

The Lessons of Hurricane Andrew: Is Florida *Really* Ready?

Economic Incentives for Building Safer Communities
Wharton Risk Management and Decision Processes Center Roundtable
Institute for Building and Home Safety

The Wharton School

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Hurricane Andrew:

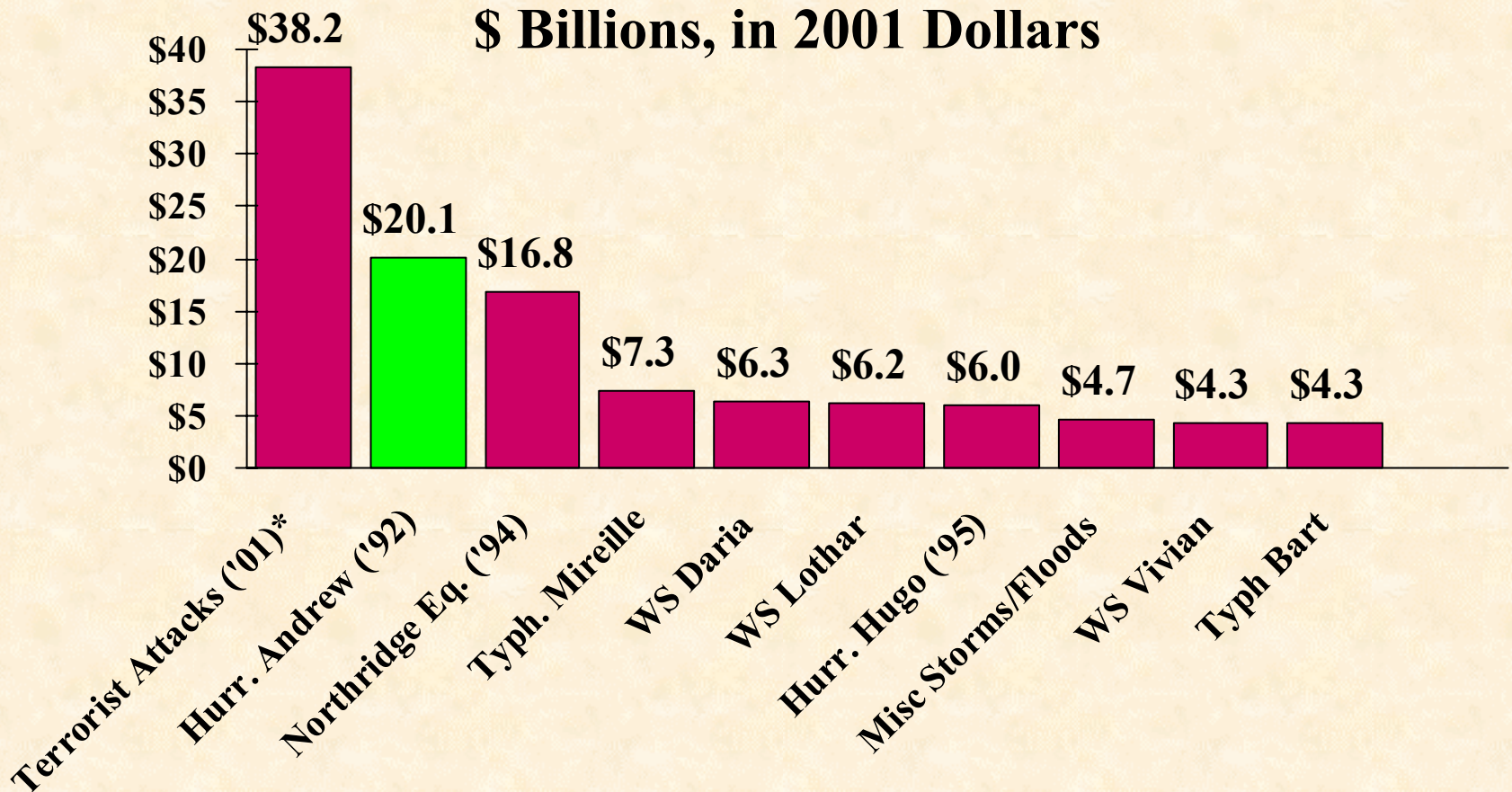


A Summary of the Devastation

- Andrew struck S. FL on August 24, 1992 with sustained winds of 140 mph, gusts to 175 mph
- \$15.5B insured losses (\$20B in 2001 \$)
- \$26 billion economic losses (\$34B 2001 \$)
- 23 direct deaths
- 700,000 homeowners claims
- 28,066 home destroyed
- 107,380 homes damaged
- 82,000 businesses destroyed/damaged
- 7,800 businesses closed as of Sept. 1992
- 86,000 out of work as of Sept. 1992



World's Largest Catastrophes (by insured loss)

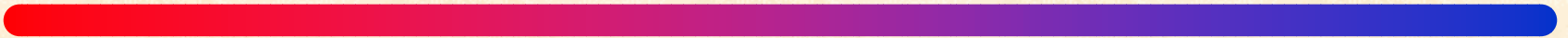


*III Estimate; Includes life, liability, aviation and workers compensation losses.

Source: Insurance Information Institute, Swiss Re;

