

# **Future Proofing Houston's Homes, Communities and Economic Assets, Facilities, Infrastructure**

***A New Perspective for A 1:11 Cost Benefit  
from Resilience***

**Presentation for City of Houston Resilience Council Committee  
December 11, 2025**



## **Today's Presentation and Narrative for Discussion**

- **Current Realities of Disaster Preparedness, Mitigation, Investment**
- **Why This, Why Now: Financial, Economic, Fiscal, Societal Challenges**
- **A New Perspective on Future Proofing: Enlightened Self-Interests**
- **A Road Map for Implementation: The 1:11 Cost Benefits**
- **Call to Action for Unlocking Resources, Funds, Strategic Partners**

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Advisory Board Member;  
Former Chief of Staff - United States  
Marine Corp



**Dan Matheson**

General Counsel for ROAR Partners  
and Board of Directors ;  
Co-Founder - Matheson Keys LLP



# A Collaboration of America's Best Minds, Resources, Solutions

## Standards of Practice, Codes, Compliance

Harmonize, coordinate existing - and only generate new if absent in the market - standards of practice for achieving a higher rate of resilience, risk mitigation, investment impact

## Design, Architecture, Engineering, Construction

Baseline Project Design Templates, Simulated for Multi-purpose use in forming future-proofed retrofits and new construction outcomes

## Real Estate Development, Marketing, Management

Recommended design features and delivery to overcome first-cost development hurdles, and integrate into end-use benefits (owners, operators, investors)

## Capital Stack and Alternative Investment

Identify all aspects of incentivized investment scenarios across insurance-reinsurance, traditional banking, alternative finance, public bonds, credits and entitlements

## Data Analytics, Modeling, Scenario Setting

Simulate FPA standard-centric blueprints and templates against historical, current, and forecasted scenarios across perils, geographies (including financial, economic, fiscal, societal metrics), leading to application, adoption, performance monitoring by developers, asset owners, investors, and public officials



**MOODY'S**  
RATINGS



**FitchRatings**

**Gensler**

**INFRAMARK**  
WITH SUSTAINABILITY RESULTS

**intertek**

**CMTA**

**Opti**  
by orion

**RG Miller**

**BCCM**

**retech**  
A LEONARDO Company

**GreenGen**

**Urban Land Institute**

**HilltopSecurities**  
Investment Banking Solutions

**ENTORO**

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CONSULTING

**Autocase**

**CoreLogic**

**esri**

**Center for Risk and Insurance Research**

**ESGIMPACTS**  
THE FUTURE OF SUSTAINABILITY

**INCORE**

**StateBOOK**

**Mērak Labs**



# The Stark Reality of Persistent Disasters:

Losses of \$5+  
trillion, 50% in  
the past decade



## **Why This, Why Now?**

**America's current disaster risk profile is worsening**

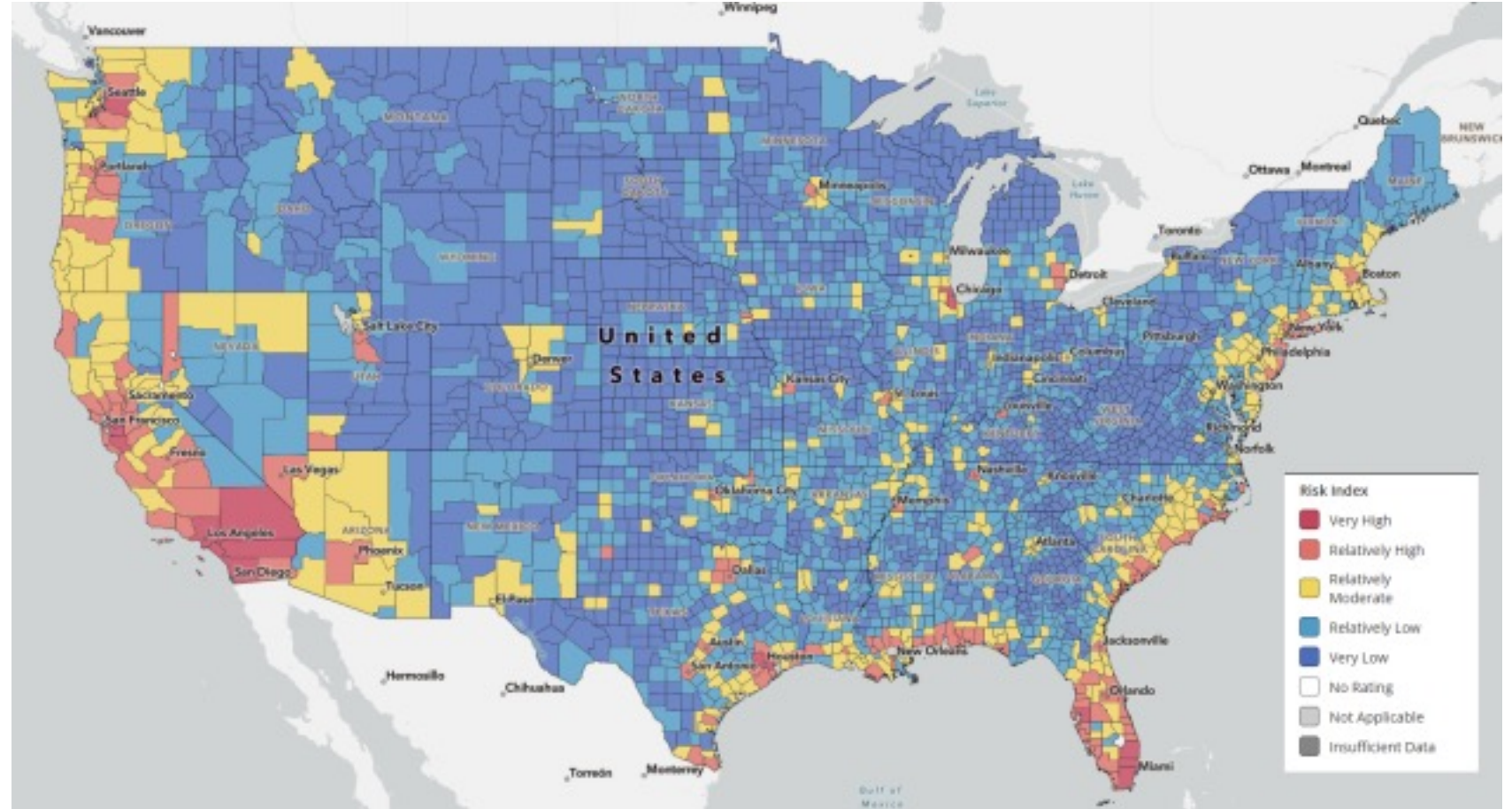
**Kicking the can down the road is NOT an option**

