



# Dmitry Ozeryansky

## Ozeryansky Engineering



### South Main Retrofit Demonstration Project

[www.southmain-retrofit.org](http://www.southmain-retrofit.org)

### SOUTH MAIN DISTRICT SEISMIC RETROFIT AND HISTORIC CONSERVATION DEMONSTRATION PROJECT

*"for a more resilient and sustainable community"*



IMAGE: SOUTHMAINMEMPHIS.NET

A UNIQUE OPPORTUNITY PRESENTS ITSELF TO "shake up" THE DIALOGUE ON SEISMIC PREPAREDNESS IN MEMPHIS. A SEISMIC RETROFIT DEMONSTRATION PROJECT IS PLANNED FOR A PARTICULARLY VULNERABLE YET CULTURALLY IMPORTANT NEIGHBORHOOD. THE PROJECT IS INTENDED TO COINCIDE WITH NEXT YEARS NATIONAL EARTHQUAKE CONFERENCE HELD ON THE OCCASION OF THE 200TH ANNIVERSARY OF THE GREAT 1811-1812 EARTHQUAKES ON THE NEW MADRID FAULT.

FLYER DESIGN: ALLISON HENNE

OUR GOAL is to educate the public, the building industry, and local governments on the subject of multi-hazard preparedness and proper conservation measures for aging brick buildings.

OUR PLAN is to organize and raise money for an initiative to construct a seismic retrofit demonstration project on South Main. After construction, the storefront space will be open to the public and used as a temporary event and educational space with displays and a product showcase.

Programming will include:

- For the public, events that increase understanding of the hazard and risk posed by earthquakes.
- For building industry folks, workshops of best methods and practices, and new technologies.

WE WANT TO :

1. PROTECT PEOPLE AND PROPERTY FROM HARM
2. NURTURE LOCAL AND SMALL BUSINESSES
3. PRESERVE OUR CULTURAL HERITAGE
4. SHOWCASE LOW COST SOLUTIONS THAT BRING BIG BENEFITS