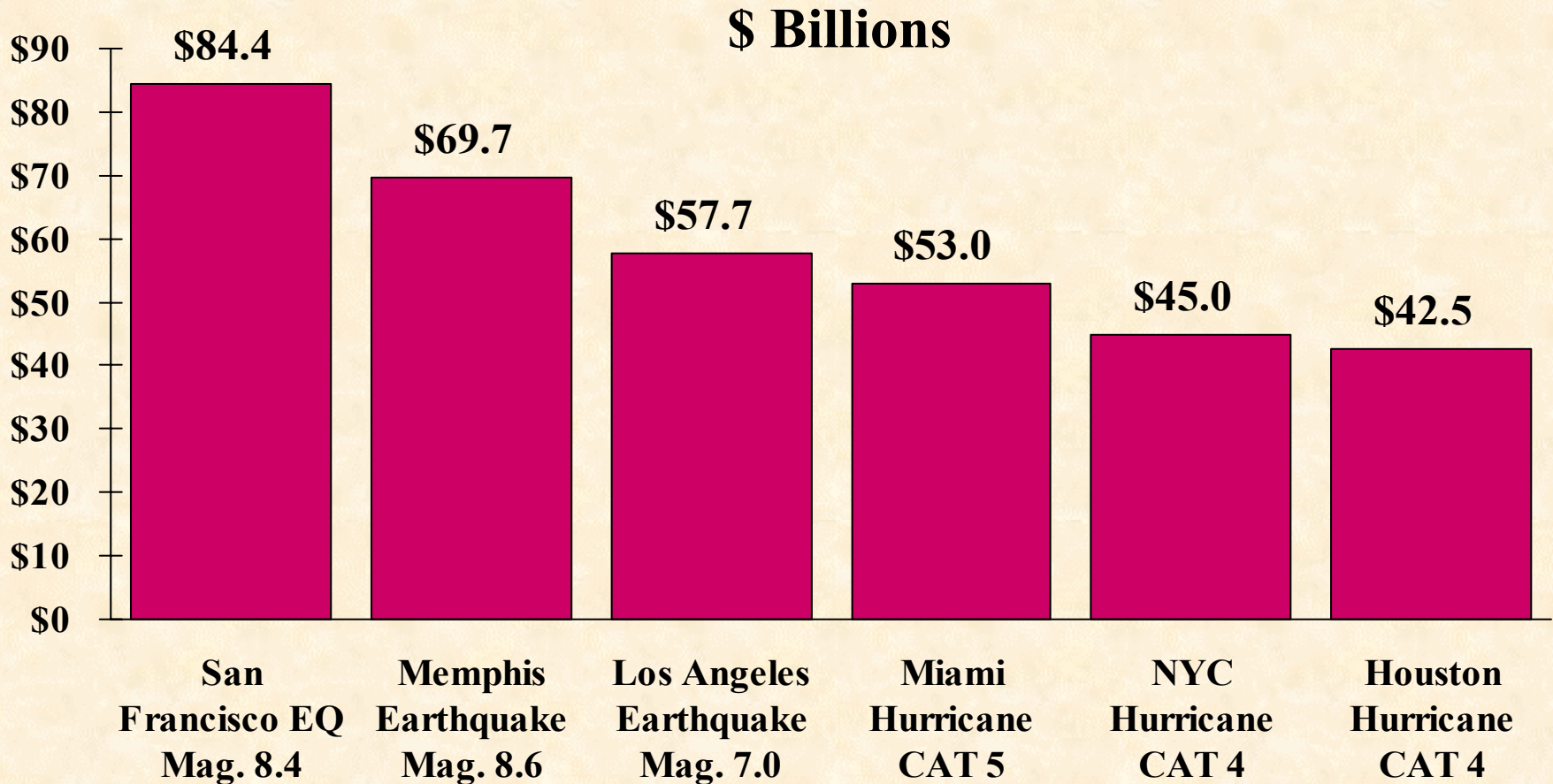
Note: WS = Winter Storm

*United States:
Disasters Waiting to Happen*



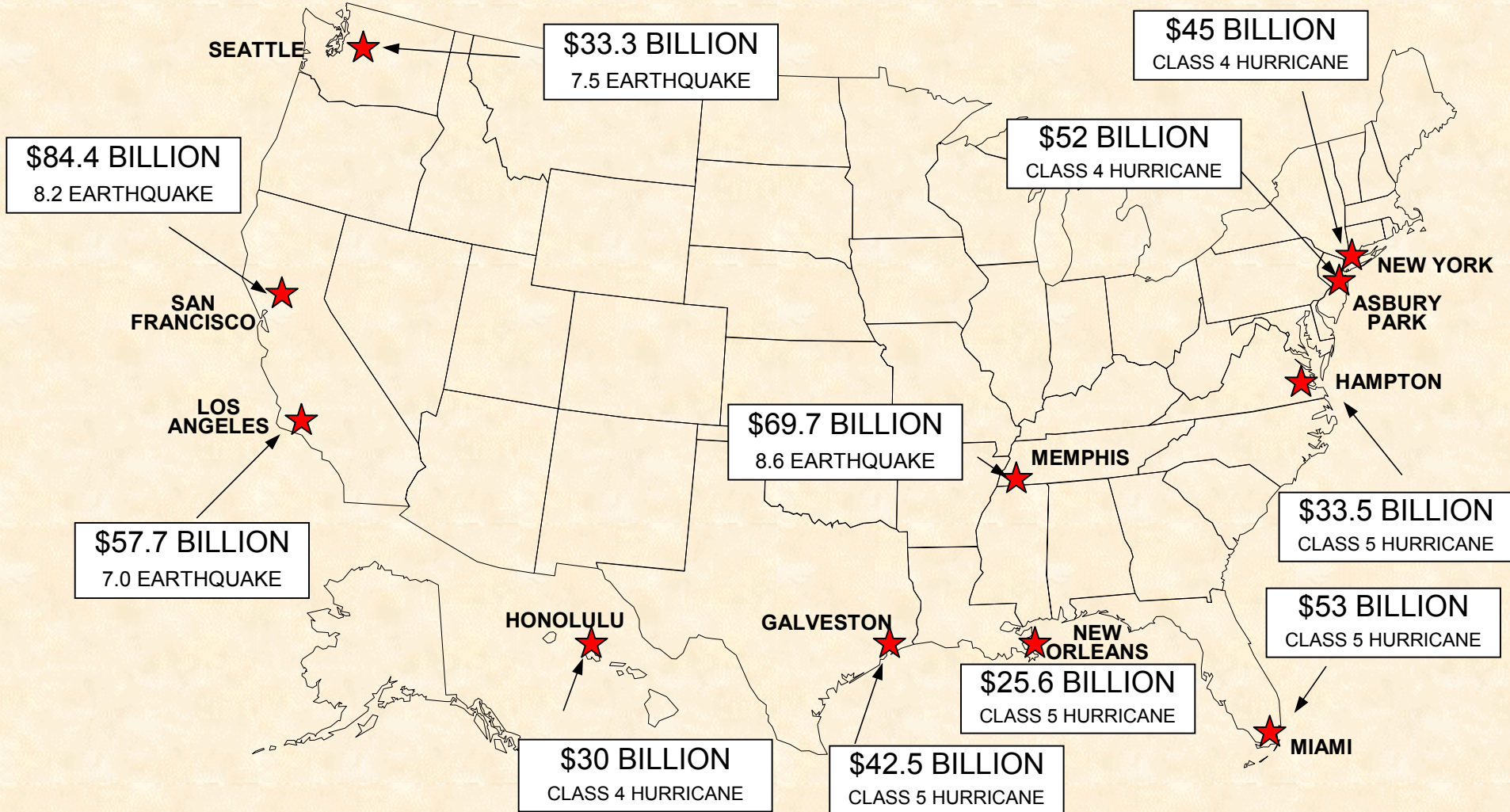


No Shortage of Potential Disasters in U.S. *(by insured loss)*



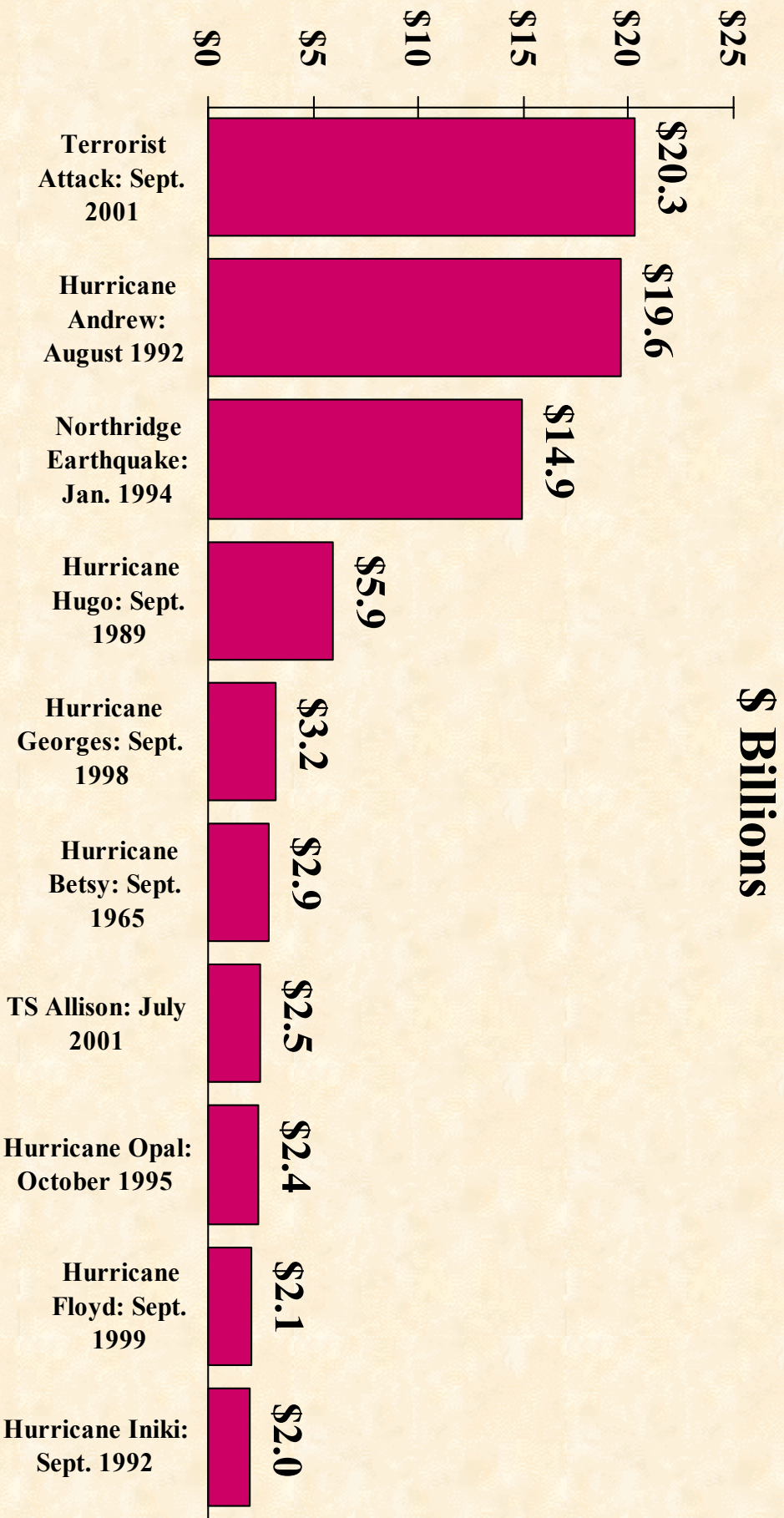


Probable Costs of Future U.S. Natural Disasters





10 Costliest Disasters in U.S. History (by insured loss)



Source: Insurance Services Office, Insurance Information Institute.

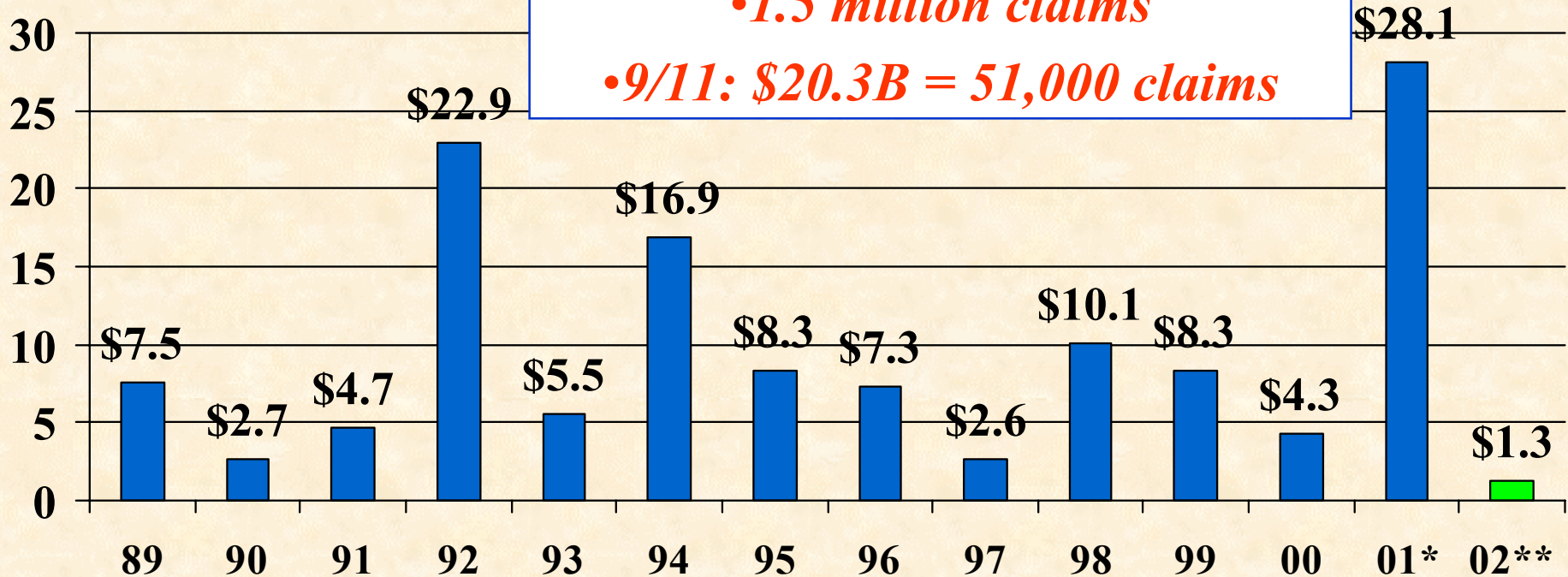


U.S. Insured Catastrophe Losses

\$ Billions

CAT Losses for 2001 Set a Record

- 20 events (lowest since 1969)
- 1.5 million claims
- 9/11: \$20.3B = 51,000 claims

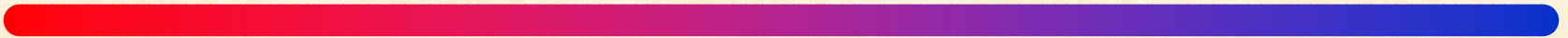


*Includes \$20.3B for 9/11 losses estimated by ISO/PCS as of 6/18/02. Includes only business and personal property claims, business interruption and auto claims.

**Through April 2002.

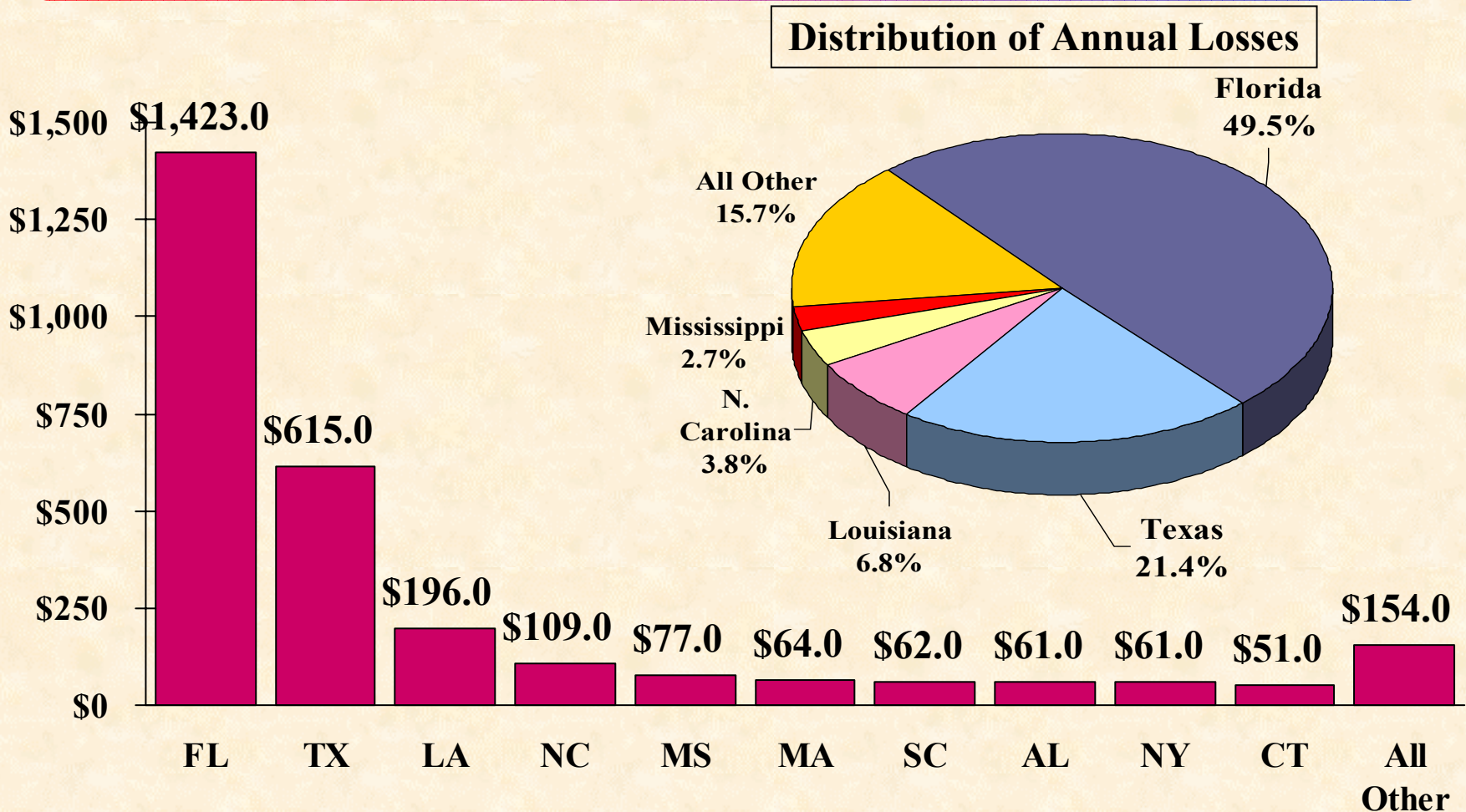
Source: Property Claims Service, Insurance Information Institute

How Exposed is Florida Today?





Average Annual Insured Losses* (Top 10 States, \$ Millions)



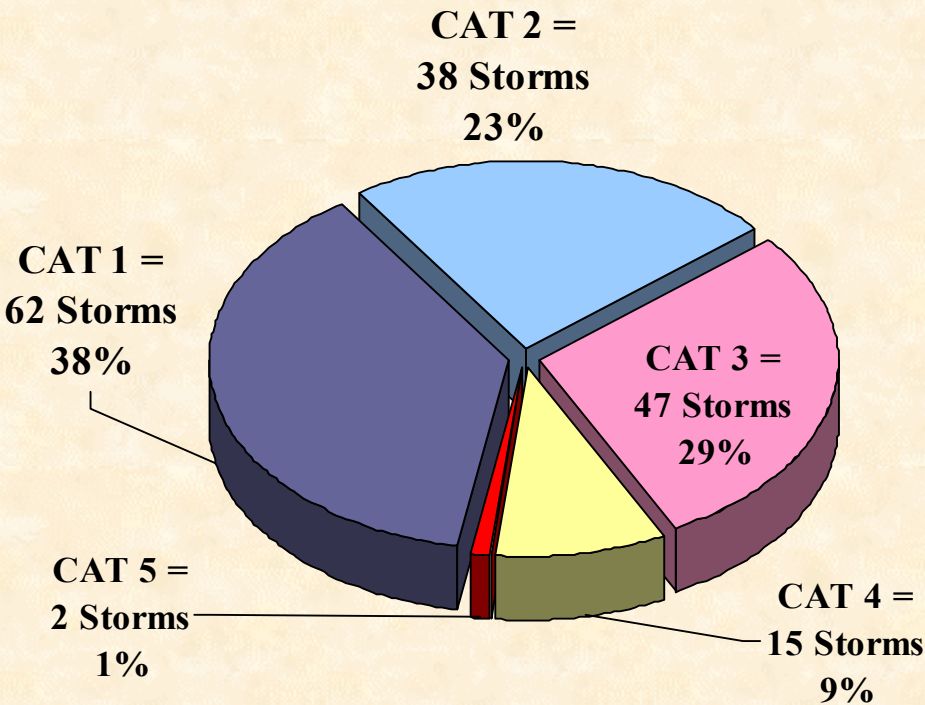
*Normalized losses adjusted for inflation, housing density, wealth and wind insurance coverage, based on historical data for 100-year period 1900-1999.

