

# Technical Needs for Seismic Regulations for Existing Buildings

Practitioner's Perspective

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# Objective

Bring the inventory of buildings in a community up to a standard of seismic resistance before the next significant earthquake

# Focus away from West Coast

- Nature of Seismic Hazard
- Nature of the Building Inventory

# Seismic Hazards

- High Hazards
  - Middle Mississippi Valley
  - Wasatch Front
  - South Carolina
- Moderate and Low Hazards
  - Large areas
  - Large cities

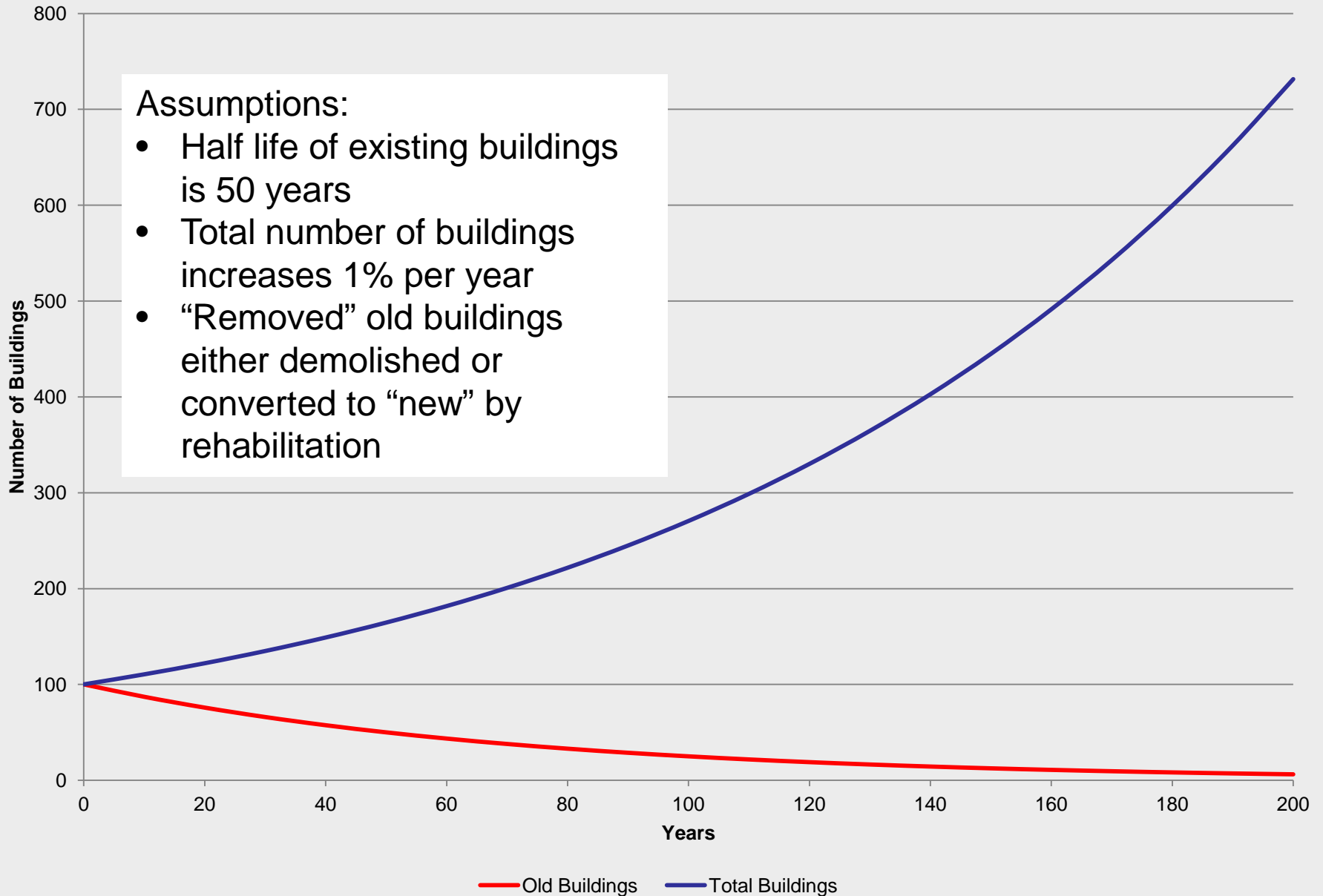
# Nature of the Hazard

- Generally not as well understood
  - Even though we have a longer written history
  - Classic low frequency but high consequence event
- New Madrid's unusual characteristic
  - Multiple large events in a sequence