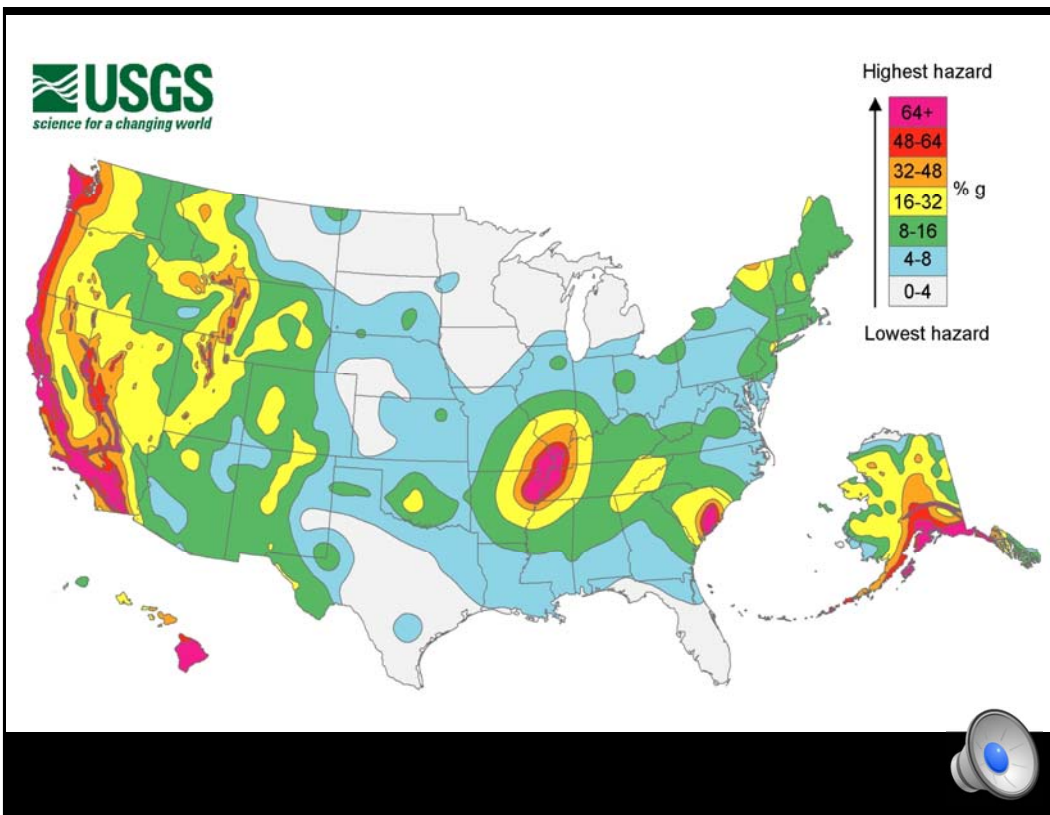
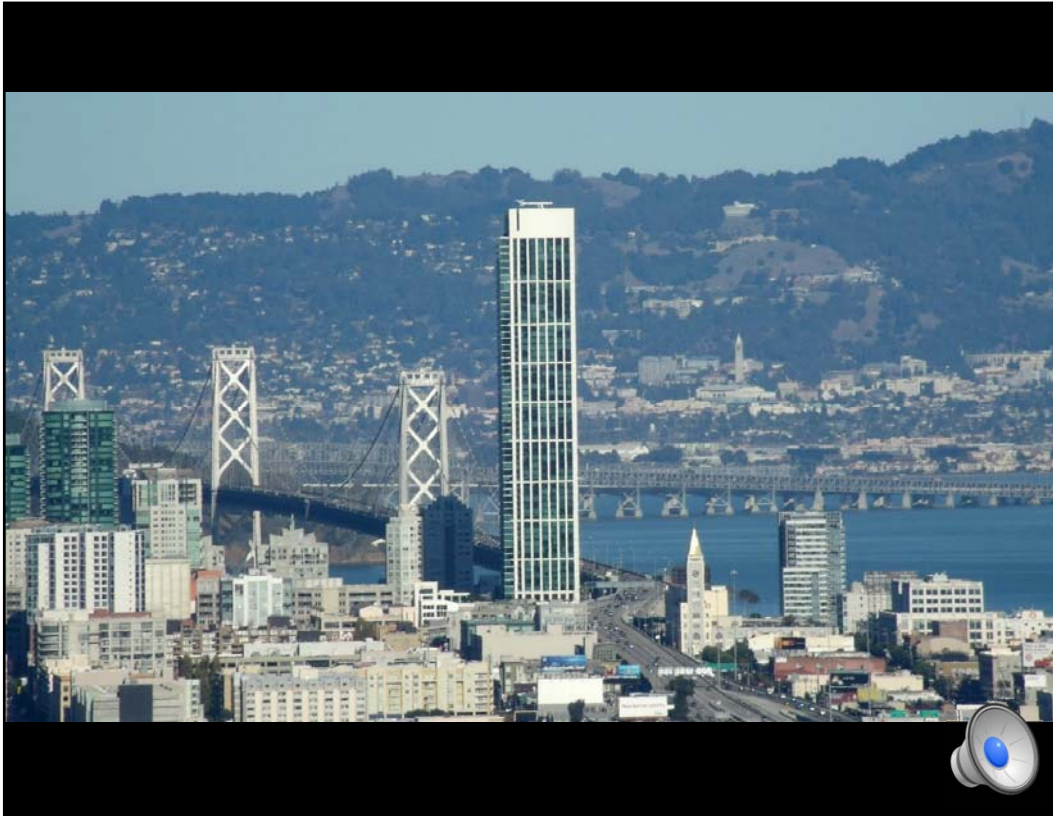


FAILING FACADE:  
Aging veneer was about to fall off of this South Main building.