Source: Tillinghast-Towers Perrin

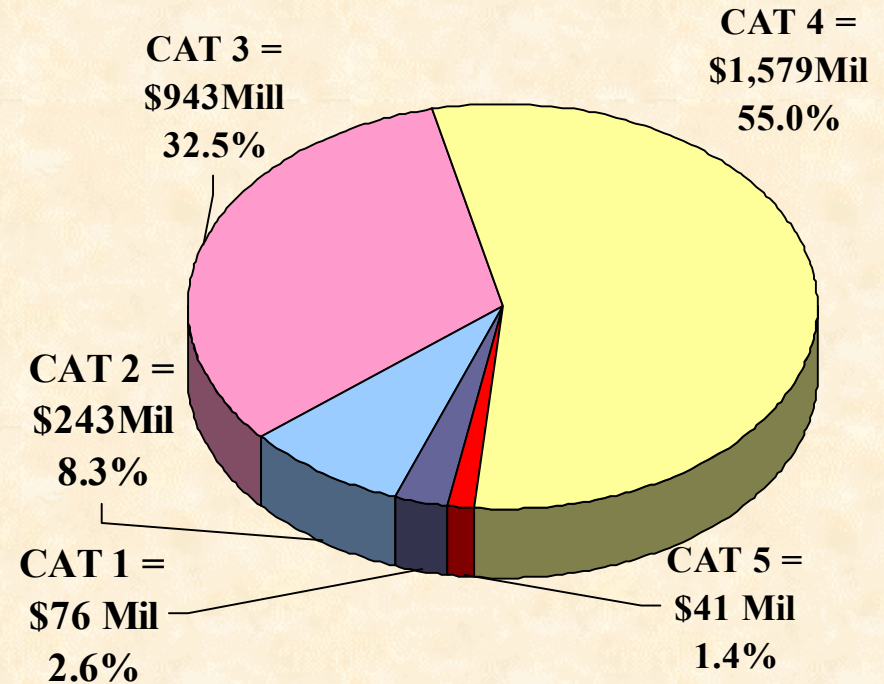


Hurricanes Making Landfall During the 20th Century

Frequency



Cost*

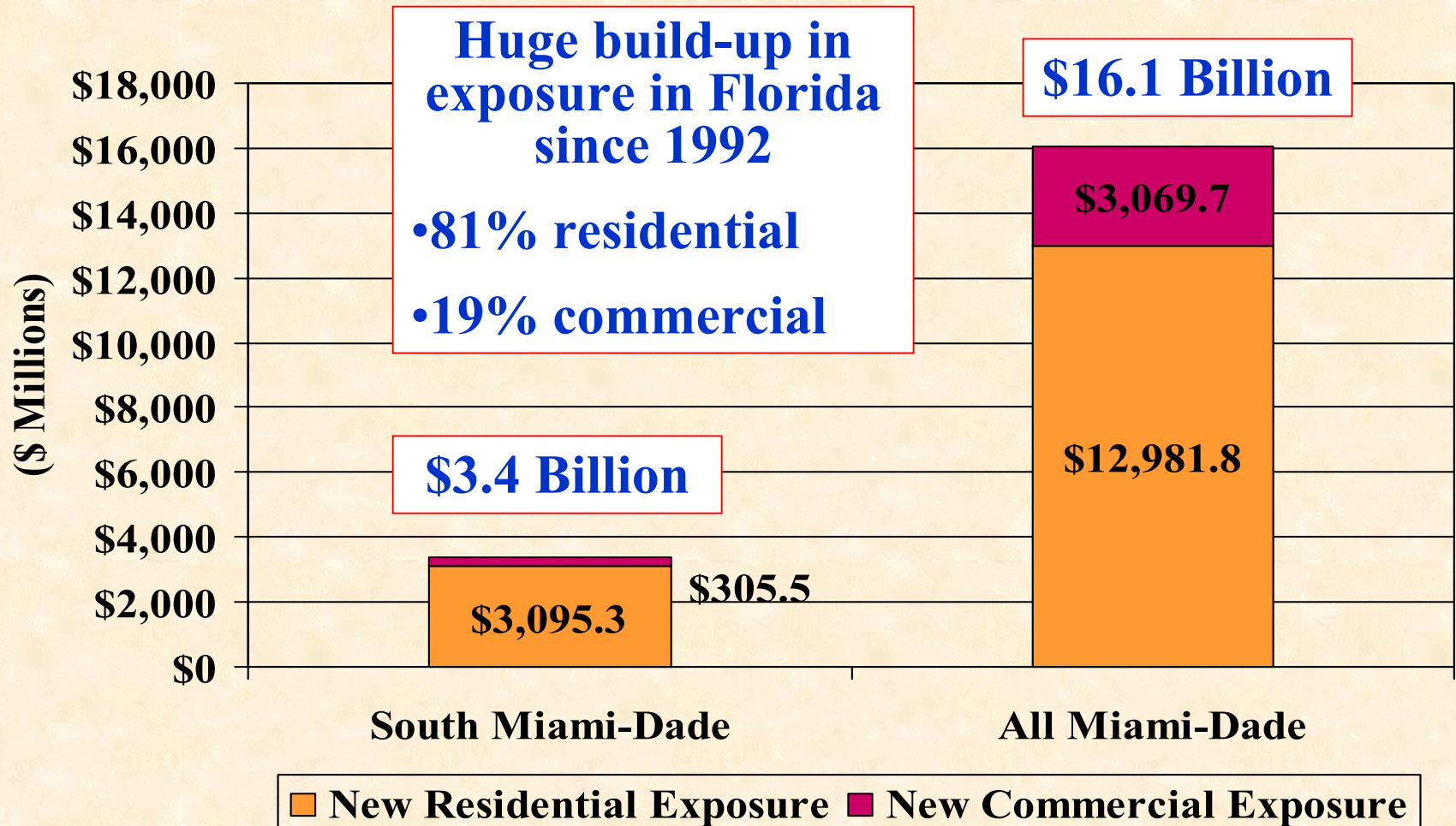


*Normalized to adjusted for inflation, housing density, wealth and wind insurance coverage.

Source: Tillinghast-Towers Perrin



Estimated New Construction in Miami-Dade County, 1992-2001





Estimated New Construction Miami-Dade County, Florida

South Miami-Dade was designated the county's high-impact zone following Hurricane Andrew. Estimates include construction from 1992 through 2001

South Miami Dade

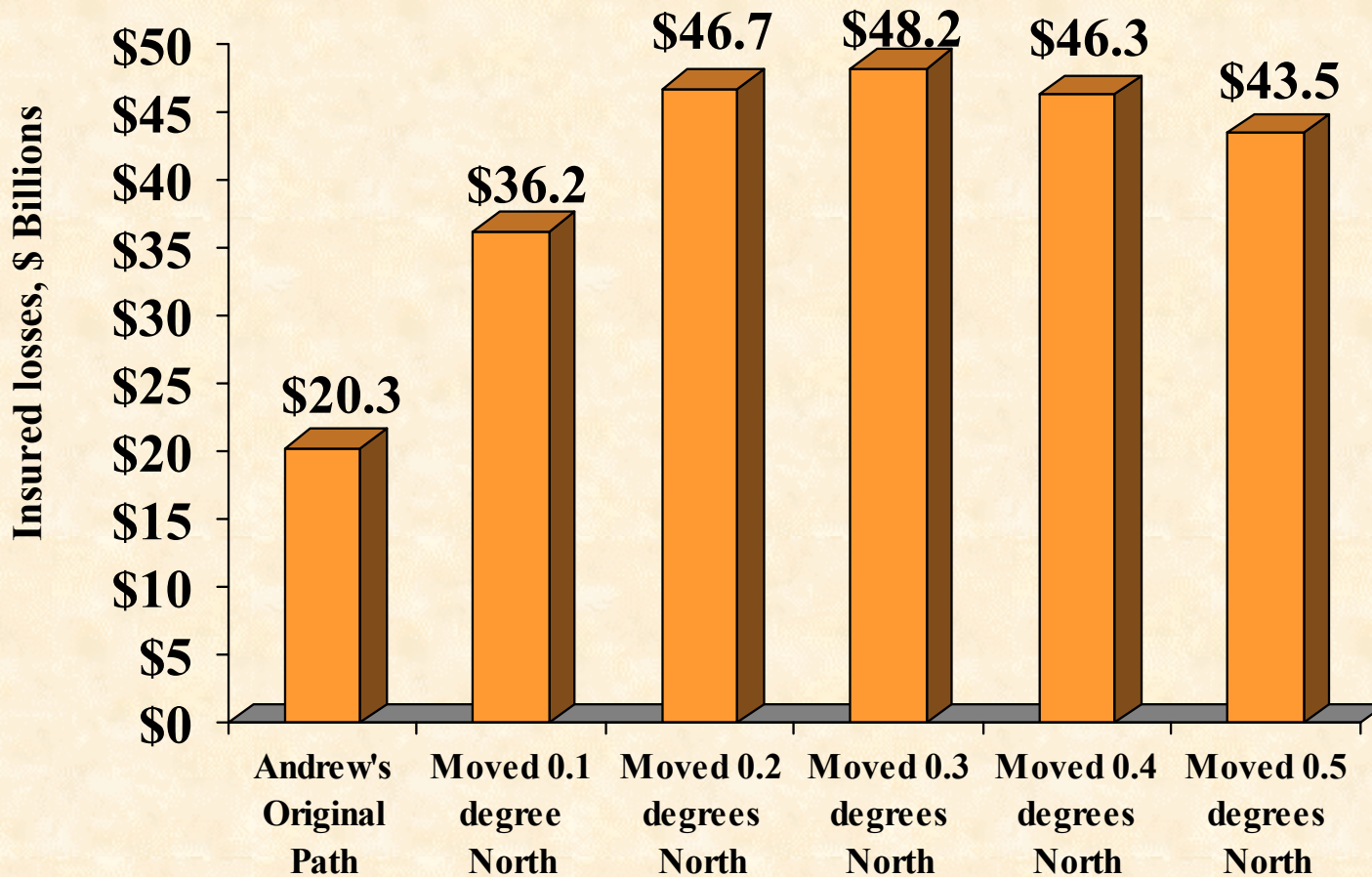
New Residential Exposure (Construction)	\$3,095,273,681
New Commercial Exposure (Construction)	\$305,492,393

All Miami-Dade

New Residential Exposure(Construction)	\$12,981,843,085
New Commercial Exposure(Construction)	\$3,069,654,106



Insured Losses in Florida if Hurricane Andrew Hit Today



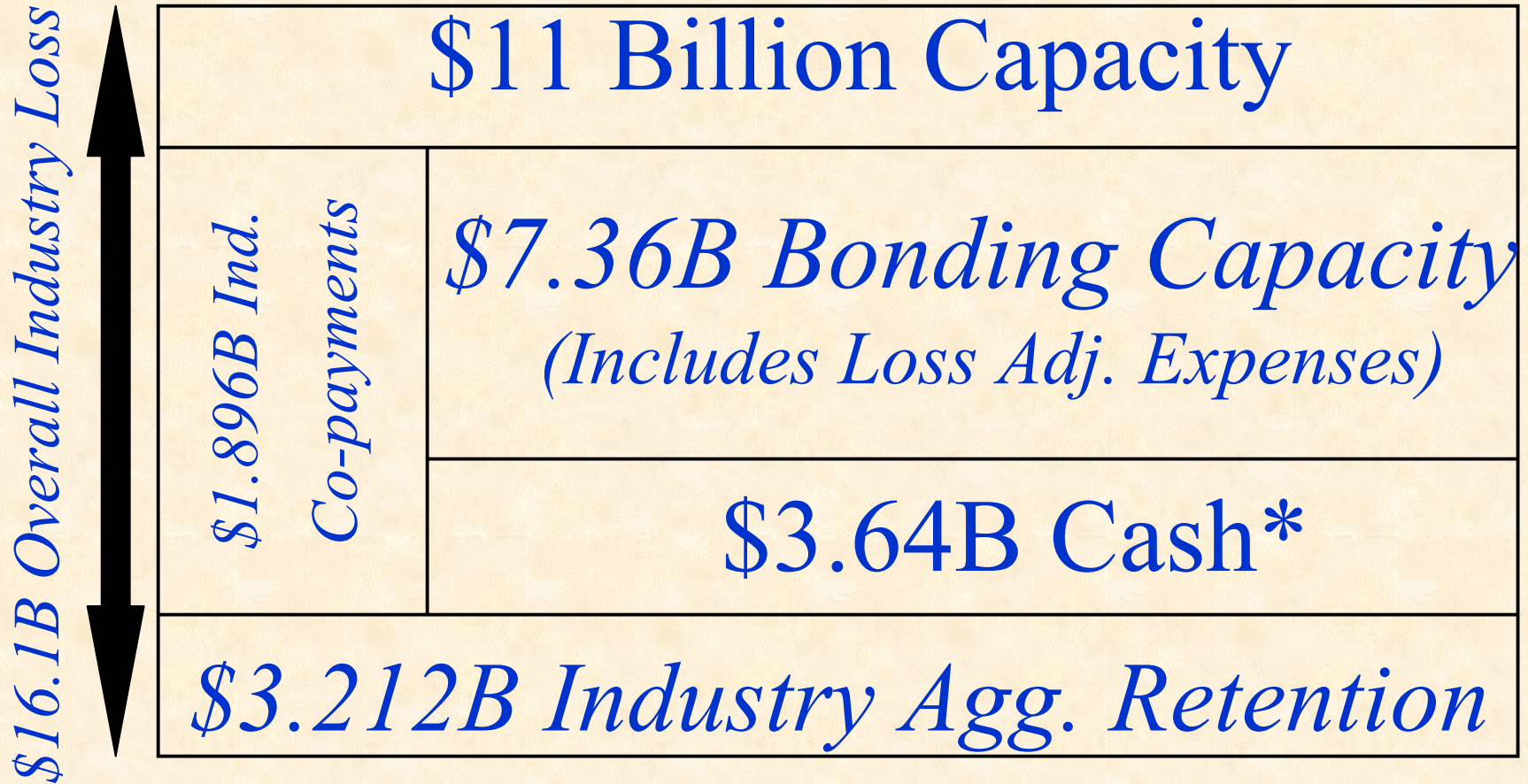
•Each 0.1 degree equals about 7 miles

•A path of 0.3 degrees north of Andrew's original location would create a direct hit on Miami

•Estimates are losses in today's dollars after application of deductibles.



