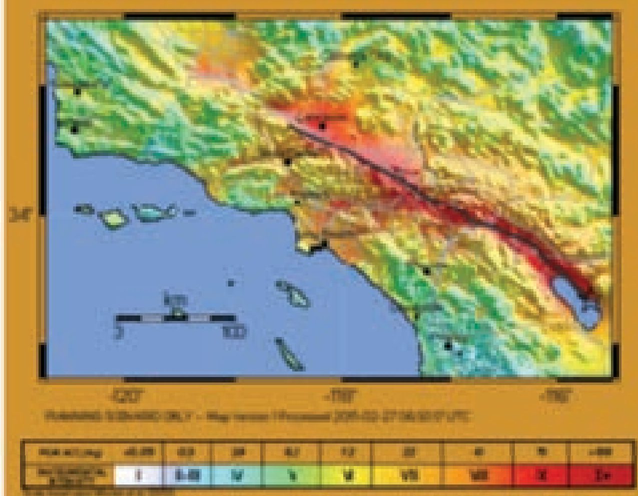
Impacts for Southern California

SHAKEOUT SCENARIO: IMPACT OF A SAN ANDREAS EARTHQUAKE

The U.S. Geological Survey led a large team of experts to model just what was likely to happen when a big San Andreas earthquake finally breaks through the southern part of the fault. This map shows the prediction of what the shaking will be. The black line is the part of the fault modeled to break in this earthquake. Very near the fault receives very strong shaking (red). As you move away from the fault, the level of shaking mostly decreases. But in valleys that have a thick layer (meaning a mile or more deep) of soil, the shaking is amplified and we see strong shaking tens of miles distant from the fault.

MAP A



Source: U.S. Geological Survey

Bottom line: The San Andreas earthquake will give all of southern California the type of strong shaking that only the northwest San Fernando Valley got in the 1994 Northridge earthquake. MAP A shows the shaking from 1994 on the same scale and same colors as the San Andreas map (MAP B).

MAP B Shaking from 1994 Northridge Earthquake

15 Common Earthquake Myths

1. It's Hot and Dry - Earthquake Weather!

Many people believe that earthquakes are more common in certain kinds of weather. In fact, no correlation with weather has been found. Earthquakes begin many miles below the region affected by surface weather. People tend to notice earthquakes that fit the pattern and forget the ones that don't. Also, every region of the world has a story about earthquake weather, but the type of weather is whatever they had for their most memorable earthquake.

2. Big Earthquakes Always Happen in the Early Morning

This myth may be so common because we want it to be true. Several recent damaging earthquakes have been in the early morning, so many people believe that all big earthquakes happen then. In fact, earthquakes occur at all times of day. The 1933 Long Beach earthquake was at 5:54 pm and the 1940 Imperial Valley event was at 8:37 pm. More recently, the 1992 Joshua Tree earthquake was at 9:50 pm and the 2003 San Simeon event was at 11:15 am. It is easy to notice the earthquakes that fit the pattern and forget the ones that don't.

3. Beachfront Property in Arizona

The idea of California falling into the ocean has had an enduring appeal to those envious of life in the Golden State. Of course, the ocean is not a great hole into which California can fall, but it is itself land at a somewhat lower elevation with water above it. The motion of plates will not make California sink - California is moving horizontally along the San Andreas fault and up around the Transverse Ranges.

4. And the Earth Opened...

A popular literary device is a fault that opens during an earthquake to swallow up an inconvenient character. But unfortunately for principled writers, gaping faults exist only in novels. The ground moves across a fault during an earthquake, not away from it. If the fault could open, there would be no friction. Without friction, there would be no earthquake.

5. We Have Good Building Codes So We Must Have Good Buildings

The best building codes in the world do nothing for buildings built before that code was enacted. While the codes have been updated, the older buildings are still in place. Fixing problems in older buildings - retrofitting - is the choice of the building's owner, unless ordinances specifically requiring retrofitting has been passed.