- **Failing and Neglected Residential, Commercial, Public Assets and Infrastructure**
- **Rising Insurance Cost, Limited Capacity, Persistently High Market Gaps**
- **Mortgage Repricing from Defaults**
- **Asset Devaluation by Public and Private Sector Financial Institutions**
- **Overwhelmed Elected-Appointed Officials and Taxpayers from the "Disaster Tax"**
- **Negative Impacts on Local Economic Competitiveness, Industries Recruitment, Workforce Stability**



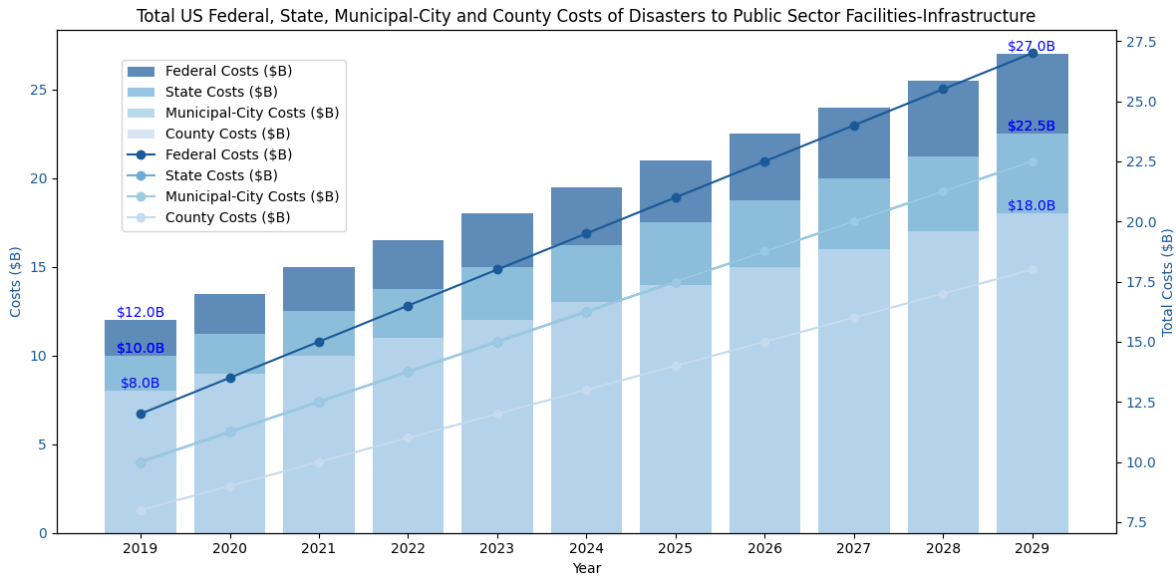
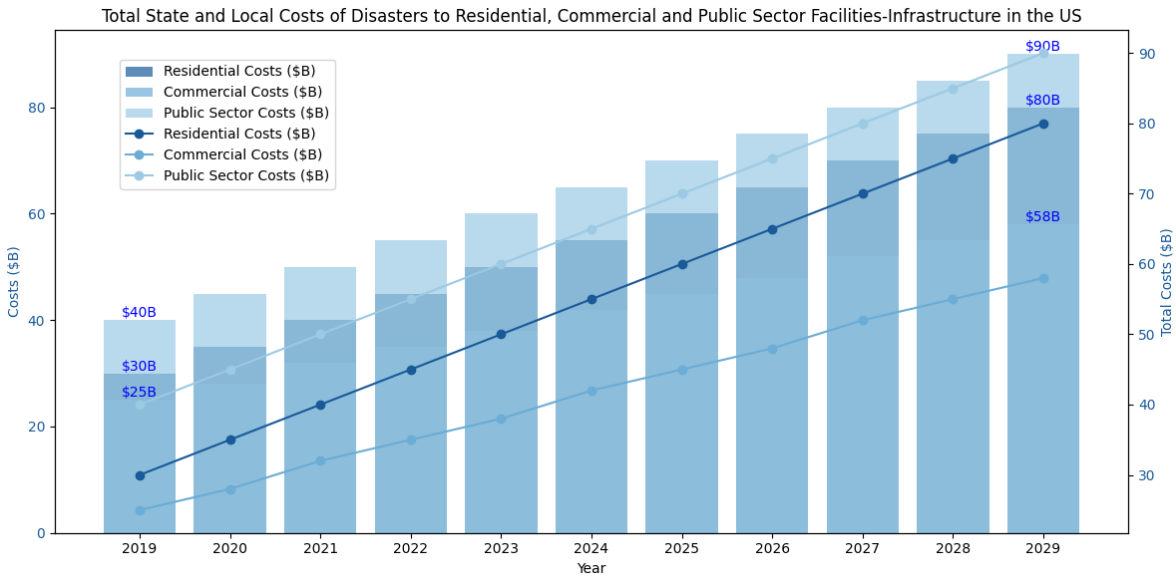
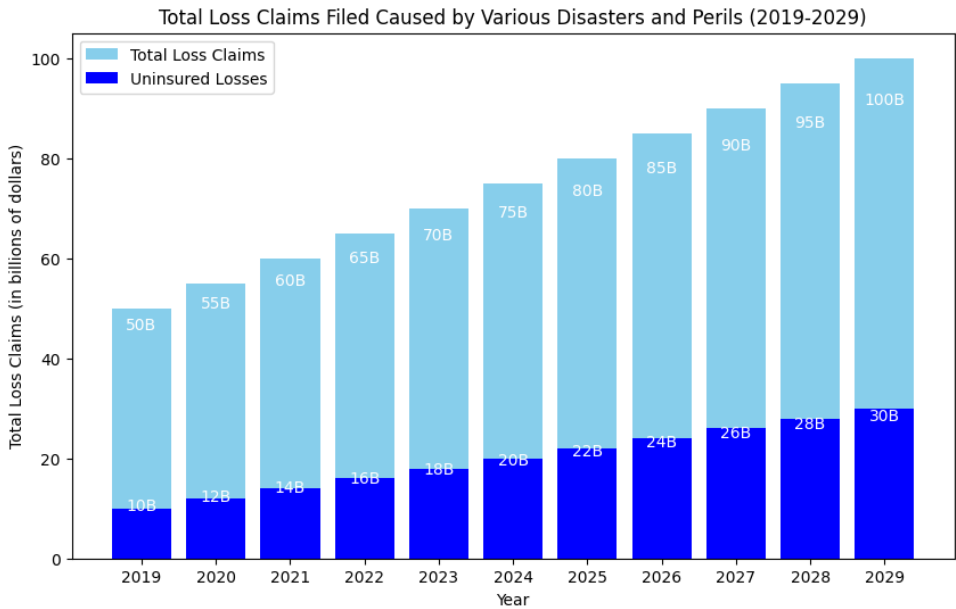
# Why This, Why Now?