2000 Capacity of Florida Property Insurance Market

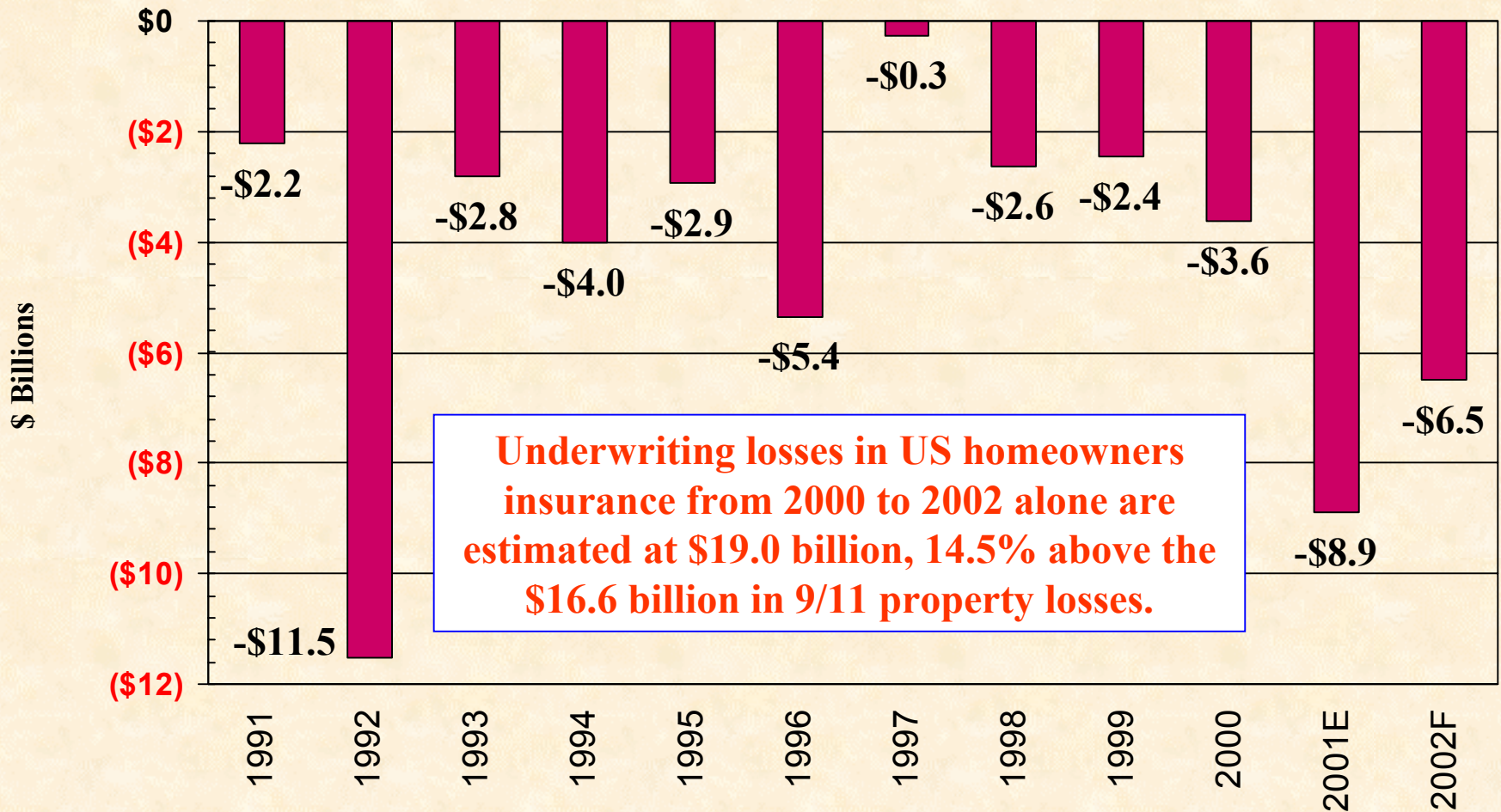


***Projected for year-end 2000**

Source: Florida Hurricane Catastrophe Fund

Insurers Not Anxious to Assume Wind Risk in FL:

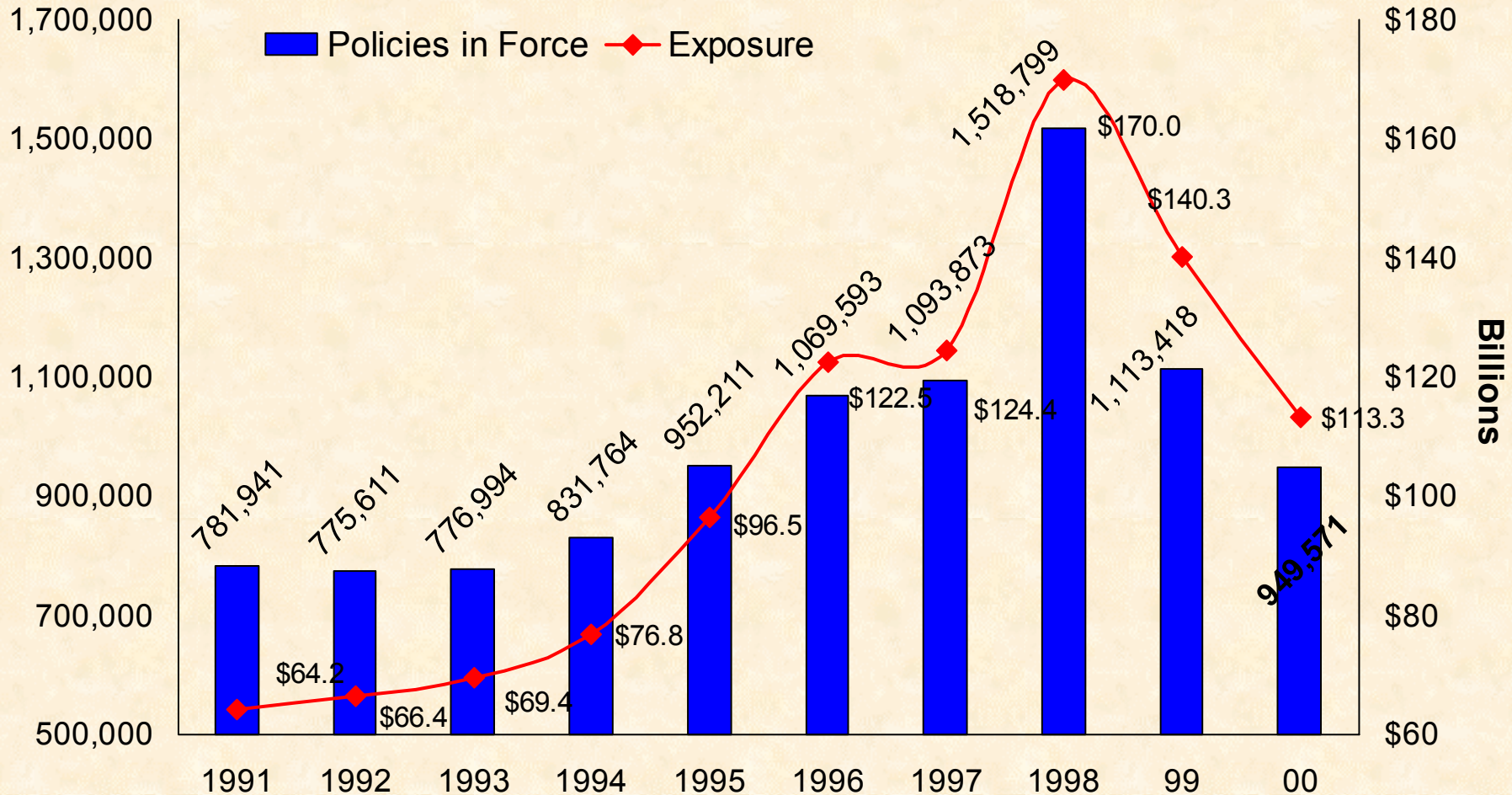
U.S. UW Loss in HO Insurance, 1991-2002F