6. Head for the Doorway

An enduring earthquake image of California is a collapsed adobe home with the door frame as the only standing part. From this came our belief that a doorway is the safest place to be during an earthquake. True - if you live in an old, unreinforced adobe house. In modern houses, doorways are no stronger than any other part of the house and usually have doors that will swing and can injure you. You are safer under a table.

7. Everyone Will Panic During the Big One

A common belief is that people always panic and run around madly during and after earthquakes, creating more danger for themselves and others. Actually, research shows that people usually take protective actions and help others both during and after the shaking. Most people don't get too shaken up about being shaken up!

Resource Organizations

American Institute of Architects/National Institute of Building Sciences: https://www.brikbase.org/

AIA provides technical support via reports on the Building Research Information Knowledgebase (BRIK), an online information portal where you will find curated, professionally-reviewed research on all facets of the built environment, from building performance and materials to large-scale infrastructure and systems. BRIK is a collaborative effort of AIA and the National Institute of Building Sciences.

Contact Person: Will Wright, will@aialosangeles.org (locally)

Earthquake Country Alliance: www.earthquakecountry.org

The Earthquake Country Alliance (ECA) is a public-private partnership of people, organizations, and regional alliances that work together to improve preparedness, mitigation and resiliency.

ECA provides information and resources to help everyone who lives, works, or travels in earthquake country get prepared to survive and recover quickly.

Contact Person: Mark Benthien, benthien@usc.org

Southern California Earthquake Center: www.scec.org

Southern California Earthquake Center community advances earthquake science through three basic activities: (a) gathering information from seismic and geodetic sensors, geologic field observations, and laboratory experiments; (b) synthesizing knowledge of earthquake phenomena through modeling; and (c) communicating this information of seismic hazards to reduce earthquake risk and promote community resilience.

Contact Person: Mark Benthien, benthien@usc.org

Structural Engineers Association of Southern California: http://www.seaosc.org/Safer-Cities-Advisory-Program

The Safer Cities Advisory Program provides pro bono technical insights and creative minds from their membership to have an independent, qualified review of a jurisdiction's draft ordinances and programs and provide expert advice from their qualified and vetted members.

Contact Person: Dianne Ochoa, seaosc@seaosc.org

Thriving Earth Exchange: thrivingearthexchange.org

Thriving Earth Exchange (TEX) helps communities leverage Earth and space science to build a better future for themselves and the planet. TEX does this by bringing together Earth and space scientists and community leaders and helping them combine science and local knowledge to solve on-the-ground challenges related to natural hazards, natural resources, and climate change.

Contact Person: Natasha Udu-gama, nudu-gama@agu.org

Urban Land Institute: http://uli.org/research/centers-initiatives/urban-resilience-program/

The Urban Land Institute provides leadership in the responsible use of land and in creating and sustaining thriving communities. As a nonpartisan organization, the Institute has long been recognized as one of America's most respected and widely quoted sources of objective information on urban planning, growth, and development.