12% of the US  
generates 90% of  
forecasted  
losses and  
currently totals  
\$9.5 Trillion in  
asset  
devaluation...



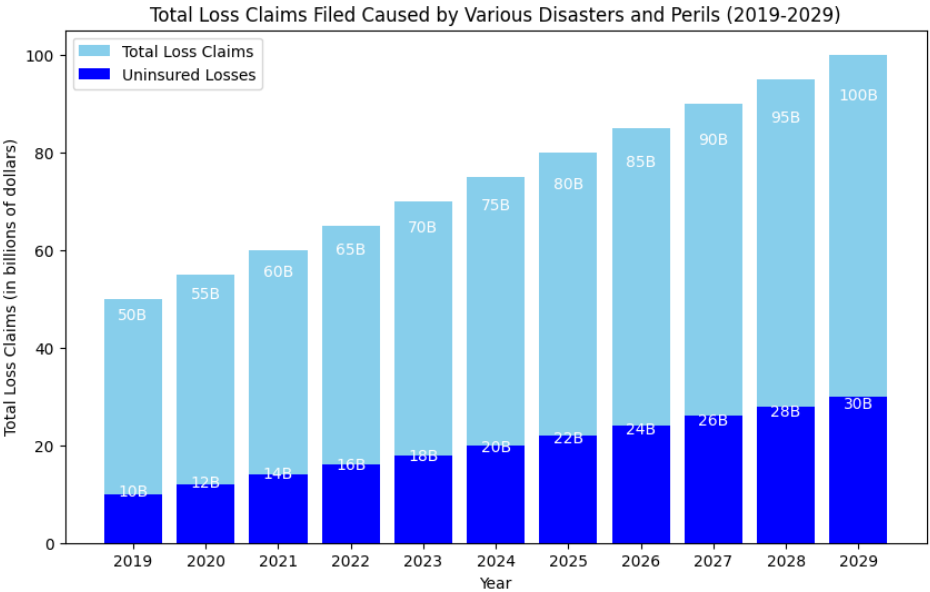
# Why This, Why Now?

With over \$5 trillion in cumulative losses since the late 1980s, public and private sectors can no longer sustain the inefficiencies of outdated recovery and rebuild practices for residential, commercial, public assets, facilities, and infrastructure. Even using a conservative estimation of continued loss, the future is not certain.