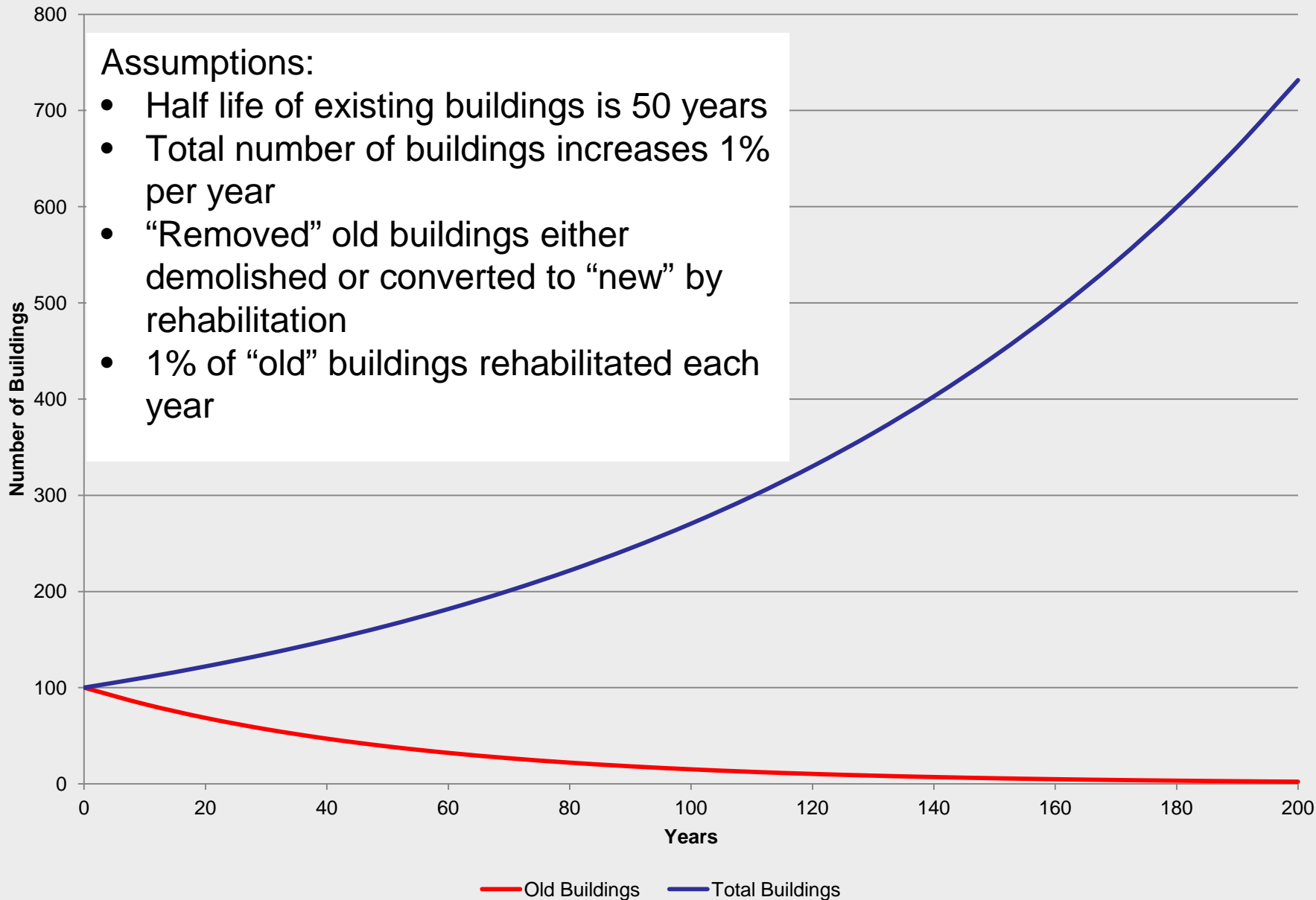
# Nature of the Inventory

- Large and densely populated cities
- Higher fraction of older styles of construction
- Lots of reuse of older buildings – mostly driven by economic interest, but by historic preservation
- Highly variable rates of growth