Policies & Exposure: US Residual Market Plans

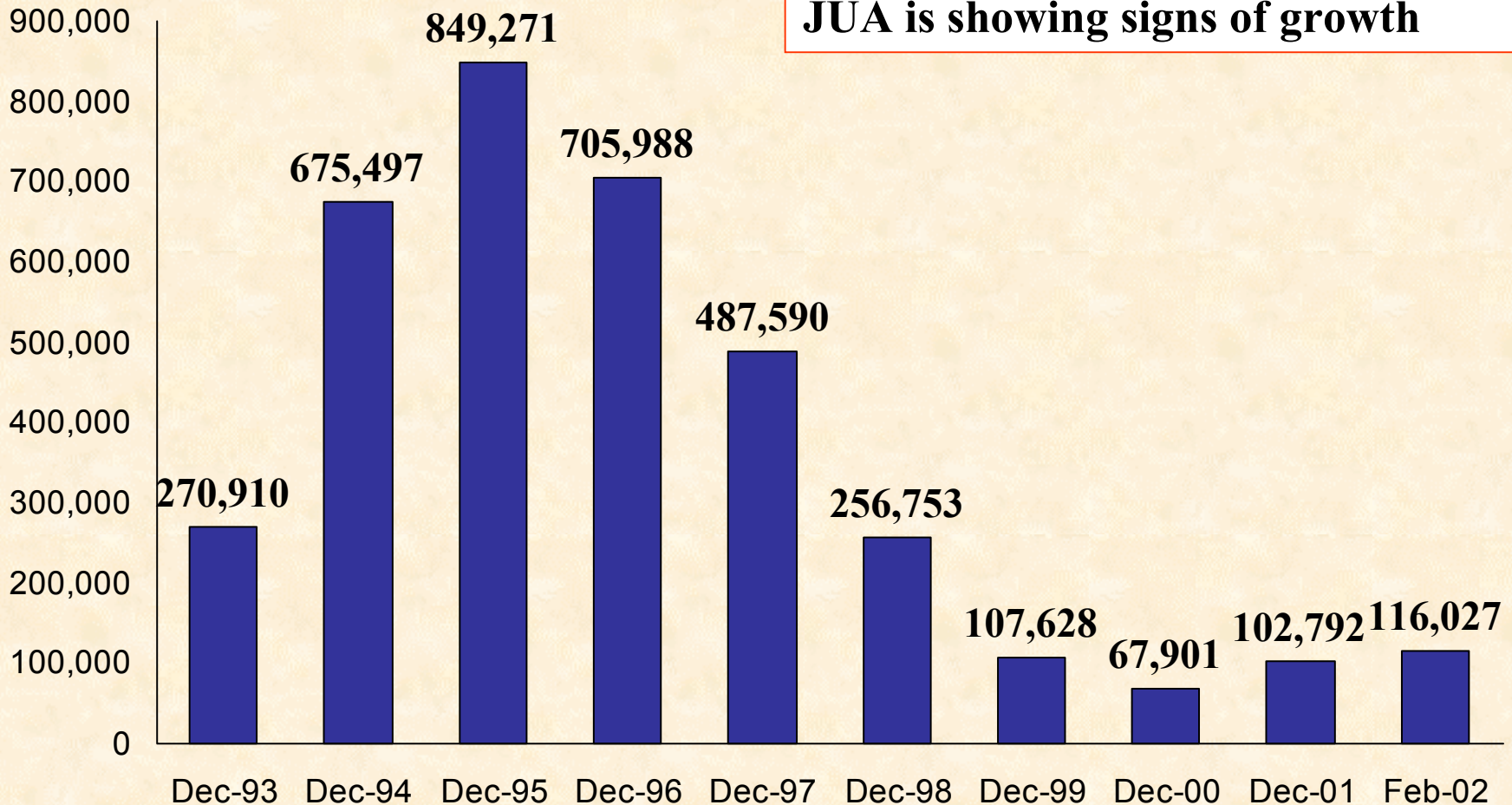
FAIR Plans



Source: Insurance Information Institute, PIPSO



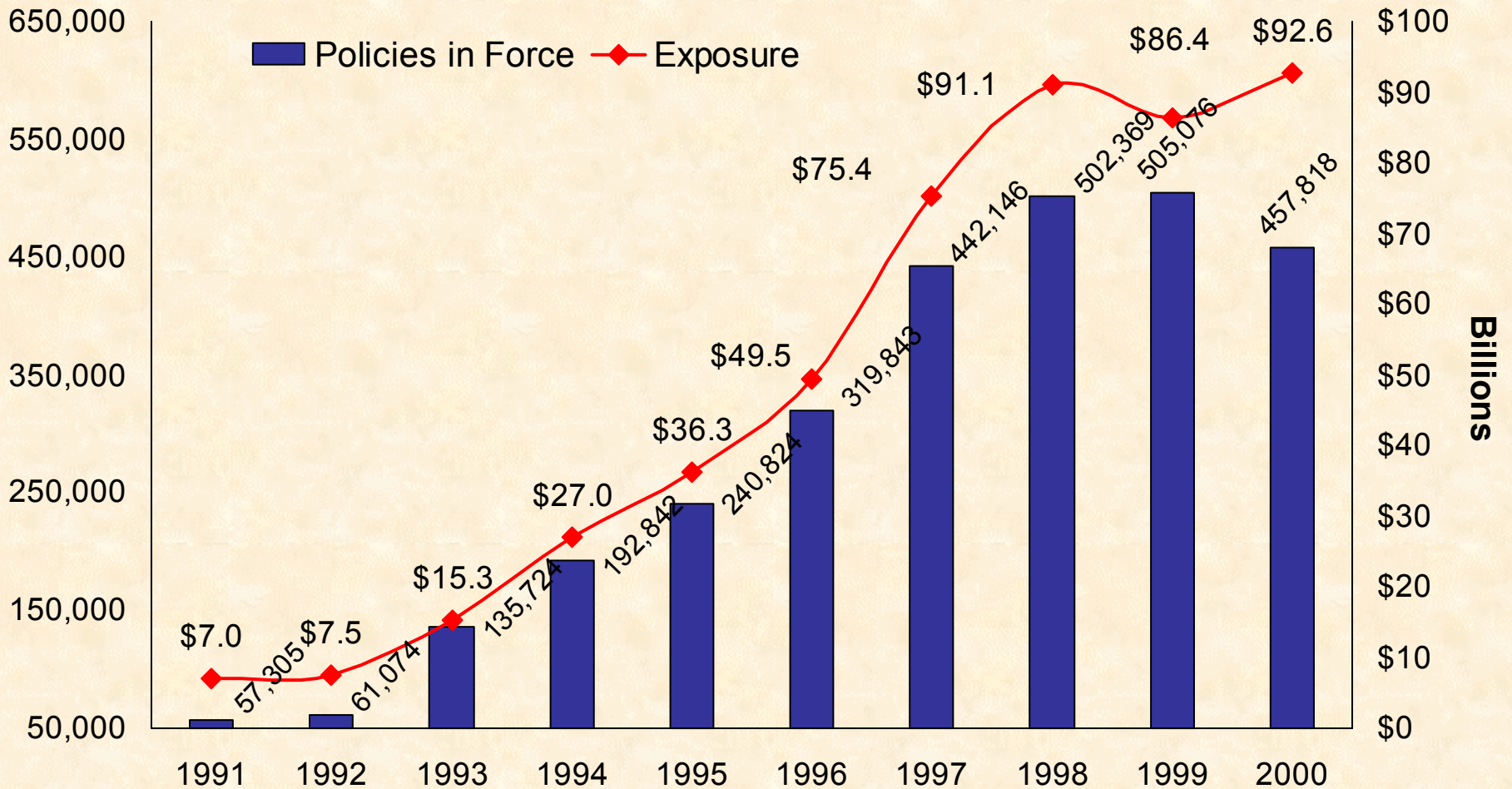
Policies in Force: Florida P/C JUA



Source: Insurance Information Institute, PIPSO



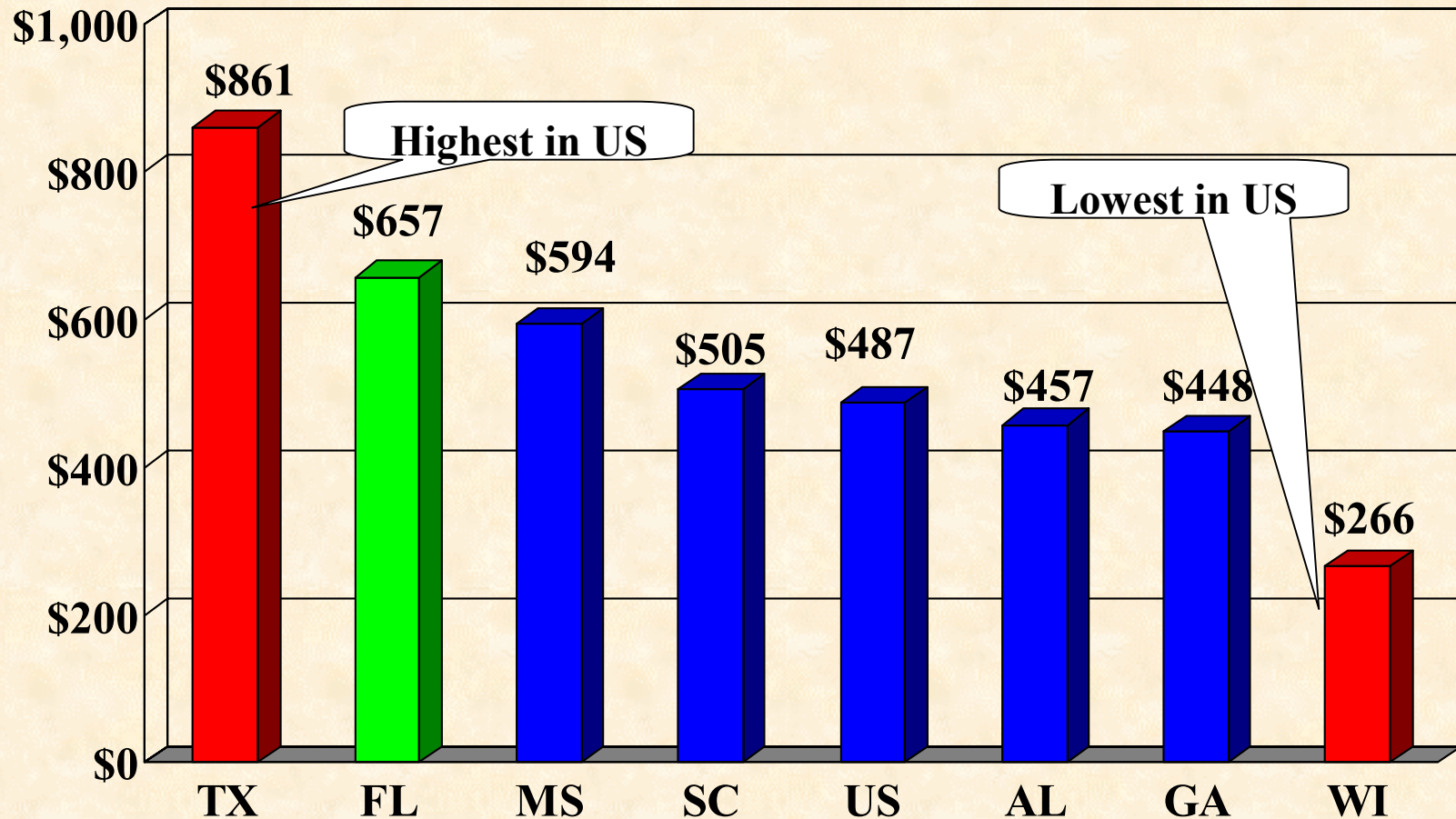
Florida's Windstorm Underwriting Association



Source: Insurance Information Institute, PIPSO



Southeast States Homeowners Insurance Premiums vs. US



Source: Insurance Information Institute from NAIC Data, 1999.

5% Business Closure Scenario

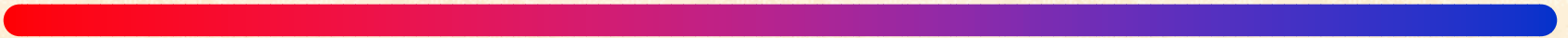




Figure 3A: 5% Hurricane Closure Scenario

Number of Business Closures

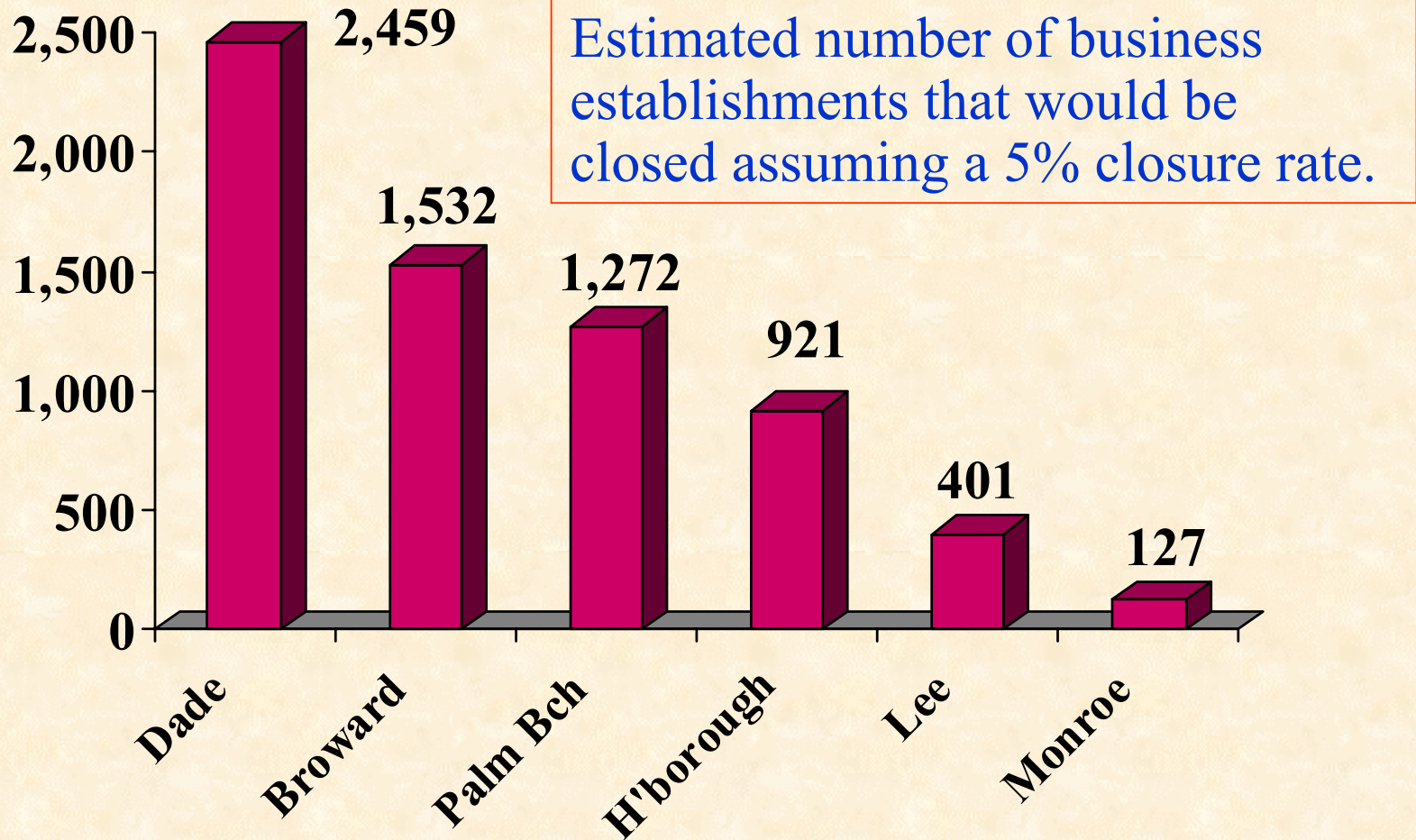




Figure 3B: 5% Hurricane Closure Scenario

Sales Lost

Estimated sales losses assuming a 5% establishment closure rate.