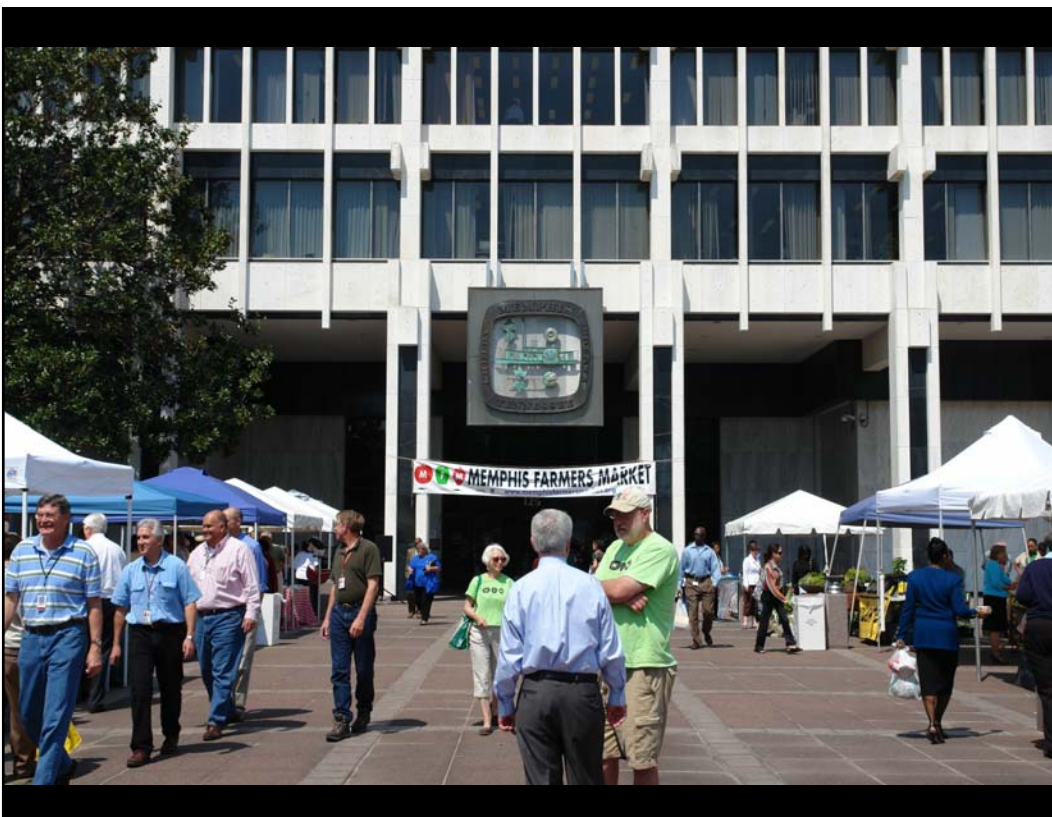
CHRISTCHURCH EARTHQUAKE 2010:  
Many retrofit brick buildings were undamaged by the earthquake.

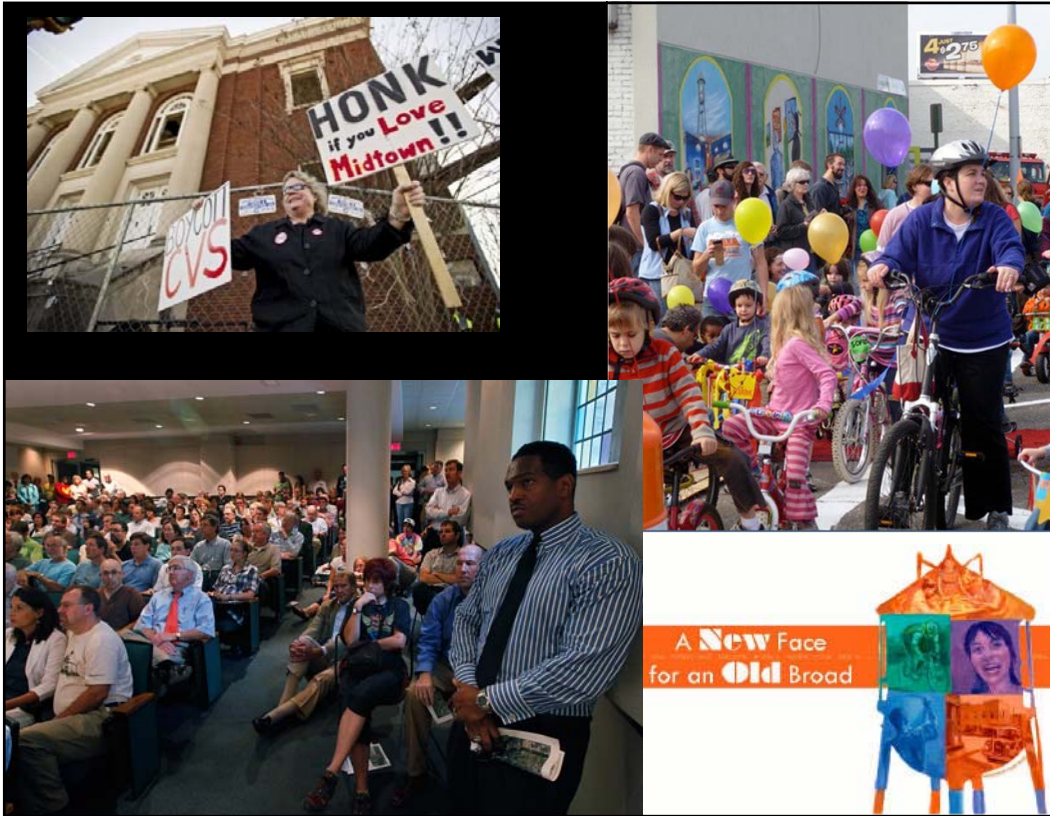
For more information, please contact:  
[dmitry@ozereengineering.com](mailto:dmitry@ozereengineering.com) or call 901-305-6540