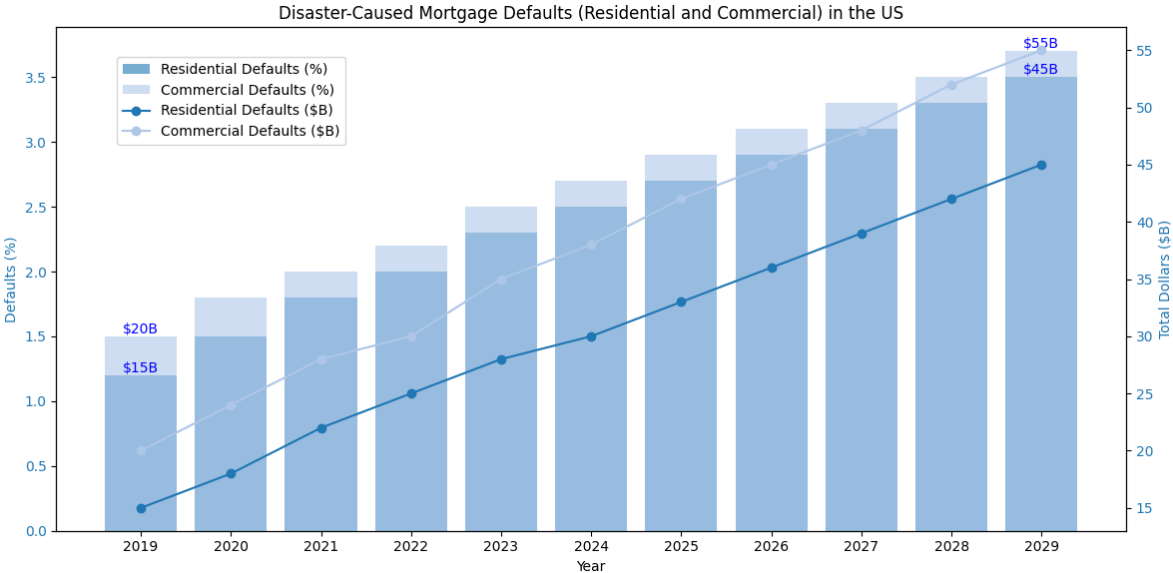


# Why This, Why Now?

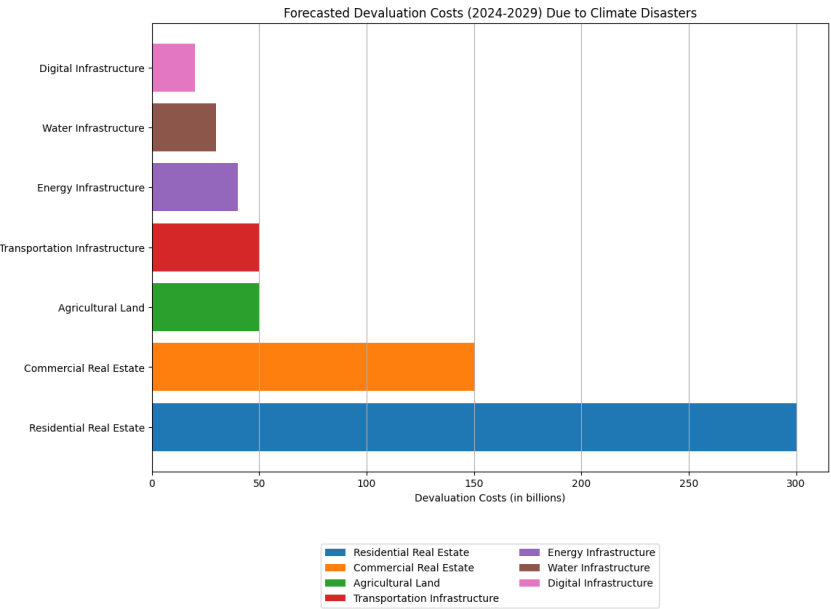
## Rising Insurance Losses and Protection Gap Crisis



## Increasing proportion of Mortgage Defaults correlate to continuous disasters



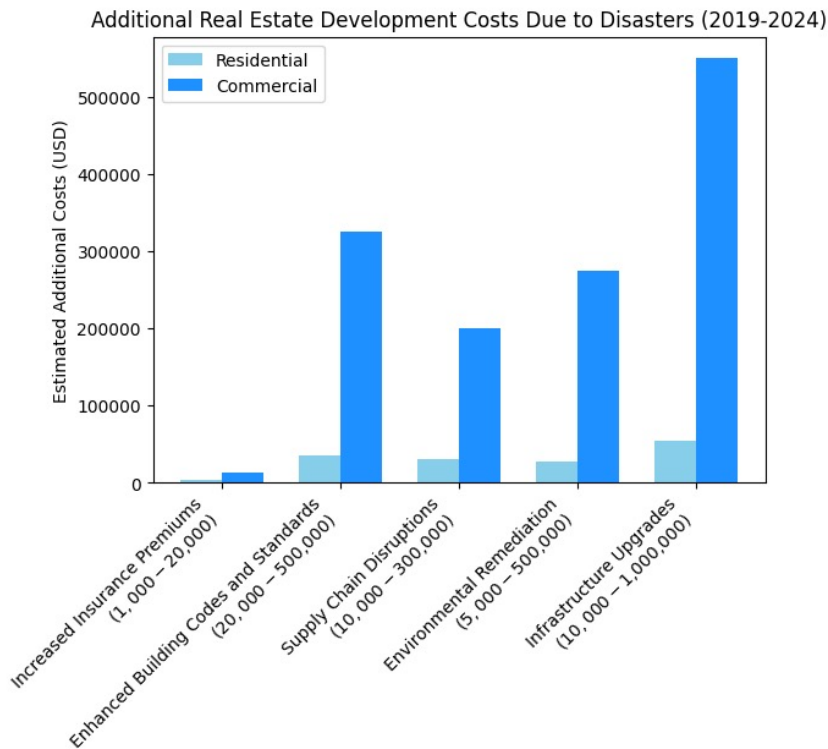
## Asset Devaluation Risk by Sector





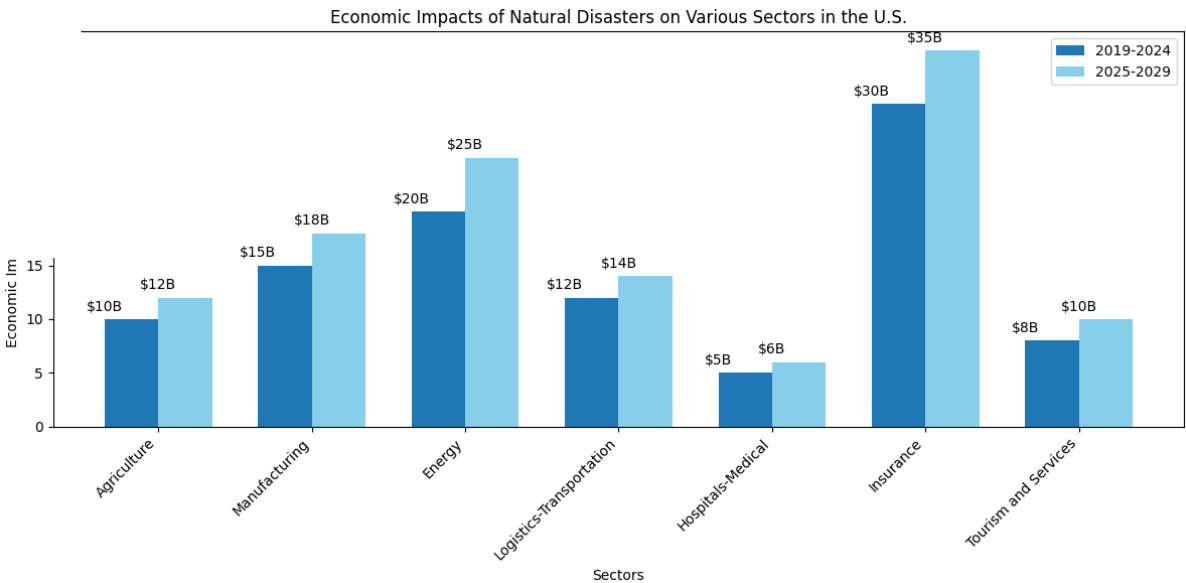
# Why This, Why Now?