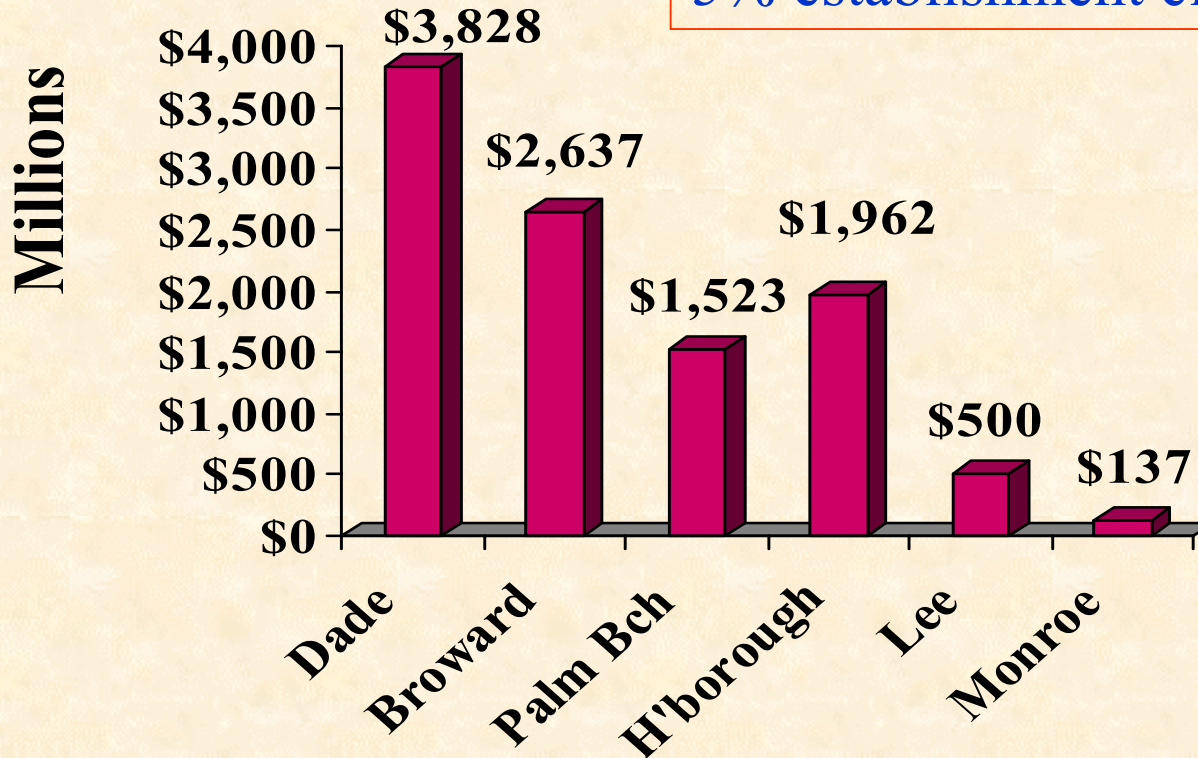




Figure 3C: 5% Hurricane Closure Scenario

Sales & Use Tax Losses

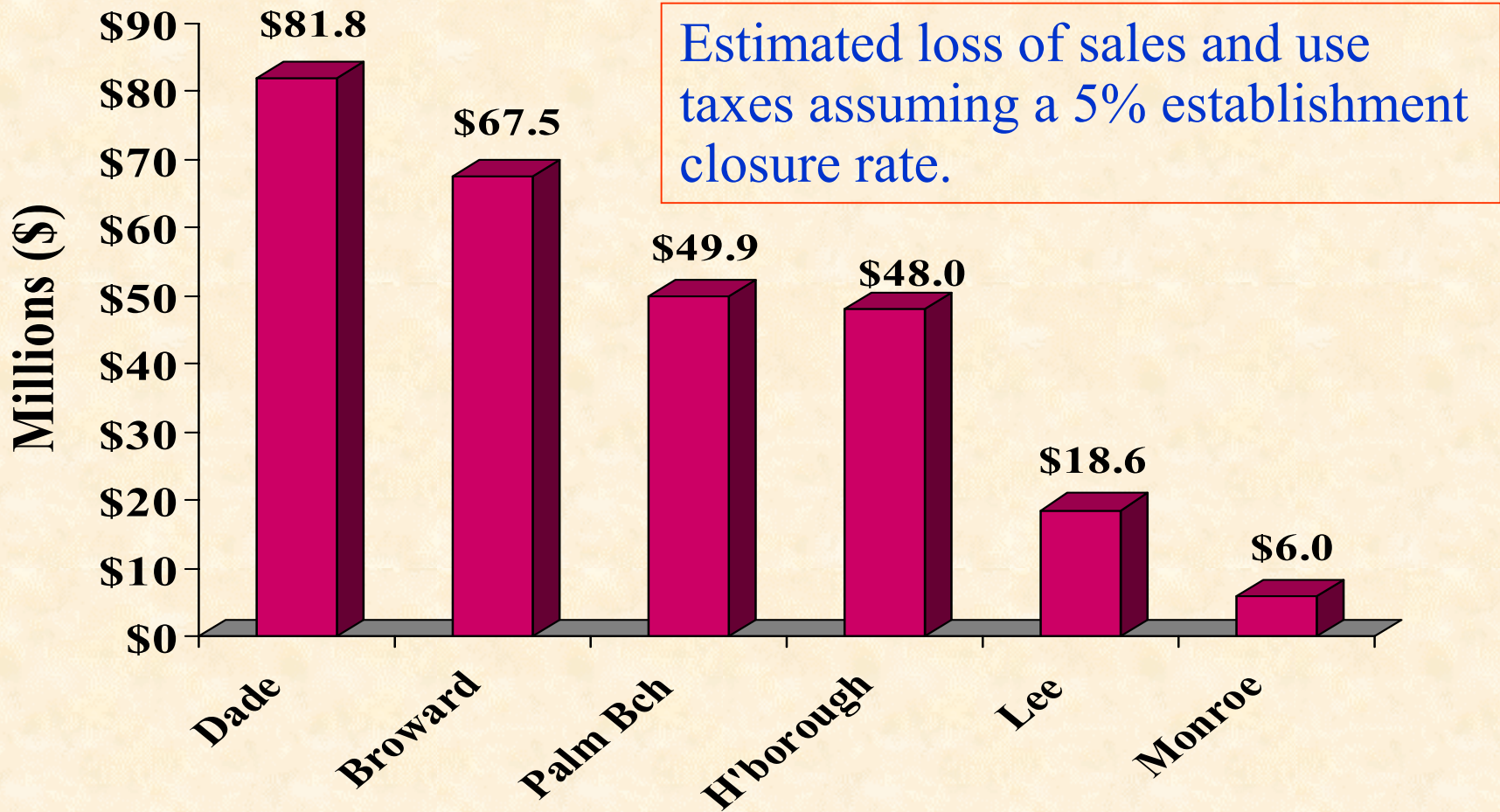




Figure 3D: 5% Hurricane Closure Scenario

Payroll Losses

Estimated payroll losses assuming a 5% establishment closure rate.

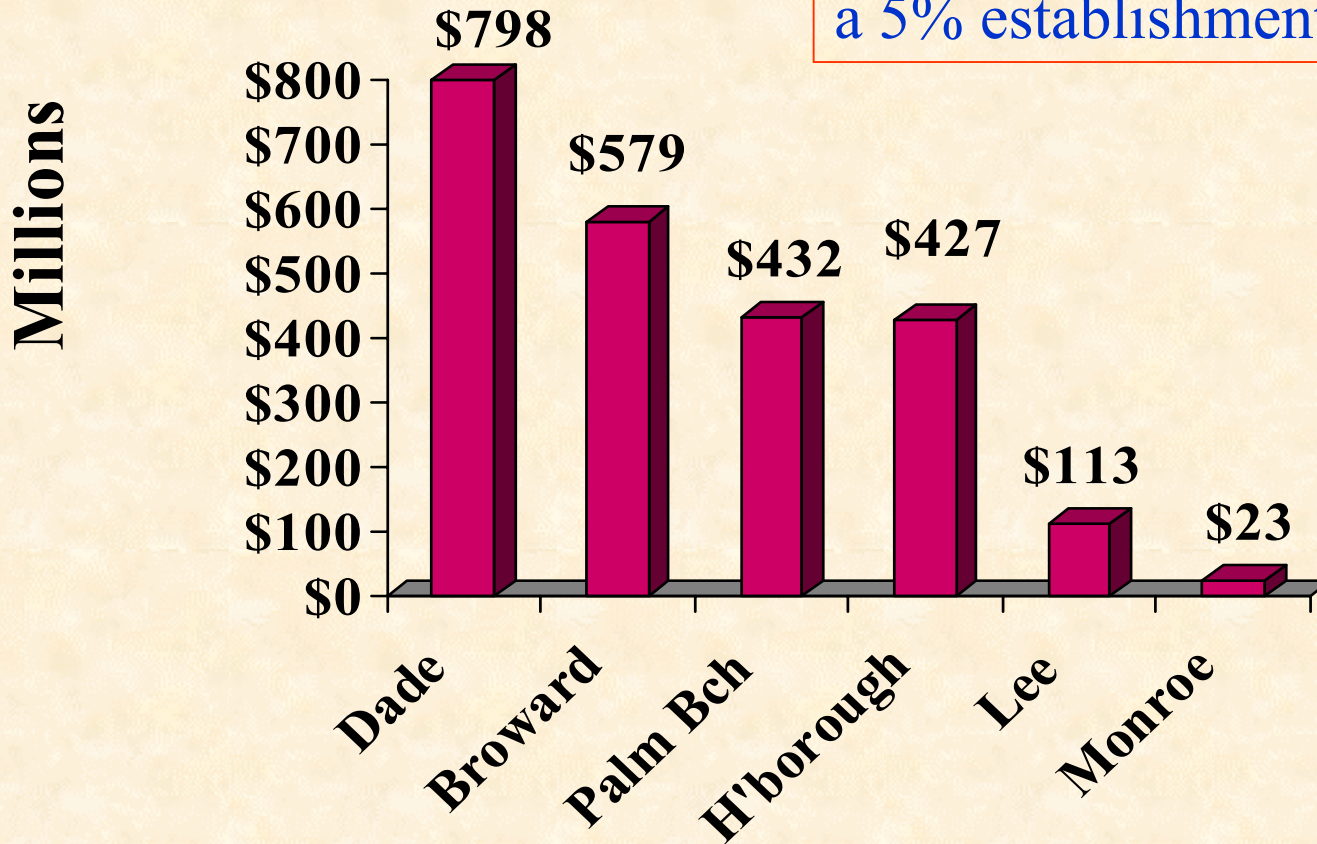




Figure 3E: 5% Hurricane Closure Scenario

Job Losses

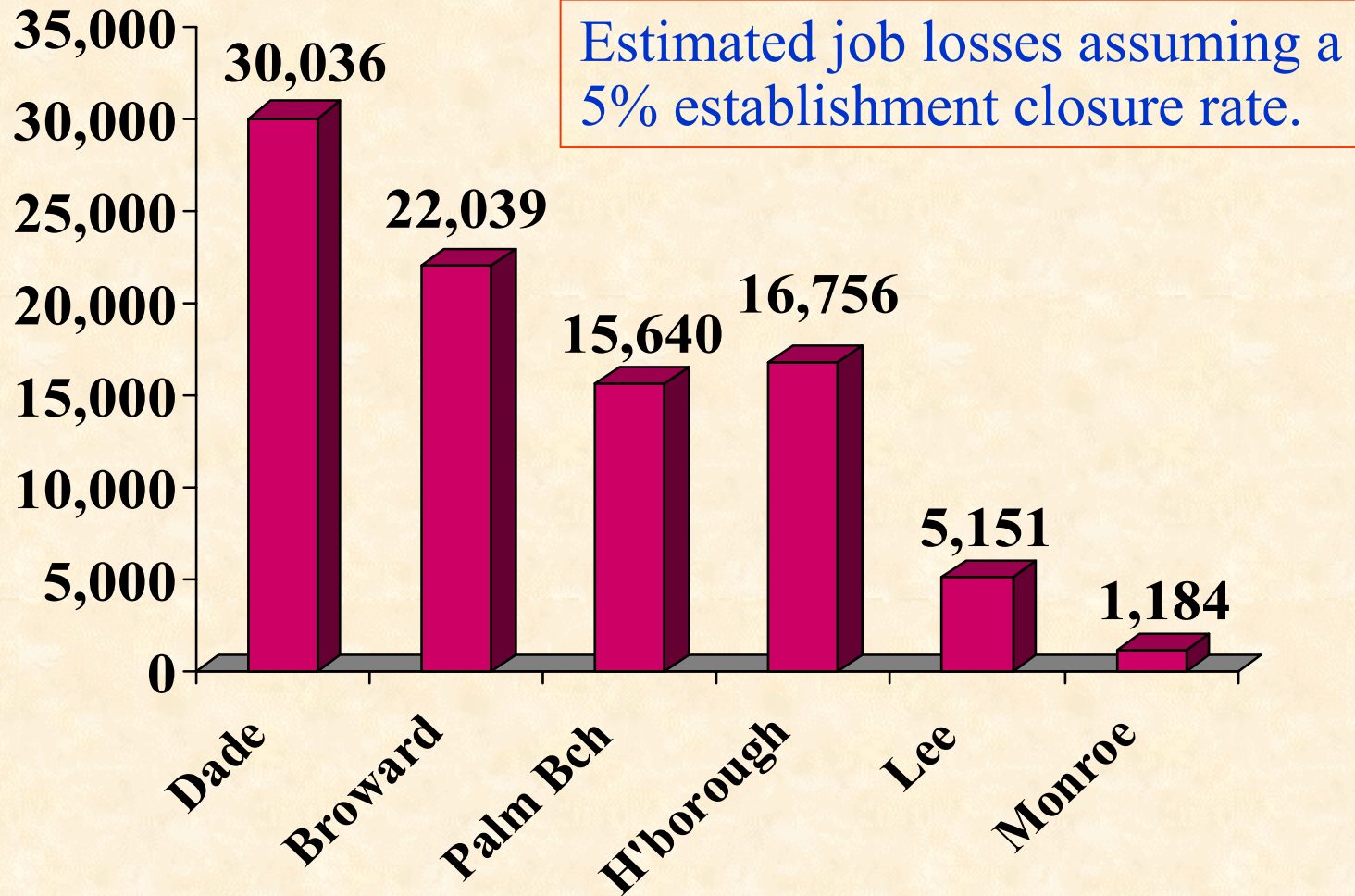
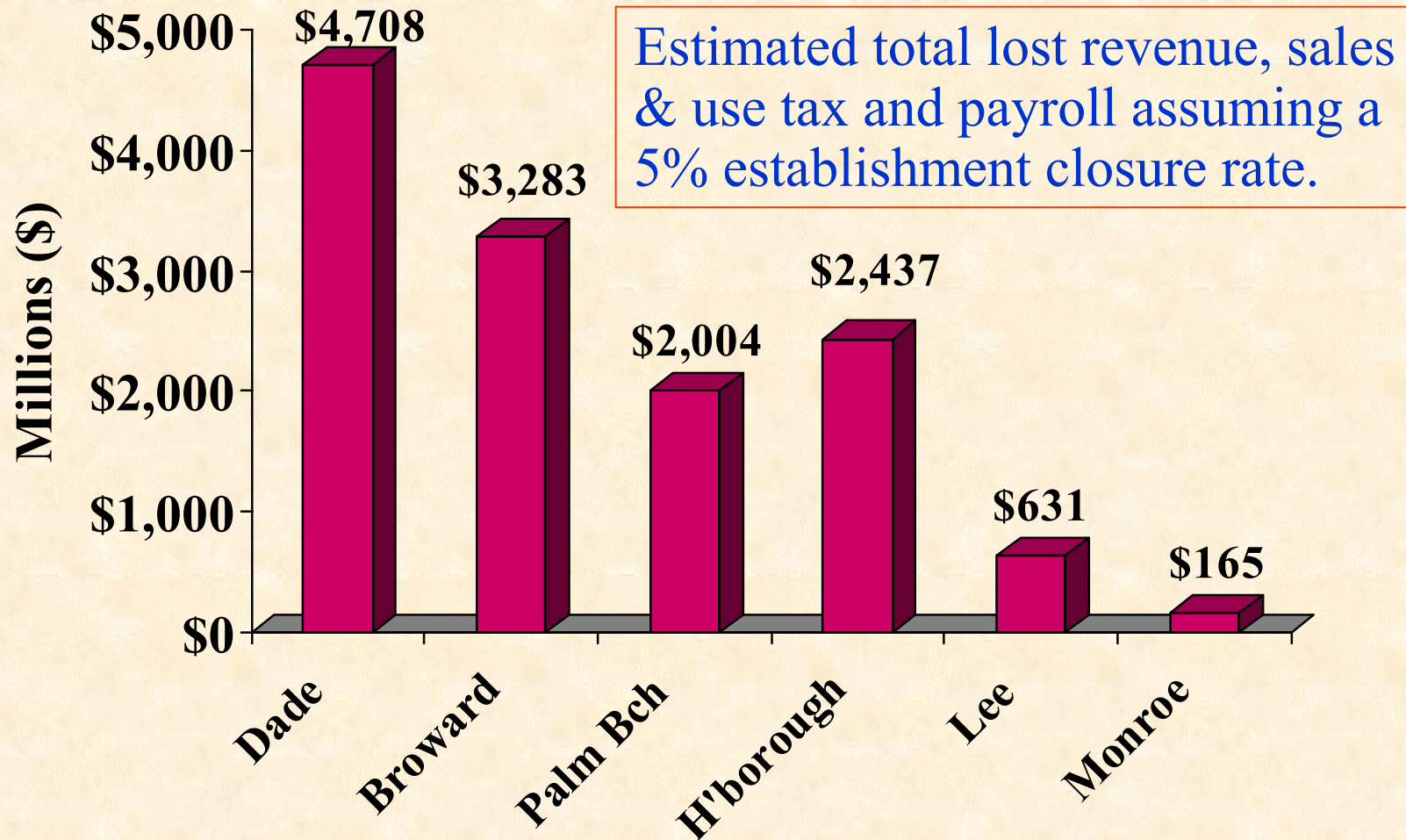