## New Buildings Ok – Existing Buildings Marginal, Unimproved





## Overcoming Barriers

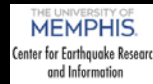
- Top Down vs. Bottom Up – Government vs. Non-Profit
- Coalition Building – Developing Relationships: Community Partners
- Consensus Building – Inclusivity: Advisory Committee



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## Community Partners



...and growing!



## Neighborhood Focus

- Both owners and tenants are independent and uniquely committed to the neighborhood.
- Specific Building Type –most vulnerable.
- Unique characteristics requires a novel approach.
- Culturally and Historically Important Neighborhood
  - Well defined
  - High Value, other than \$\$ value



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## South Main

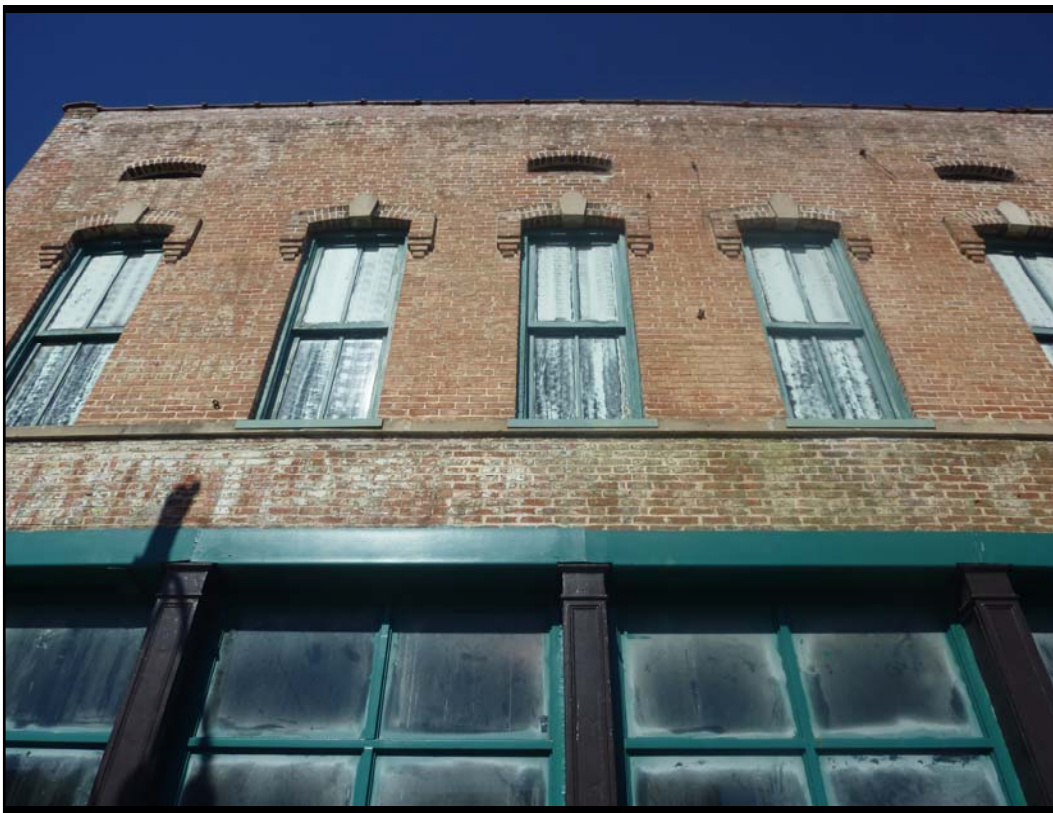


We focus on “Main St”  
Storefront Type Bldgs:

1. One to Three stories
2. Wood floors/roof

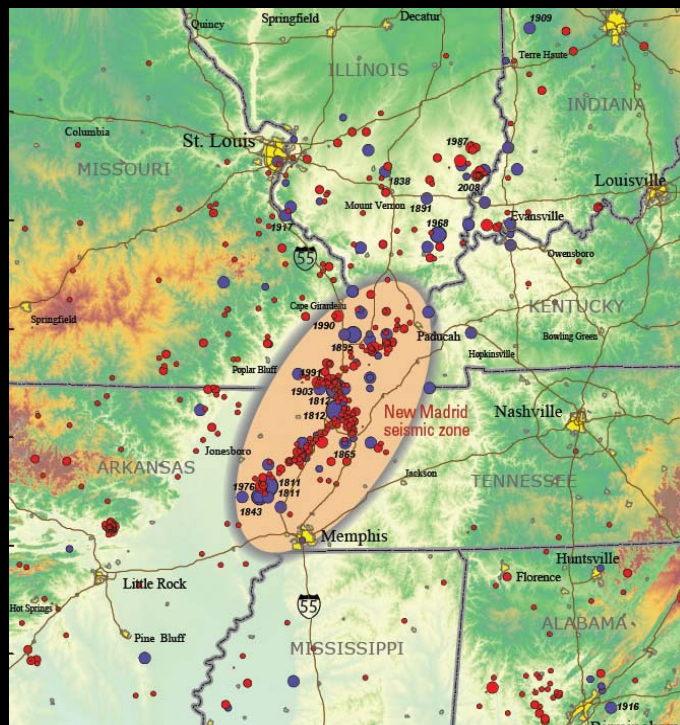


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## Moderate Size Earthquake





## Demonstration Site



Fundraising, Design, and Construction of Improvements for one building with temporary exhibits and events.



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## Finding a Building



Best candidate so far: 414 South Main, previously Safari Tapas



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# The Big Ideas: Structural

1. We are designing for a **moderate earthquake**, not the 'big one'.
2. Low cost, **affordable** interventions can provide big benefit.
3. By addressing seismic, we will also be strengthening for **wind forces**.

