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Testimony to Business & Labor
Interim Committee

Lisa Grow Sun, Oct. 20, 2020

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EARTHQUAKE PROBABILITIES

WASATCH FRONT REGION – NEXT 50 YEARS

- **57% chance of a 6.0 or greater quake**
- **43% chance of a 6.75 or greater quake**

THE “BIG ONE”

- 22 around 7.0 over the past ~6,000 years, once every 300 years
- Last “big one” along the fault was more than 300 years ago

SALT LAKE SEGMENT

- “Big one” every 1300-1500 years; last one was **1400 years ago**
- Characteristic magnitude: **7.1 ± 0.2**

HAZUS ESTIMATES

7.0 Earthquake along the Wasatch Front

FATALITIES: **2,000-3,000**

CRITICALLY INJURED: **7,400-9,300**

DISPLACED HOUSEHOLDS: **84,400**

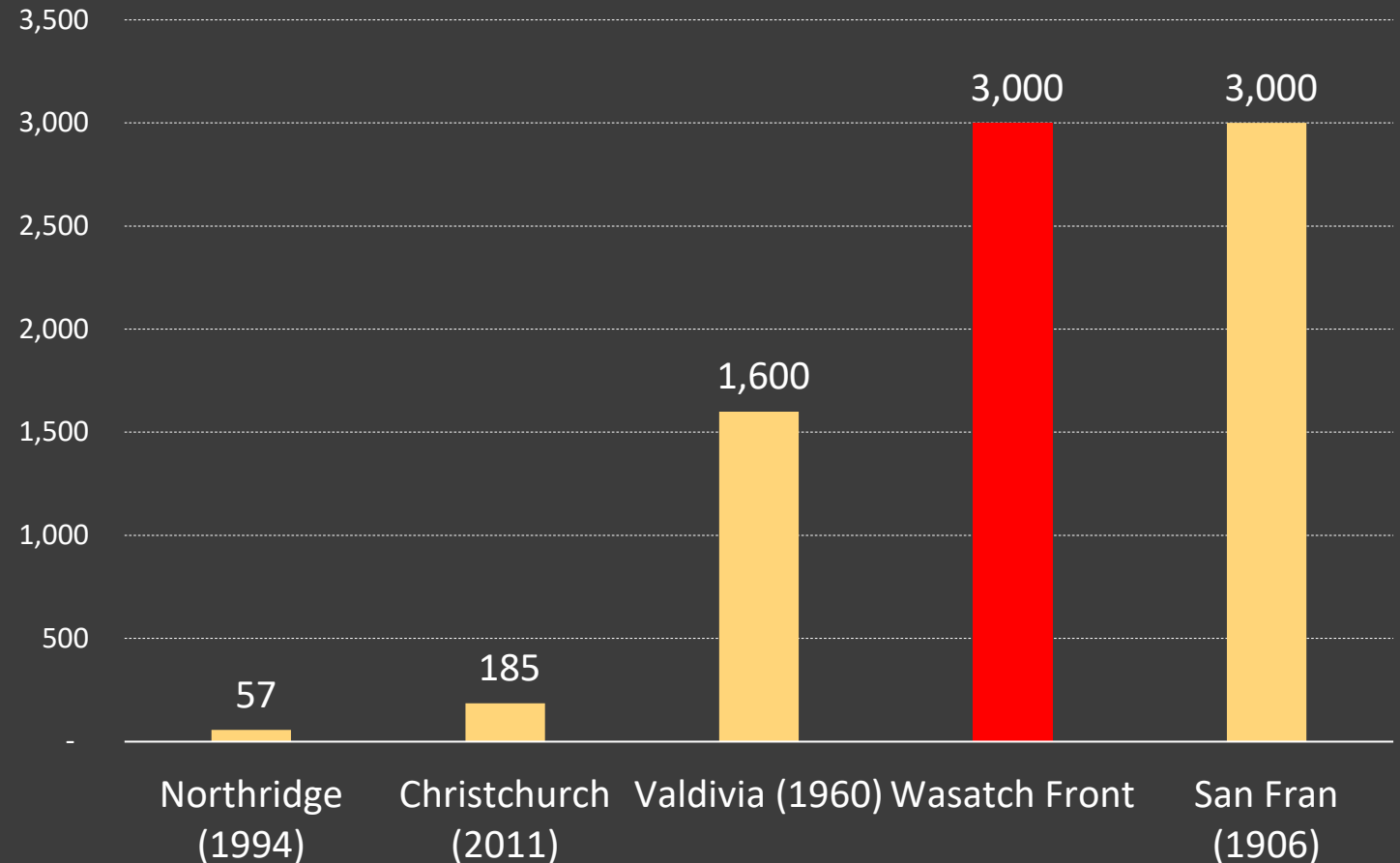
HOMES WITHOUT WATER: **480,000 (64 PERCENT)**