Figure 3F: 5% Hurricane Closure Scenario

Total Losses



*10% Business
Closure Scenario
(approximates Hurricane
Andrew experience in 1992)*

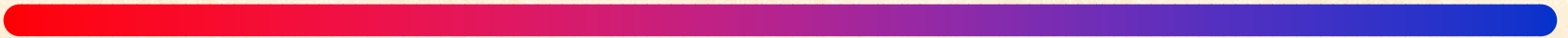




Figure 4A: 10% Hurricane Closure Scenario

Number of Business Closures

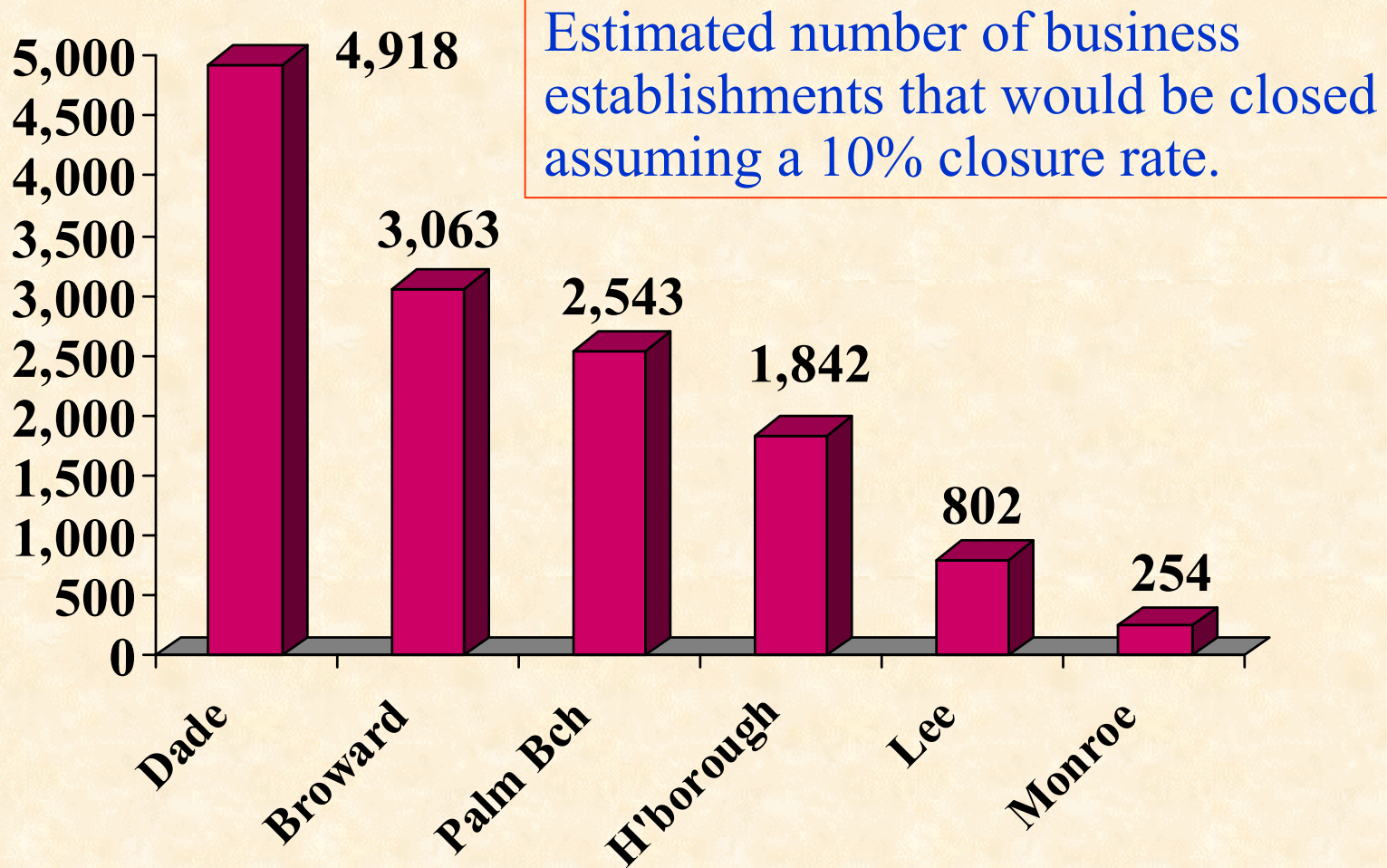


Figure 4B: 10% Hurricane Closure Scenario *Sales Lost*

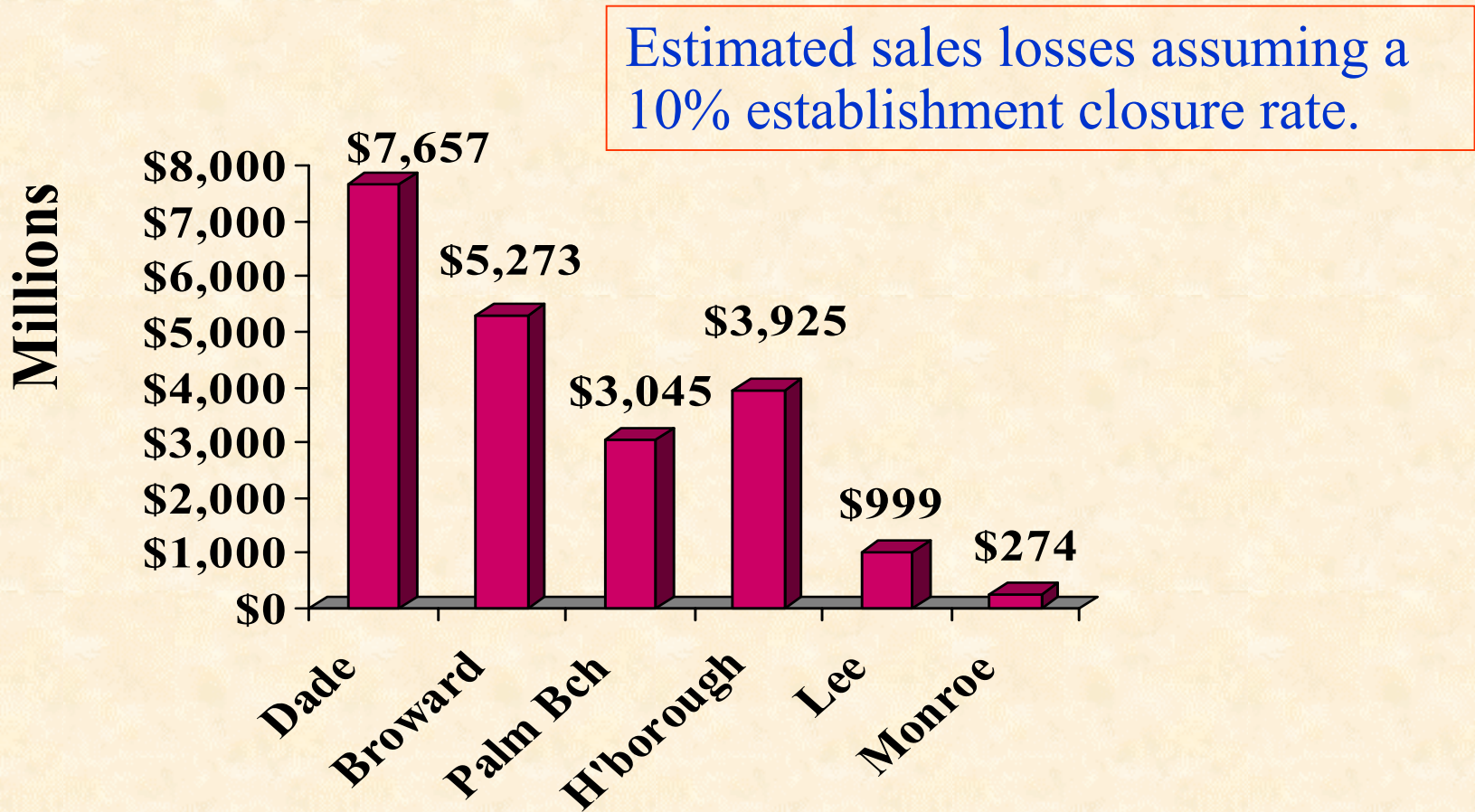




Figure 4C: 10% Hurricane Closure Scenario

Sales & Use Tax Losses





Figure 4D: 10% Hurricane Closure Scenario

Payroll Losses

Estimated payroll losses assuming a 10% establishment closure rate.