Contact Person: Jonathan Nettler, jonathan.nettler@uli.org

Sample Seismic Ordinances

Jurisdiction	Topic	Description	Reference
City of Burbank	Single Family Wood Frame Retrofit - amendment	Amendment requires following Chapter A1 on their voluntary program for the retrofit of existing wood frame residential buildings with soft, weak, or open front walls	Ordinance 9-1-7-A400
City of Burbank	Non-ductile concrete buildings	Amendment requires following Chapter A1 on their voluntary program to retrofit existing non ductile concrete residential buildings	Ordinance 9-1-7-A500
City of Berkeley	Single Family Wood Frame Retrofit	Property transfer tax to use up to 8 toward seismic retrofit	Chapter 7.52.060
City of Berkeley	Soft Story Inventory and Retrofit	Establishing an inventory of potentially hazardous building containing soft, weak or open front stories and adopting Chapter A4 of the International Existing Building Code with amendments	Chapter 19.39
City of Fremont	Soft Story Inventory and Retrofit	An ordinance amending city code regarding the retrofit of soft or open front walls in wood frame, residential, soft-story buildings	Ordinance 10-2007
City of Fremont	Unreinforced Masonry Retrofit	Ordinance amending city code regarding tilt-up and masonry building seismic exception and modifying timetable	Ordinance 2449
City of Los Angeles	Soft story buildings	Mandatory retrofit of soft story buildings was passed and signed into law on October 9, 2015 and requires that approximately 13,500 soft story buildings with 4 or more residential units be retrofit within 7 years or receiving an order.	Ordinance 183893
City of Los Angeles	Non-ductile reinforced concrete buildings	Mandatory retrofit of non-ductile reinforced concrete buildings was passed and signer into law on October 9, 2015 and requires that approximately 1,500 concrete buildings be retrofit within 25 years or receiving an order.	Ordinance 183893
City of Los Angeles	Fortify cellular towers	Stronger telecommunications standards were passed and signed into law in the summer of 2015 that require new cell towers to be built to more than a life safety standard, consistent with other critical infrastructure.	Ordinance 183580

Prototype Ordinance for Soft First Story Retrofit

From the City of Los Angeles

MANDATORY EARTHQUAKE HAZARD REDUCTION IN EXISTING WOOD FRAME BUILDINGS WITH SOFT, WEAK OR OPEN WALLS

Ordinance No. ________ Effective ________

I. PURPOSE

The purpose of this Ordinance is to promote the public welfare and safety by reducing the risk of death or injury that may result from the effects of earthquakes on existing wood-frame buildings with soft, weak or open walls. In the Northridge Earthquake, many multi-story wood frame buildings with tuck under parking performed poorly and collapsed. These types of buildings were shown to be vulnerable to loss of human life, personal injury and property damage during past earthquakes. Common deficiencies of this building type have been identified to be soft, weak or open walls. This Ordinance creates minimum standards to mitigate hazards from these deficiencies. When fully followed, these minimum standards will improve the performance of these buildings but will not necessarily prevent all earthquake-related damage.

II. SCOPE

The provisions of this Ordinance shall apply to all existing commercial and residential buildings of wood frame construction, except residential buildings with 3 units or less, having all the following:

1. Two or more stories,

2. Determined by the Department to have been built and issued a Certificate of Occupancy before January 1, 1980, and

3. Ground floor portion of the wood frame structure contains parking or other similar open floor space that causes soft, weak or open wall lines.

III. DEFINITIONS

The following definitions shall apply for the purposes of this Ordinance:

CRIPPLE WALL is a wood-framed stud wall extending from the top of the foundation wall to the underside of the lowest floor framing of the building.

GROUND FLOOR is any floor within the wood frame portion of a building whose elevation is immediately accessible from an adjacent grade by vehicles or pedestrians. The ground floor portion of the structure does not include any level that is completely below adjacent grades.

OPEN WALL LINE is an exterior wall line with vertical elements of the lateral force resisting system which requires tributary seismic forces to be resisted by diaphragm rotation or excessive cantilever beyond parallel lines of shear walls. Diaphragms that cantilever more than twenty-five percent of the distance between lines of lateral force resisting elements from which the diaphragm cantilevers shall be considered excessive. Exterior exit balconies of six feet or less in width shall not be considered excessive cantilevers.

RETROFIT is an improvement of the lateral force resisting system by alteration of existing structural elements or addition of new structural elements.

What You Can Do In Your City

Complete this questionnaire as specifically as possible keeping in mind your jurisdiction.

1. Based on the previous worksheets, what seismic issue are you planning to address?

2. What are the mitigation actions you plan to take (implementing a policy or program, a directive to staff, etc.)? Be specific.

    a.

    b.

    c.

3. Who is affected by these actions?

    a.

    b.

    c.