HOMES WITHOUT POWER: **444,000 (59 PERCENT)**

The risk

- WASATCH FRONT REGION
 - FEMA estimates a 43% chance of experiencing a 6.75+ earthquake in the next 50 years.
- HAZUS ESTIMATES FOR 7.0
 - Fatalities: 3,000+
 - Critically Injured: 7,400 – 9,300
 - Displaced Households: 84,400

FATALITIES IN MAJOR EARTHQUAKES SINCE 1900



The risk

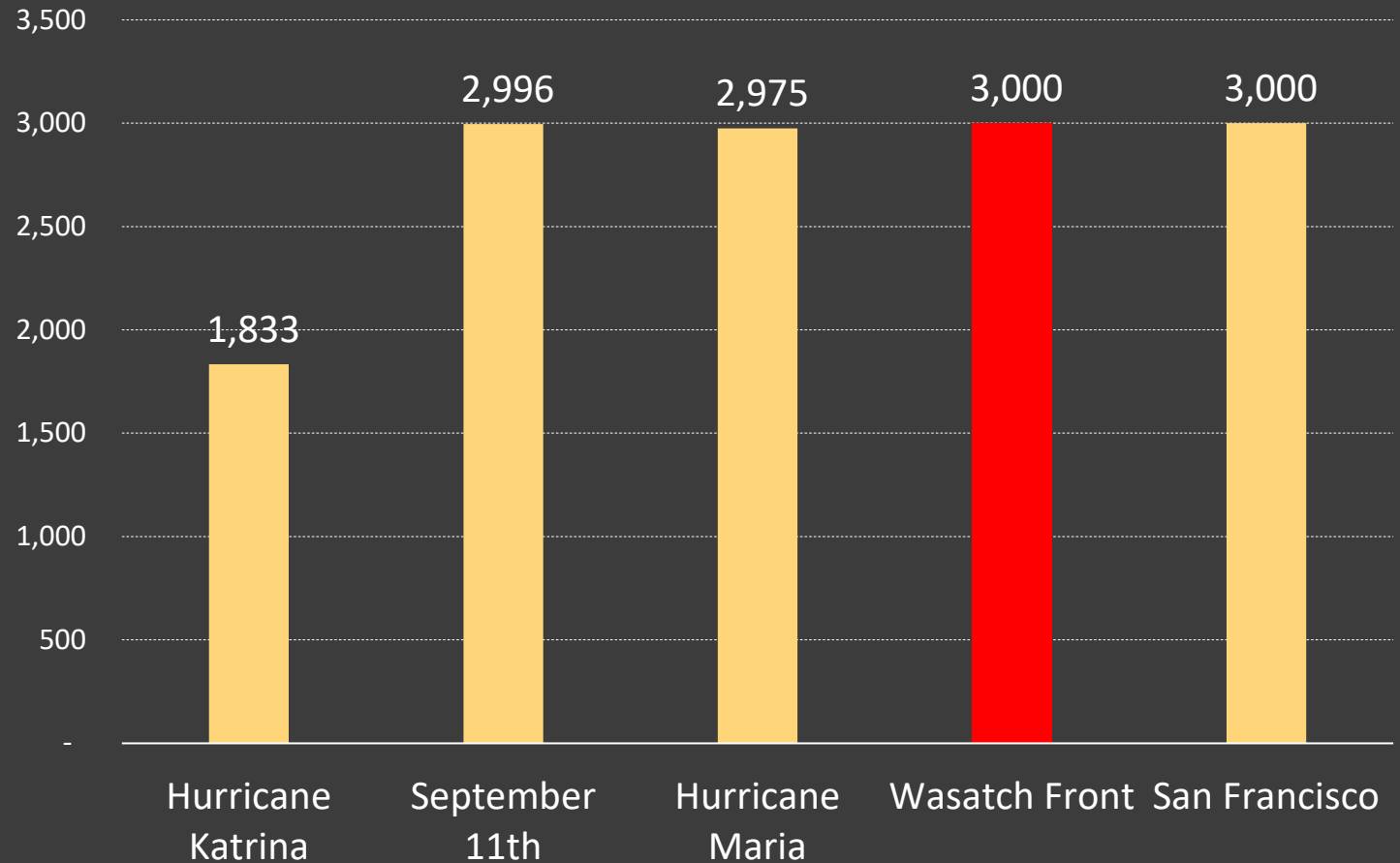
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FATALITIES IN MAJOR U.S. DISASTERS SINCE 1900