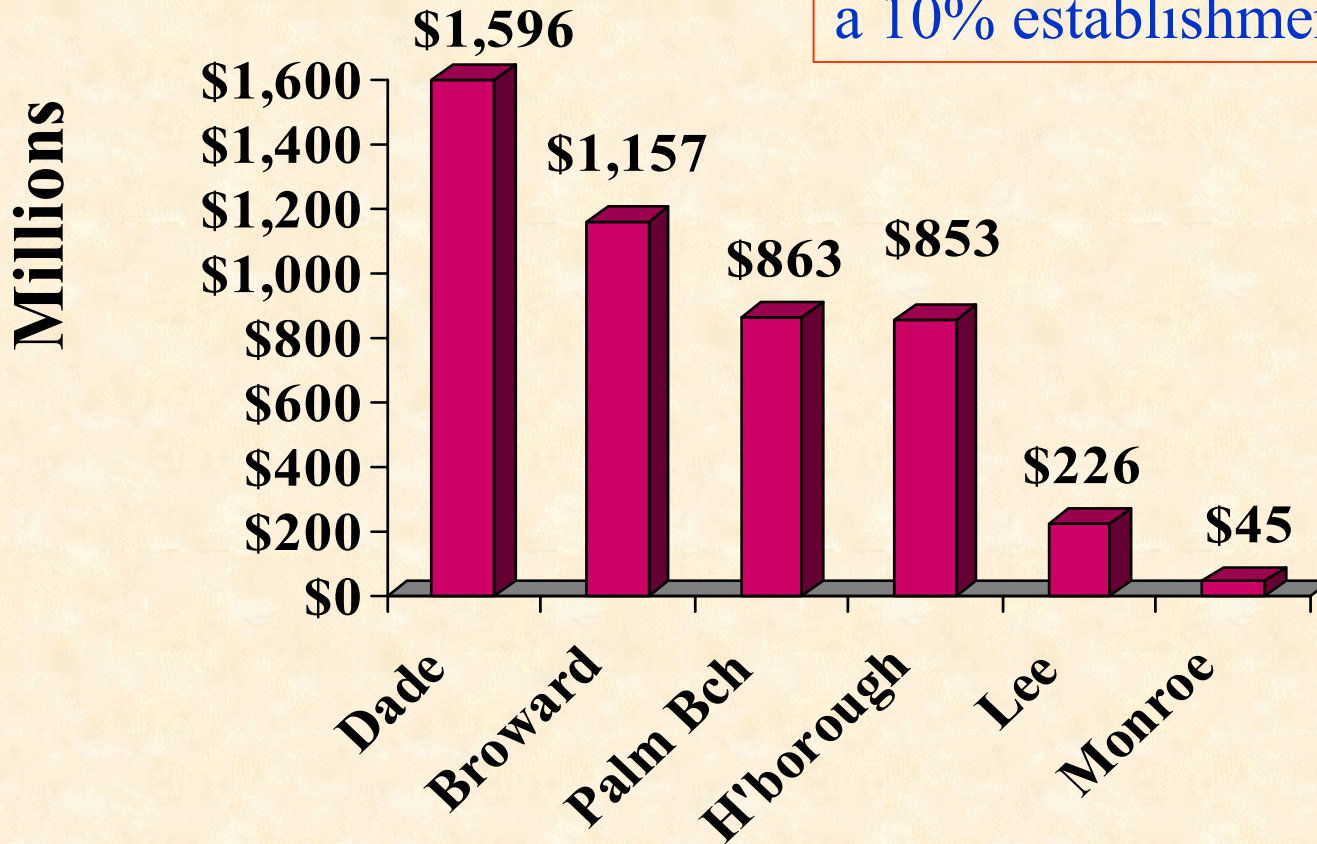




Figure 4E: 10% Hurricane Closure Scenario

Job Losses

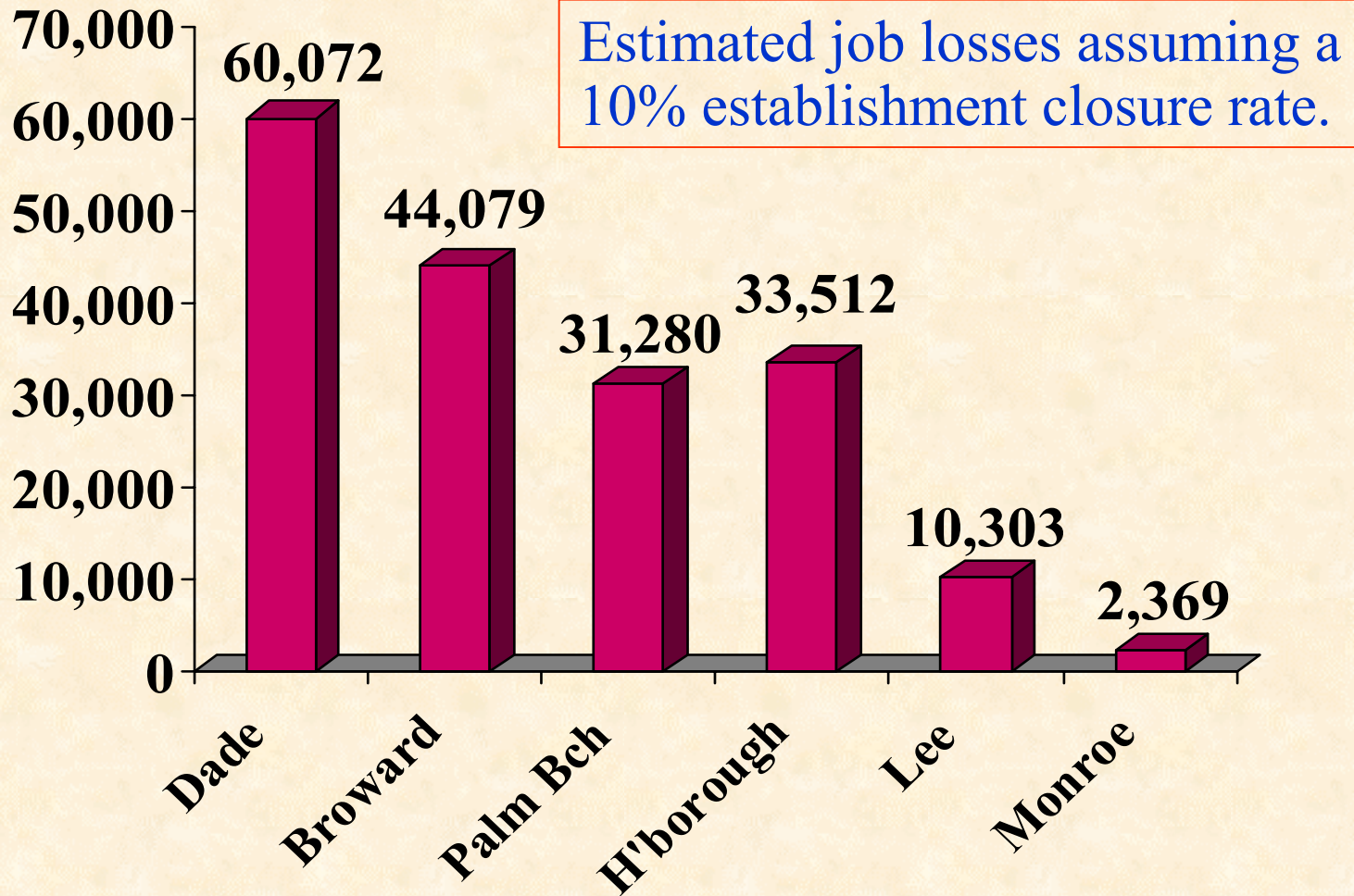
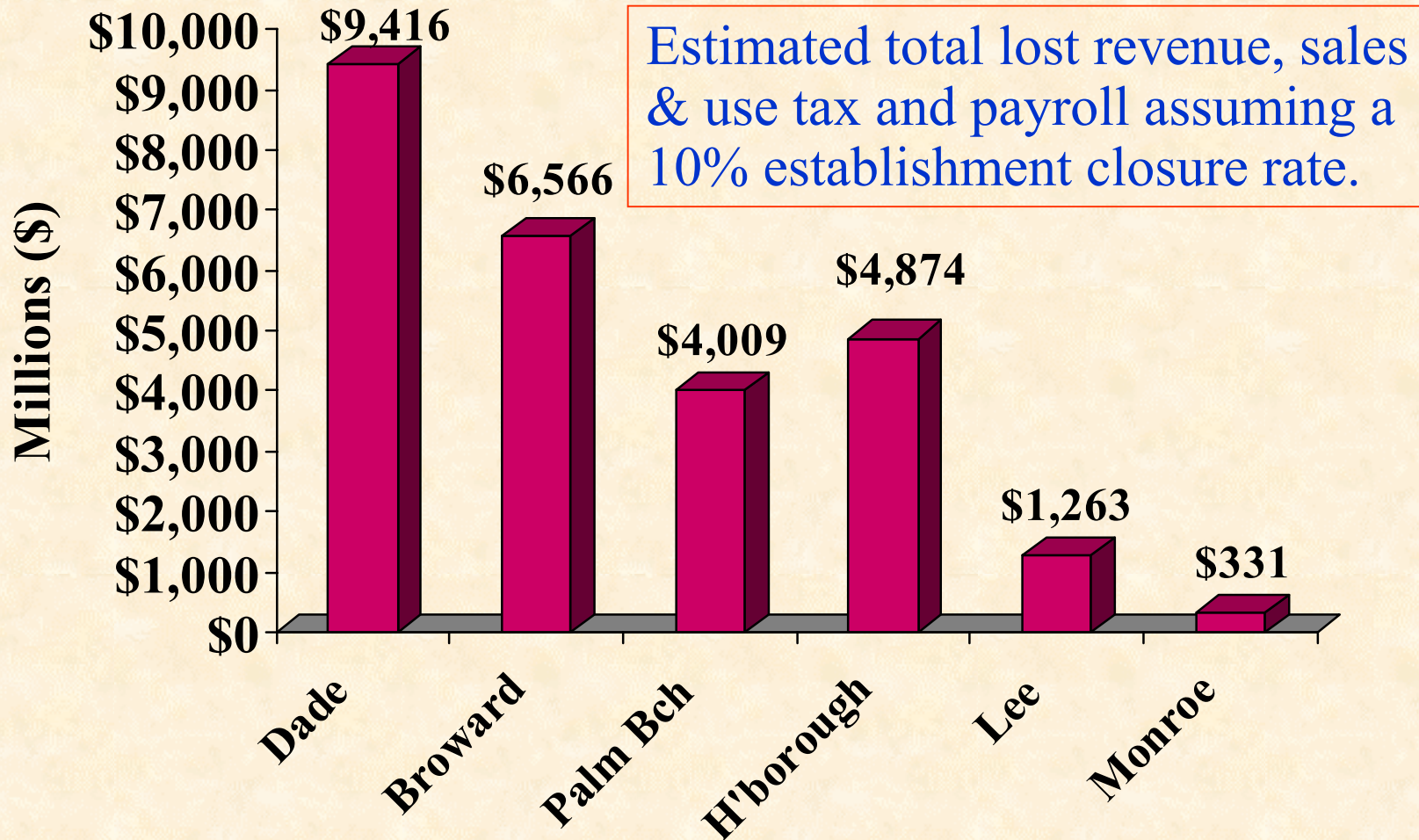




Figure 4F: 10% Hurricane Closure Scenario

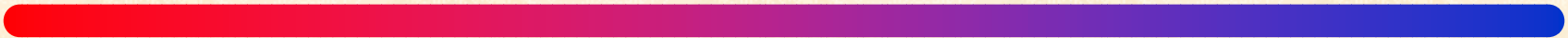
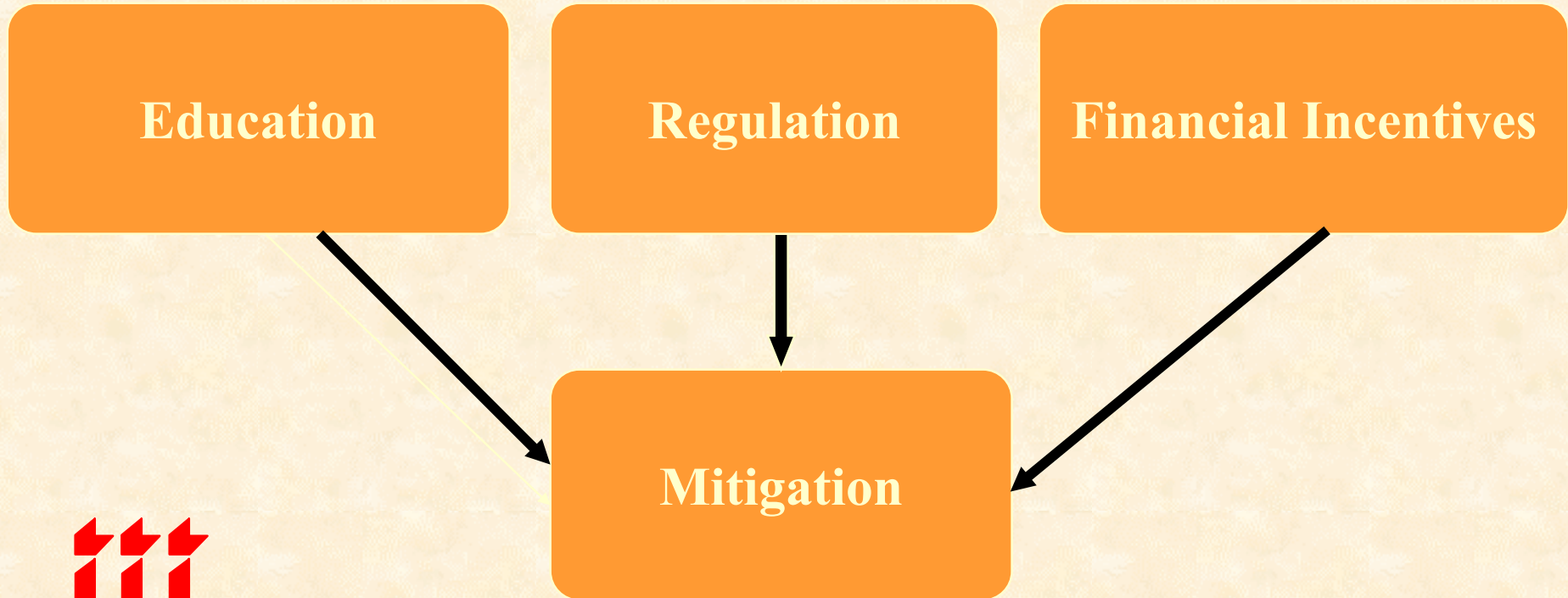
Total Losses



*Has Florida Learned Anything
over the Past Decade?*



Mitigating Catastrophe Risk





Regulation:

Timeline for Florida Building Code

1926

A disastrous hurricane strikes Florida's greater Miami area, leading to the adoption of construction standards.

1974

Florida adopts statewide minimum standards for construction

1957

Adoption of South Florida Building Code in Dade County. The code originated with the Uniform Building Code of the International Conference of Building Officials

1970s-1990s

Florida experiences a building boom. Nearly 70% of buildings in Broward and Palm Beach counties are erected between 1970 and 1992

1992

Andrew, a Category 4 hurricane with gusts up to 175 mph, devastates South Florida, exposing weaknesses in the building code and construction industry. A survey by the *Sun Sentinel* showed that nearly all the homes inspected that had construction flaws were built between 1975 and 1992, during the peak of South Florida's residential growth. A survey conducted to identify code violations and construction deficiencies concluded that the majority of failures were attributed to noncompliance with the prescriptive requirements of the area building code

1994

The code used in Broward and Miami-Dade counties adopts tougher standards for walls, roofs, windows and shutters.

1996

The Florida Building Code Commission is formed to evaluate the existing system and recommend ways to improve it. In 1997, it concluded that the state needed a single code.

1998

The commission adopts a Standard Building Code as a base rulebook and sets out to define a uniform building code for Florida

2002

The unified building code goes into effect.

Since Andrew, South Florida's most effective mitigation effort has been an overhaul of construction standards. Counties have instituted strict testing and approval for all building products, so materials are more likely to withstand hurricane-force winds and other pressures. Contractors must follow stricter construction guidelines and install certain approved products on homes and businesses. Hurricane shutters must pass stringent impact and wind tests.

Source: Best's Review, June 2002 (Risk Management Solutions)



What Insurers are Doing: Education

- Most insurers have catastrophe safety information on their web sites:
- Similar information available through trade associations:
 - Insurance Information Institute: www.iii.org
 - Institute for Building and Home Safety: www.ibhs.org



What Insurers are Doing: Education (continued)

Mitigation of Property Damage

- *Secondary issue in earthquakes (though not mutually exclusive from preservation of life)*
- Excellent information available from IBHS

Buying appropriate catastrophe coverage

- III good source of information
- Banks/agents sometimes weak link in chain
- Lessons from Floyd: Flood insurance, windstorm deductibles

What Insurers are Doing: Education

**Available free from IBHS at
www.ibhs.org**

Is Your
Home
Protected

From
Earthquake
Disaster?

A Homeowner's Guide
to Earthquake Retrofit

• **Also from IBHS** *“Open for Business: Disaster Recovery Guide for Small Business”*

• **III Brochures/web**: *“Am I Covered: Common Questions Asked by Homeowners about Insurance”*

“Settling Insurance Claims after a Disaster”

“Insuring Your Business Against a Catastrophe”





What Insurers are Doing: Mitigation

- Sponsor research (and education) through IBHS and other organizations
- Support state and local efforts to strengthen building codes (ISO BCEGS Program):
 - **Building Code Effectiveness Grading Schedule**



Financial Incentives

- Discounts
- Mandatory 2% wind deductibles
- Higher premiums
- Excluding wind
- Refusal to write beachfront properties



Running Against the Wind?

Is Florida in Denial

- Serious Obstacles to Reducing CAT Losses in FL
 - *Unwillingness to significantly alter land use policies*
 - *No risk-based lending practices*
 - *Political/lobbying efforts by developers, real estate interests defeat restrictions*
 - *Homeowners oppose added cost to dwellings*
 - *Subsidies (e.g., flood insurance, rate suppression)*
 - *Continued strong demographics*
 - # housing units rising by 4%+ in FL, 2% nationally
 - 17% increase in number of commercial/residential units, &
 - 50% increase in replacement value of properties 1992-2002
- FEMA—Will emphasis shift to “Homeland Security?”
 - FEMA was an “independent” agency with 5,100 employees
 - Added layers of bureaucracy? Reduced effectiveness? Loss of focus?



Mitigation:

Much, Much More Needed

- Mitigation is an Effective Tool, But Impact so Far Limited—Much more to be done!
 - *Only 15-20% of S. FL building stock constructed since 1994*
 - *Loss reduction of post 1994-buildings only about 10%*
 - *Even if replaced entire stock, impact would be modest*



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