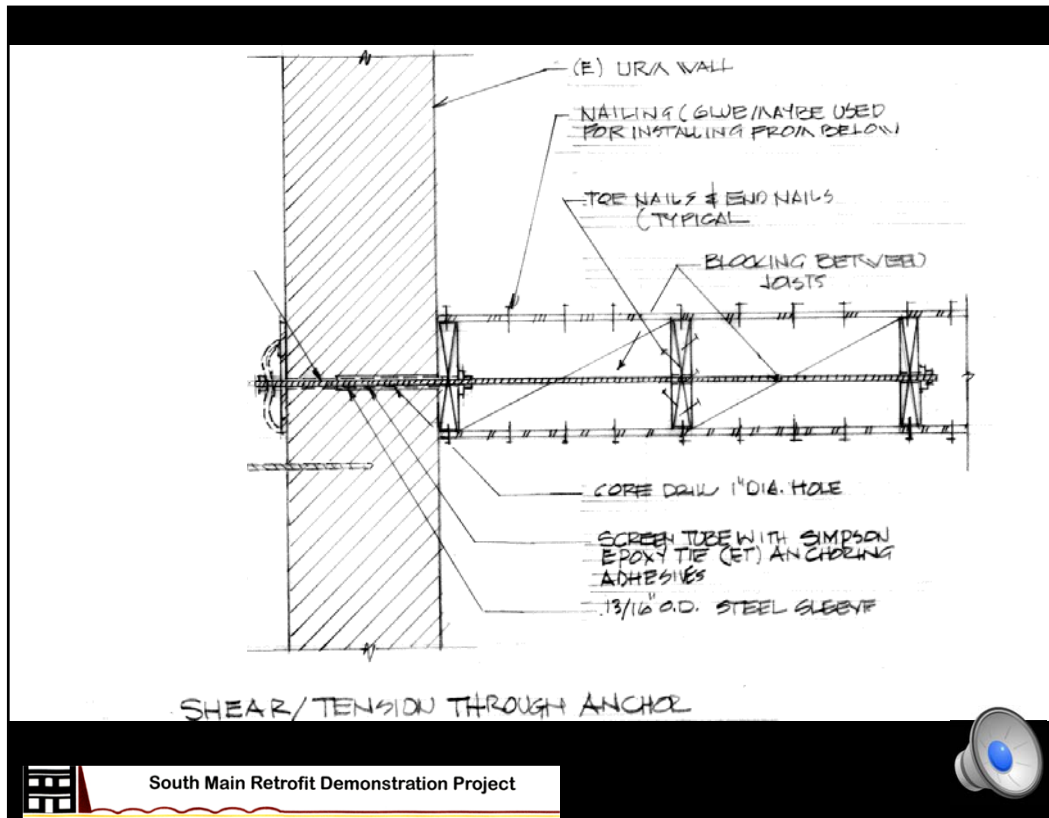


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Stars  
Key partner:





## The Big Ideas: General

1. **A worthwhile investment:** This building type is one of the most fragile in the region, yet in many ways one of the most valuable.
2. **Another 100 years:** Originally built to last 100 years, we want to make these buildings last another 100 years.
3. **Adding Beauty:** The most visible exterior feature will be the star-washers.



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## Long range programming and advocacy

Vision: In 25 years, the majority of these buildings could be retrofit.

If we can **retrofit 100 main-street type buildings** in downtown Memphis. We will create a paradigm shift where the rest of the city and the mid-South will begin to perform these retrofits.



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Programming:  
Comprehensive

“21<sup>st</sup> Century  
Ready”

Priorities:

1. Seismic and Wind
2. Historic Conservation
3. Durability = Sustainability



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### Programming Goals:

1. Education
2. Attract resources (for programming & incentives)
3. Advocacy

### Implementation Strategies:

1. Education (CE units, etc.)
2. Design Guidelines and Prescriptive Methods
3. Certification Program
4. Incentives: For Owners and Builders
5. Mitigation measures enacted by city/county
6. Long range - Resource center: Offices (staff), conference room, exhibits, product showcase.



### Community Partners

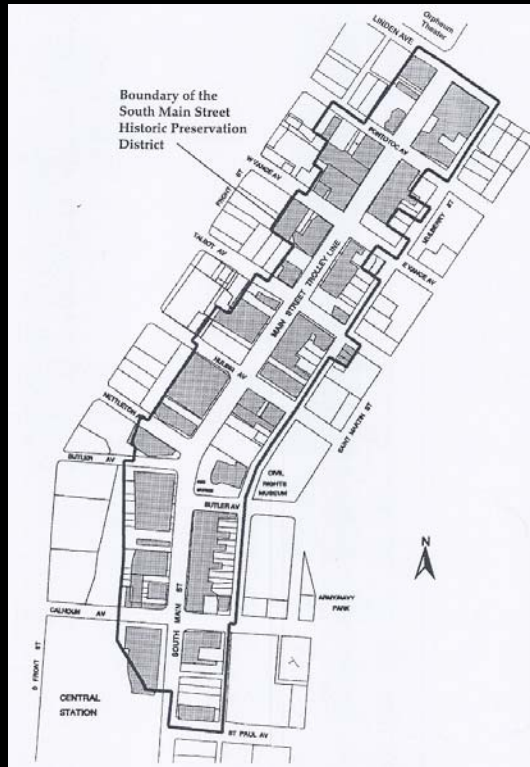


...and growing!





## What we've done so far: Pilot Inventory



1. HAZUS Modeling
2. Incorporate data with other existing inventories.
3. Work with partners toward a comprehensive inventory project.



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## Case Study: 520 and 522 South Main



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## Critical Path

1. Fiscal Agent: Memphis Heritage
2. Advisory Committee: First meeting in early May
3. Find a building: 414 S. Main
4. Design Basis: Earthquake Scenario, Performance Objectives
5. Raise Money: Beginning this summer/fall
6. Design & Construction
7. Execute the program: Phase II



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## Balancing Priorities 1: Limited Resources

- Limited Resources – Lean Times
- Culturally and Historically Important Neighborhood – but shoestring budgets
- Resonant Need



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## Balancing Priorities 2: Performance Goals

- Scenario Selection
- Performance Target
- Will we find a solution that is viable?
- A bit of good news: URM buildings are currently the subject of much research.



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