## Rising Real Estate First Cost Hurdles

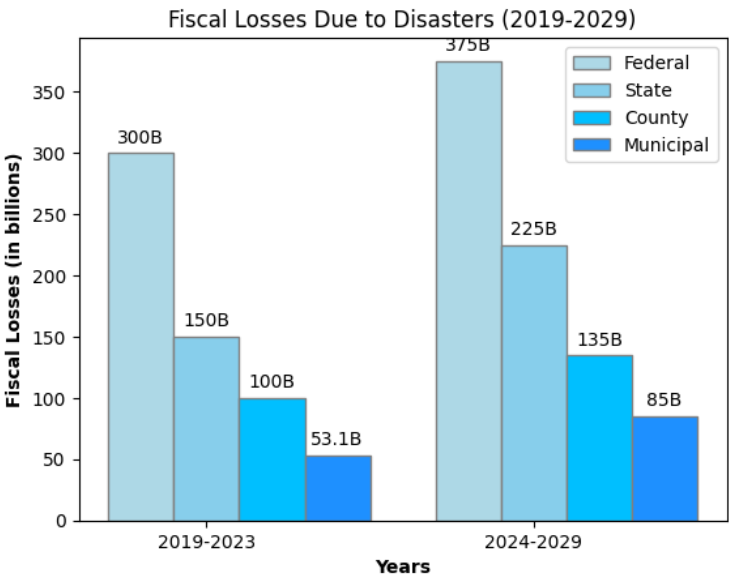


Cost Hurdles

## Deteriorating Economic Sector Competitiveness



## Overwhelmed Elected-Appointed Officials, Taxpayers



# Why This, Why Now? Our Houston Narrative

Greater Houston's Cumulative Economic Impact of Major Weather Events (2019-2025)							
Event	Primary Hazard	Est. Economic Loss (State/Regional)	Key Infrastructure Failure Point				
Winter Storm Uri	Freeze/Grid Failure	\$195B - \$295B (State) 2	Generation Capacity & Natural Gas Supply				
2024 Derecho	Straight-line Winds	~\$1.2B (Regional Est.) 8	Commercial High-Rise Glazing & Distribution Lines				
Hurricane Beryl	Wind & Surge	\$2.5B - \$4.5B (US) 5	Electrical Distribution (Poles/Wires)				
Severe Convective Storms	Hail/Wind	>\$1B annually (Aggregated)	Residential Roofing & Vehicles				
Recurring Floods	Heavy Rainfall	Variable	Stormwater Drainage Capacity				
Asset Class	Primary Physical Risks (2025–2030)		Financial & Economic Exposure		Forecasted Impact Metrics		
RESIDENTIAL	Chronic Damage & Displacement:		The Affordability Spiral:		• Insurance Premiums: Avg. >\$8,370/yr (highest of top metros).3		
(Single-Family, Multi-Family, Housing Authority)	Increasing frequency of "secondary perils" (hail, wind, freeze) causing repeated roof and pipe damage, leading to uninsurability in older stock and "climate abandonment" zones.1		Insurance premiums and property taxes are rising faster than wages, creating a "hidden mortgage." Mortgage delinquency risk is elevated due to the "double trigger" of disaster costs + inflation.		• Delinquency: FHA/VA delinquency rates rising faster than conventional loans.4		
					• Migration: Projected 5.2M Americans relocating due to climate risk by 2025+.1		
COMMERCIAL	Asset Stranding & Grid Reliability:		Valuation Shock:		• Office Vacancy: ~26.3% in Q3 2025; negative absorption trend persists.		
(Office, Retail, Healthcare, Hospitality)	Older "Class B/C" office stock faces obsolescence due to inability to weatherize or insure cost-effectively. Business interruption from power outages (e.g., Beryl/Uri) remains the top operational threat.		Office vacancy rates remain stubbornly high, forcing write-downs. Retail is tighter, but operational costs (insurance/utilities) are compressing margins and slowing new development.		• Insurance: Rates moderating (~3.8% increase) but capacity remains tight for catastrophe-exposed zones.		
INDUSTRIAL	Supply Chain Bottlenecks:		Transition & Regulatory Risk:		• Project 11: Dredging complete to widen Ship Channel, improving safety but high dependency on weather windows.5		
(Petrochemical , Manufacturing, Port/Logistics)	channel closures due to fog/storms and "freeze-offs" at facilities. High exposure of petrochemical assets to storm surge and strict environmental justice scrutiny regarding emissions.		Global energy transition pressures threaten long-term demand for legacy fossil fuel assets. However, significant investment in hydrogen/carbon capture offers a resilience hedge.		• Vacancy: Low (~4.4%) indicating strong demand despite risks.		
PUBLIC SECTOR	Infrastructure Deficit:		The "Fiscal Choke Point":		• CIP Budget: \$16.7B planned (2026-2030) for infrastructure/drainage.		
(Municipal, County, Schools, Infrastructure)	Aging stormwater and road systems cannot keep pace with "rain bombs." The \$16.7B Capital Improvement Plan (2026-2030) faces inflation execution risks.		Revenue caps (3.5%) limit the ability to fund recovery without voter approval or disaster declarations. Credit rating outlooks are negative due to structural budget deficits.		• Credit Outlook: S&P Outlook "Negative" on GO debt; risk of downgrade increases borrowing costs.		