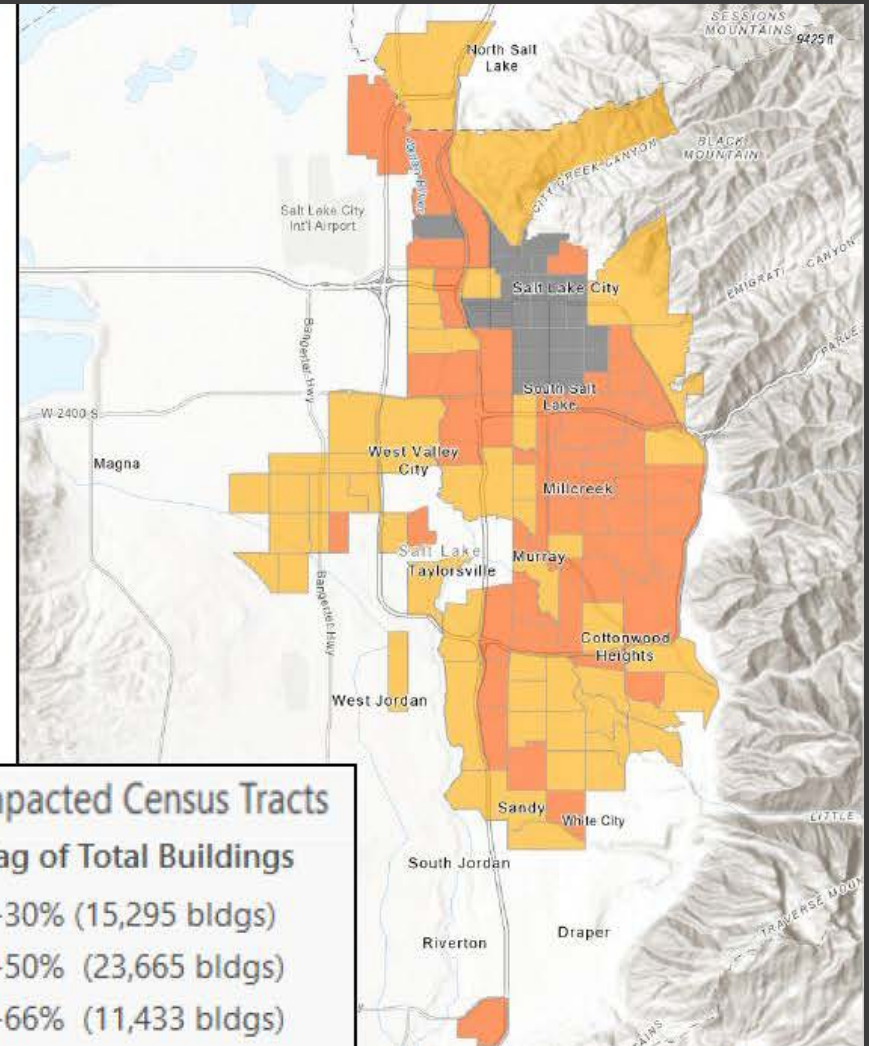


BUILDING DAMAGES



Search & Rescue Building Damages

- **60,664 RedTag (complete damage) Buildings**
 - 57,787 in Salt Lake County
 - 2,280 in Davis County
 - 544 in Utah County
 - 35 in Weber County
- **35,811 YellowTag (extensive damage) Buildings**
 - 29,911 in Salt Lake County
 - 3,251 in Davis County
 - 2,083 in Utah County
 - 371 in Weber County



WHY IS UTAH'S RISK SO HIGH?