4. Who would be supportive? Who would be opposed?

    Supportive:

    Opposed:

5. What's at risk by not acting?

How to Build Your City-Wide Resilience Team

GOAL: To build a cross-discipline team, also known as a public-private partnership, consisting of representatives at all levels of the community that will work together with you on resilience initiatives

You may be a veteran or new to seismic safety, but it is important to understand you are not alone. There are others within and outside of your agency, including outside of your city boundaries, that would not only be great partners but are also willing to participate in creating solutions to make the community safer. Government alone cannot solve these issues, as they are too great. Collectively and collaboratively the approaches to address your city's risk are at your fingertips. Partners just need to be invited to join your initiative. Together you can choose areas of focus and how to solve them.

Who are your local partners?

The only way to not be successful here is to not cast a wide enough net. Be open to why and how individuals, or organizations, want to join your team. Do not allow your perceptions or beliefs about potential partners limit what they can really do to help make your community safer. Invite motivated representatives who are interested in working collaboratively and willing to "roll up their sleeves" especially as some of what you are trying to address will take some time to accomplish. Partners should also be representative of the full fabric of your community.

Potential Partners: (Consider what resources each of these representatives, or their organizations, would bring to the table)

- Government: local, regional, state, regional, federal
- Businesses
- Chambers, associations and trade groups
- Scientists, subject matter and technical experts
- Non-profit organizations
- Universities and colleges
- Community/Civic groups
- Faith-based organizations
- Neighborhoods
- Academicians
- Researchers
- Educators and trainers
- Media
- Others

How can your team members/partners help your seismic safety effort?

These people, and/or their organizations, are the "worker bees" to establish and accomplish significant elements of your seismic safety initiative. Under your leadership, and the guidance of a chair to focus on the step-by-step tasks, your team of motivated subject matter experts and interested stakeholders will enable you and your city to create tangible measurable results in areas not yet addressed. You will work together and engage critical connections that will further specific programmatic areas. For example, a building official on your team may engage engineers and architects in a sub-committee to develop prescriptive plan sets for residential retrofit in order to streamline quality control and ease compliance - this may not have been an initial goal of your efforts but becomes a key element to address one that was. If established well, your team and all your partners, will be the stepping stones to achieving your community's overall resilience.

How to Engage Your City-Wide Resilience Team

In order to address seismic safety issues in your community, it is recommended to engage a city-wide resilience team to facilitate the process and achieve results. This public-private partnership needs to represent the full fabric of the community, at all levels, and include individuals and organizations interested in developing solutions to address the earthquake hazard.

The way to engage committed people is to develop an initiative that they can: 1) be inspired to be a part of, 2) have their time and contributions be respected and appreciated, 3) make a difference, save lives, and 4) also meet at least one need of their own organization.

As public sector officials for your city, how do you engage members to join your team? Here are a few steps to get you started:

1. First, decide that you want to accomplish the goal of making your city more resilient
2. Create a small leadership team of three to four people who are interested in the subject, have cross-sector connections, and who can help identify stakeholders in the community. Don't limit invitees to only those in your jurisdiction as some expertise, interest, and resources can come from outside
3. Meet with your leadership team to accomplish two items:
   - Share your high-level approach or vision and get their buy-in and feedback
   - Develop a list of types of partners (e.g. business, non-profit) and list names of potential people. If you do not know names yet, then list the organizations that make the most sense or would be good strategic partners. Have more than one name per type of partner, especially where you plan to have more than one organization represented, such as businesses
4. Set a date to hold your first city-wide resilience team meeting
5. Have your leadership team begin inviting potential members to the 1st meeting
   - Share the high-level approach or vision
   - Gage their interest
   - Get them to agree to attend the meeting, or send a representative if they are unavailable
6. Plan meeting agenda and logistics
   - Meeting should be set up with everyone around a central table, facing each other, and foster interaction between attendees
   - Agenda should begin with introductions of each attendee, cover the hazard, any necessary history, your high-level approach, and program ideas discussion. Have a scientist or technical expert available to answer specific hazard questions so partners fully understand why this is so important
   - Share some basic goals and objectives you'd like your team to accomplish, discuss with attendees to refine (but not necessarily finalize yet)

Contact

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The Dr. Lucy Jones Center for Science and Society

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