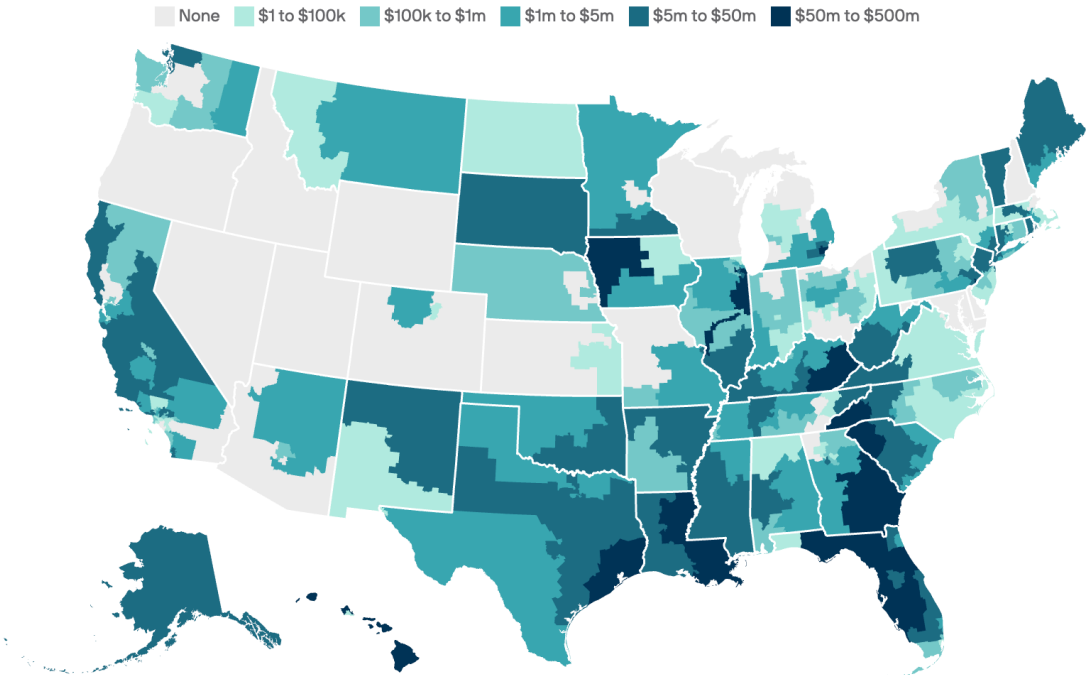
# Today's Realities

Increased Federal, State, Local Spending in Question for Resilience-Centric Projects, Programs



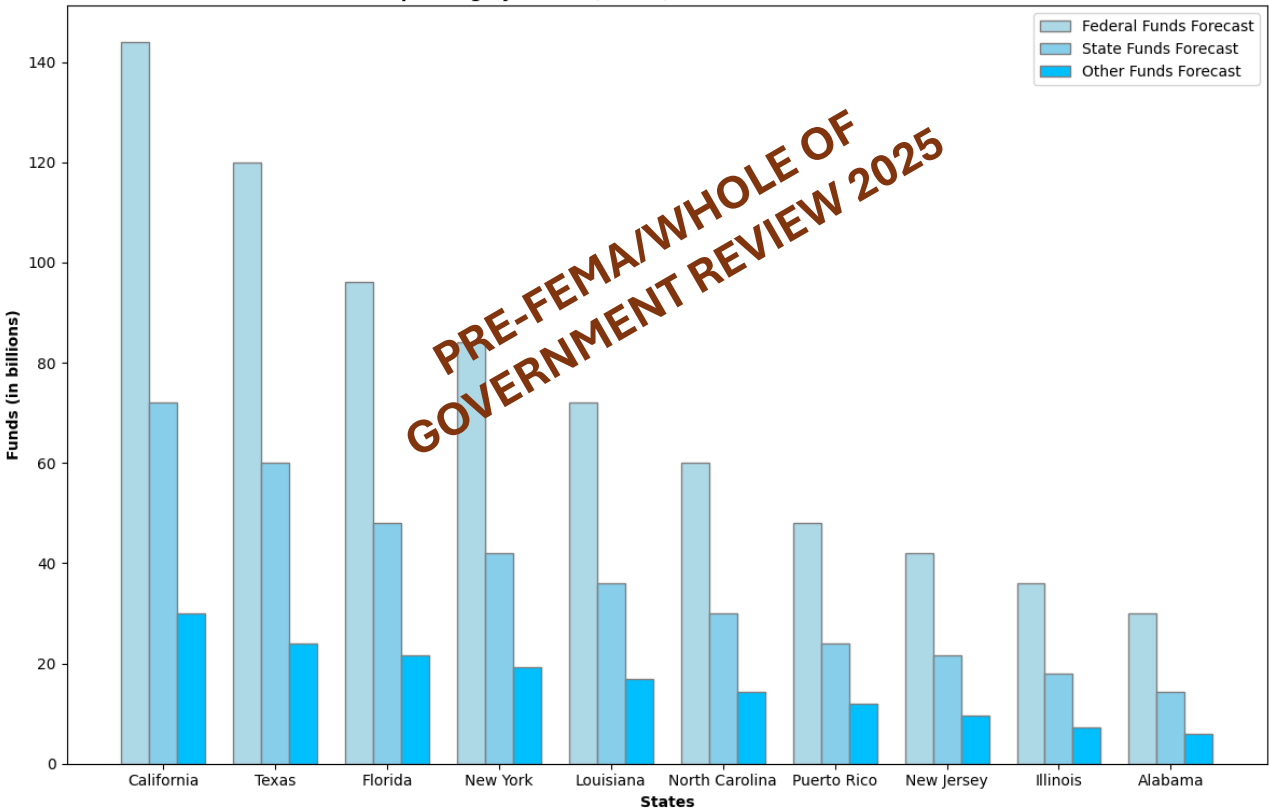
## FEMA funding sent to individuals and households, 2021 to 2025

By congressional district; As of Feb. 1, 2025



Data: [Carnegie Disaster Dollar Database](#); Map: Kavya Beheraj / Axios. Note: Many applicants get rejected.