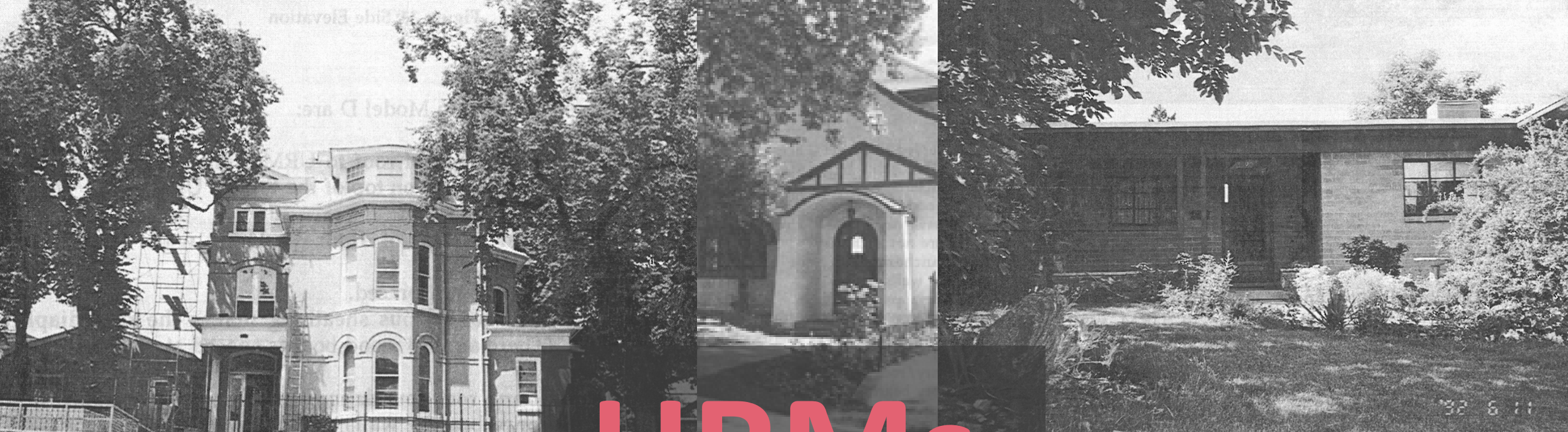
LOCALIZED POPULATION

- Population and infrastructure concentrated along the Wasatch Front

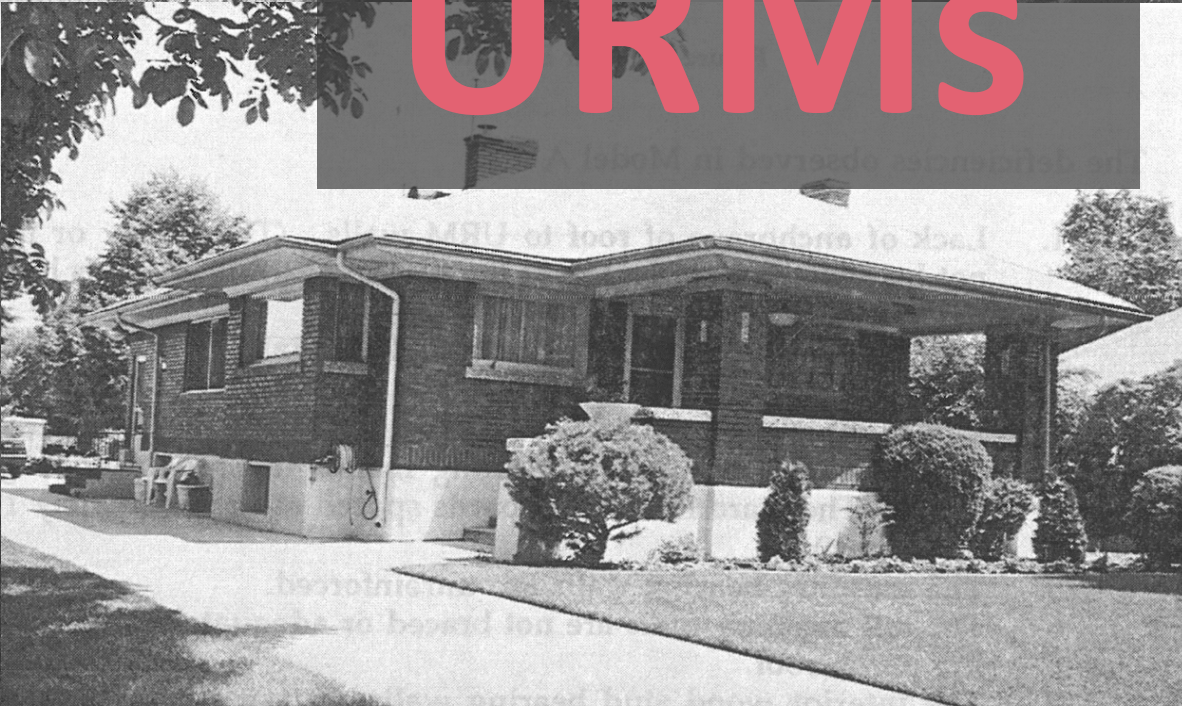
LIQUEFACTION POTENTIAL

LIMITED AWARENESS OF RISK (UNTIL MID-1970s)

- Luck and long return times
- Late building codes
- Life-threatening buildings (more than 140,000 URMs remain)



URMs



Damage to URMs in Christchurch Earthquake

Christchurch 2011



Cyprus High School (built 1918, remodeled many times, currently being rebuilt elsewhere)



Examples of things being done:

FIX THE BRICKS



**THE
BRICKS**

SALT LAKE CITY

RE-ROOFING?
REMODELING?

It's the perfect opportunity to
make seismic improvements.

The graphic features the words 'THE BRICKS' in a large, bold, black font. The word 'THE' is smaller and positioned above 'BRICKS'. To the left of the text is a stylized brick wall made of dark brown bricks. To the right is a stylized house icon with a gabled roof, composed of concentric orange lines. Below the text and icons is a red seismic waveform on a white background with a horizontal axis and vertical tick marks.

Major Public Building Retrofits: Utah Capitol & Salt Lake City/County Building



WHAT ARE SOME CHALLENGES FOR ADDRESSING URM_s?

- Lack of awareness of seismic risk
- Cost
- Distributed risk
- Externalities

DEVELOPING RESILIENCE: POTENTIAL APPROACHES TO URM_s

RETROFIT URM_s (HOMES, BUSINESSES, SCHOOLS)

- **MANDATE** retrofitting -- can be tied to remodel or sale or other deadlines
- **REQUIRE DISCLOSURE** of risk at time of sale
- **EDUCATE** Utahns about the risk so they don't miss windows of opportunity
- **SUBSIDIZE** retrofitting for low-income households