# Change in Building Stock with Time

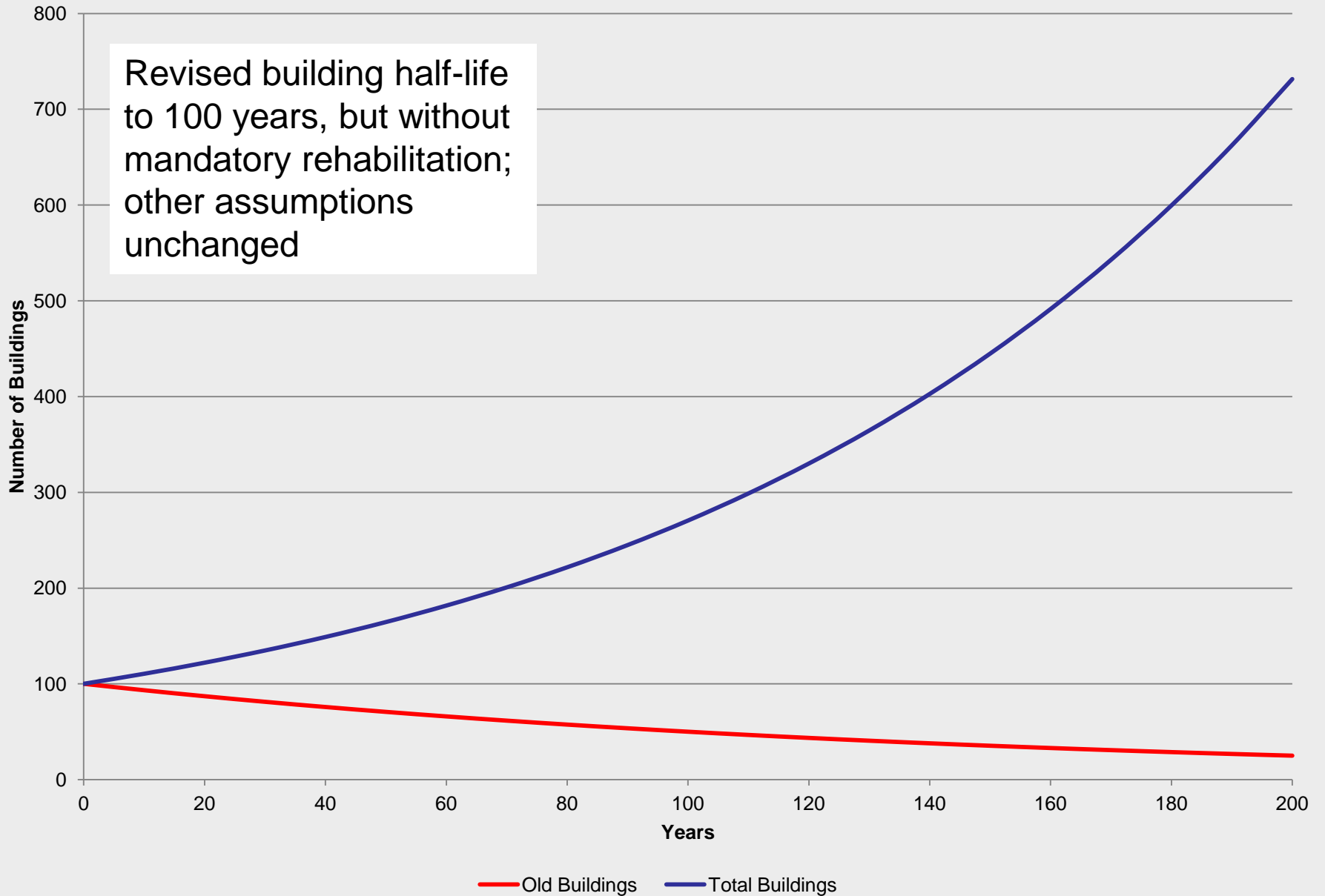


# Change in Building Stock including Mandatory Rehabilitation





# Change in Building Stock with Time



# What do we need?

- Better characterization of the population of existing buildings away from the West Coast
  - Effective life – and how it varies with type of use and construction
  - Which structures are likely killers
- Better characterization of the seismic hazard – the Poisson assumption is likely not be good enough for this purpose