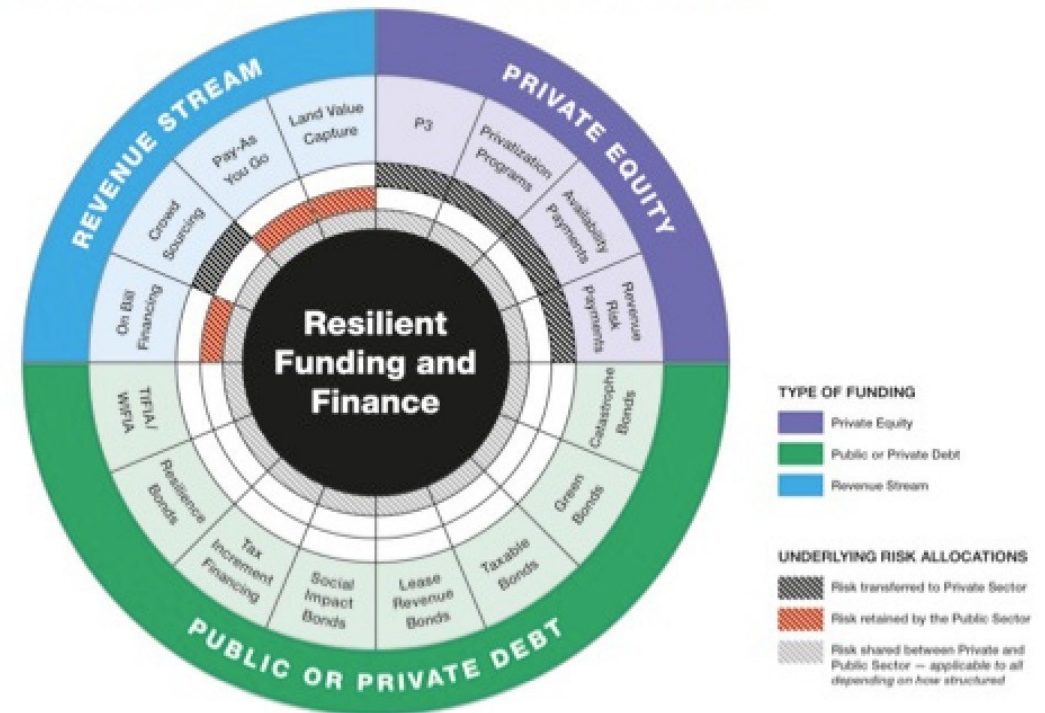
Forecasted Spending by Federal, State, and Other Disaster Funds (2024-2029)



# Unleashing A New Resilience Capital-Investment Stack Among Multiple Sources

## Integrated, Alternative Financing and Investment Models including Public-Private- Philanthropic (“P4”) Capital Stacks:

- Federal, State, Other Loan Programs
- Traditional Project Financing
- New Market Tax Credits
- Historic Building Tax Credits
- Energy and Sustainability Financing, Credits
- PACE
- EB5
- Tax Incremental Redevelopment Zones Designation
- Opportunity Zone Designation
- Philanthropic Grants and Impact Financing
- Insurance as Economic Capital Scenarios
- Community Resilience Bonds



# Resources are NOT the Challenge

Over \$5 Trillion in Capital Sources Available for Resilience – Alternative Investment



## Unlocking and Integrating All Forms of Capital

### Community Resilience Bonds

Insurance Backed, Co-Sponsored,  
Public-Private Partnered, State-  
Local Financed Bonds

### Credit Enhancements

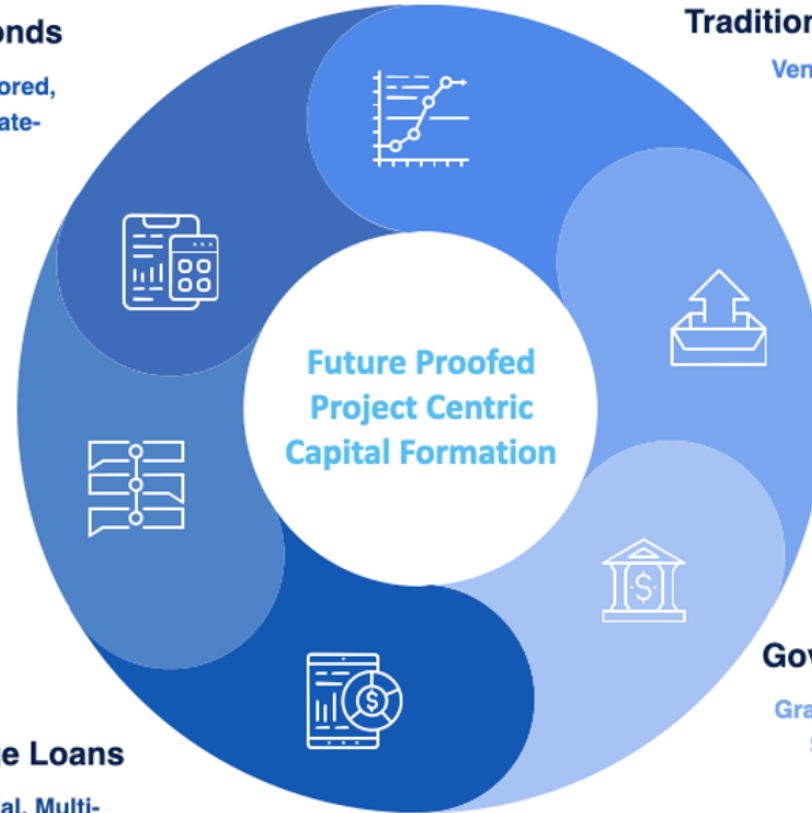
Mortgage-backed Securities,  
Collateralized Loans, 3rd Party  
Guarantees

