EARTHQUAKES AT ALTITUDE

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Outline

• Introduction
• Utah Earthquake Risk
• *Wasatch Front Unreinforced Masonry (URM) Risk Reduction Strategy*
• Connection to Insurance
No Geology Degree Required!

Wasatch Fault
Wasatch Fault Magnitude 6.75+ Next 50 Years

~1 in 5 chance
Disaster Movie-level Losses

6.8 SHOCKER

- Strongest quake in half a century rumbles through the Northwest
- One dead, more than 200 hurt; damage could reach into billions
Unreinforced Masonry (URM) Buildings don’t have any steel holding the brittle bricks together.

URMs experience **life-threatening damage at low levels of shaking**.
URM Impacts on the Public

- URM walls can often collapse outwards
- Falling bricks are common killers during earthquakes
- Endanger pedestrians and undamaged adjacent buildings

→ Makes a private risk a public one
Utah’s Killer Buildings

High concentration of URMs

- 30,000+ in Salt Lake City
- 147,000 in 12 county Wasatch Front

~440k people at risk!
URMs persist because they are economically viable. Victorian, Tudor, Georgian, and brownstone style buildings are sought after as homes and workplaces.
Many of the deaths we expect during a Wasatch earthquake are preventable through a combination of solutions, some of which have been tested in other cities.
APPROXIMATELY 66 MILLION YEARS AGO...

WELL THAT LOOKS LIKE IT WILL COST A FORTUNE...

ASTEROID MITIGATION PROGRAM
Recent Progress
Building Resilient Infrastructure and Communities (BRIC): $1 Billion in grants available
FEMA grants offer 75%/25% cost sharing

- Uncle Sam provides $0.75, you provide the last $0.25

- Huge opportunity for innovative leadership
  - Private contributions
  - Capital funds
  - Philanthropic donations
  - In-kind contributions
National Mitigation Investment Strategy

**Goal 1**
Show How Mitigation Investments Reduce Risk:
Objective: Prove mitigation investment protects what we value.

**Goal 2**
Coordinate Mitigation Investments to Reduce Risk:
Objective: Share risk info to support investment and incentive decisions; streamline funding access.

**Goal 3**
Make Mitigation Investment Standard Practice:
Objective: Facilitate mitigation activities (enhancing building codes) and access to risk transfer vehicles (like insurance!)
Wasatch Front Unreinforced Masonry Risk Reduction Strategy
• 20 authors & 27 reviewers: representing 22 agencies, companies, and nonprofits - 600+ reviewer comments
• Funding ideas – linking Federal/State grants
• Creative solutions: tax breaks, Historic Preservation credits, insurance premium reduction
• Engineering analysis of retrofit levels
• Examples of effective model ordinances
• Roadmap for public engagement and soliciting buy-in
• Pros/Cons of Voluntary and Mandatory programs
• Overcoming obstacles

...all of which leverages local expertise and input.

Released: March 18th
URM Strategy: Goal 1

Establish a statewide URM risk reduction program

• Emphasis: leverage multiple existing Federal and State funding sources

• Identify new funding streams and program linkages - case studies from around the U.S.
URM Strategy: Goal 2

Protect schools

• Set aggressive dates to repurpose, retrofit, or demolish URM schools

• Technical support to local school districts - guide through (BRIC) grant application process

West Lake Junior High
URM Strategy: Goal 3

Retrofit or relocate government facilities

- Prioritize facilities needed for post-disaster short and long-term recovery
- Not just traditional “critical facilities”, but locations like building departments and job training centers
Connection to Insurance
Connection to Insurance

Education & Outreach

• Earthquake insurance penetration is extremely low nationally
• FEMA post-disaster grants to individuals are relatively small
• Can insurers be a conduit for mitigation-related steps to reduce risk (to homeowner and insurer?)
New(ish) Ideas

- Parametric policies provide immediate benefit while capping potential payout
- Third-party certifications – do we need a definitive standard for earthquake resilience?
A FORTIFIED designation may qualify you for annual wind mitigation credit that could lower your insurance premium.

Connection to Insurance

Result: $44,769 vs. $4,660

10 times more damage to “Common” than “Stronger” building
Opportunities to align benefits?

- Incentivize retrofits with reduced premiums?
- Multi-peril retrofits: earthquake strengthening can help resist wind
- Rather than react (e.g., fire mitigation crews), can we better incentivize up-front mitigation?
- Would standardized State/Fed retrofit data help actuaries justify?
What’s Your Take?

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5 Goals

1. Establish a statewide URM risk reduction program
2. Protect schools: retrofit, repurpose, or demolish vulnerable schools.
3. Mitigate critical government facilities to facilitate recovery
4. Tighten existing building code loopholes at the state level
5. Empower local communities to enforce their existing retrofit requirements & enhance as locally appropriate.