### Mortgage Loans

Residential, Commercial, Multi-  
Use, and Refinance

### Impact Rate of Return®

will provide impact- and resilience-focused  
ROI modeling, reporting along side traditional  
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### Traditional and Alternative Investors

Venture, Family Office, Philanthropic,  
Foundation Allocations

### Insurance & Reinsurance

Actuarial Pricing, Capital Markets,  
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### Government Sponsored

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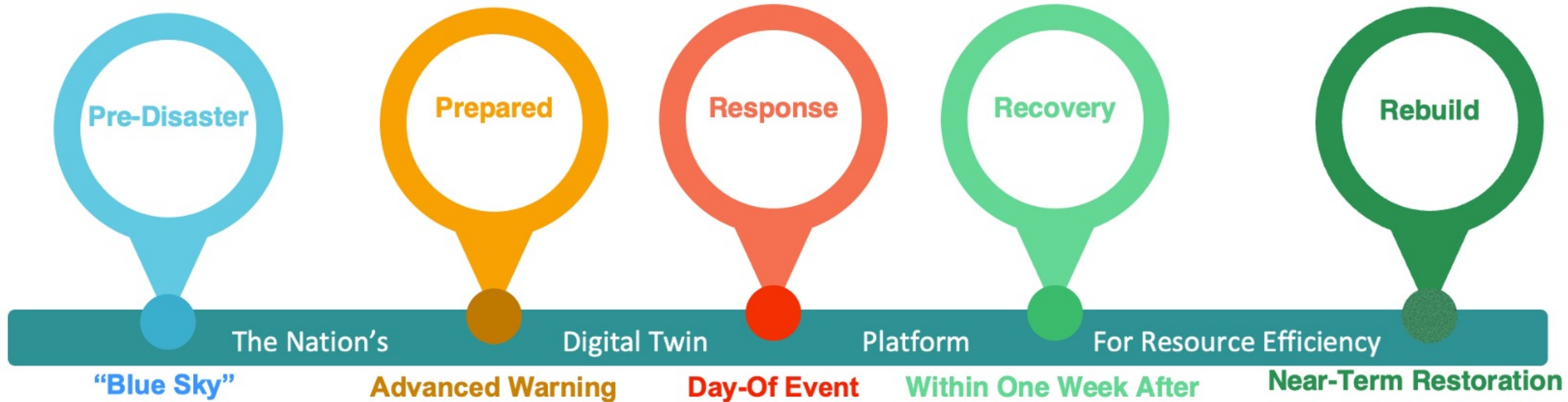


# **Call to Action: Future Proofing Houston**

**A New Perspective on Data,  
Technology, Innovation, Capital**

# Future Proofing Individuals, Families, Small Businesses, and Communities: from Surviving to Thriving

Aligning Funders, Resources, Beneficiaries, Communities with Efficiency, Effectiveness, Economical Delivery



**A Continuum of Preparedness, Mitigation, and Investment...with an emphasis on Blue Sky Pre-Disaster 1:11 Cost Benefits**

# Actionable Intelligence: 100 billion data points across financial, economic, fiscal, societal metrics

## Risk & Resilience Assessment

An Integrated, Actionable Intelligence Product of ROAR Partners

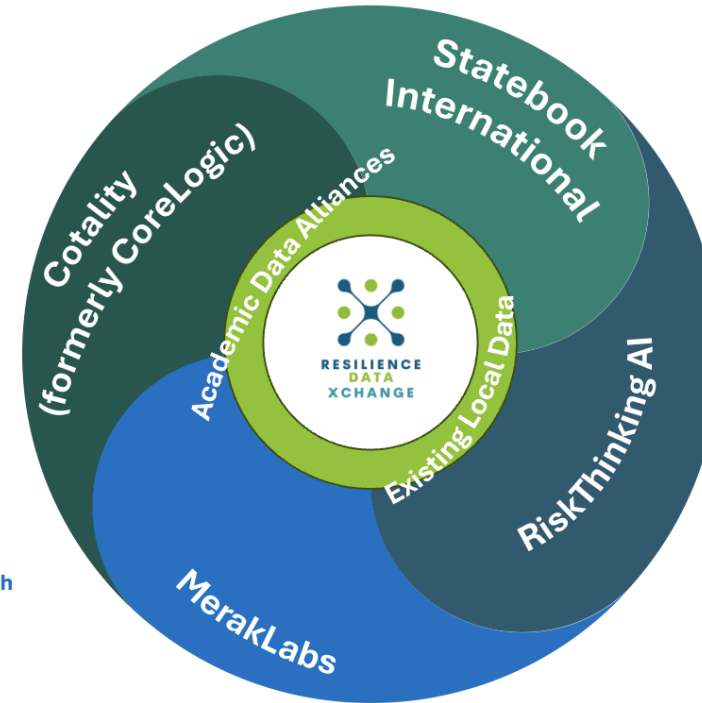
CoreLogic



With its longstanding ability to curate, model, and report on the entire range of real estate data, including identification of the Nation's 12% land mass generating 90% of forecasted losses, equaling \$9.5 T in asset devaluation – we assess at the parcel level, by asset class, across mortgage and other transactions



Specializing in combining local knowledge with advanced data science to build practical, place-based solutions that reduce environmental, social, and economic vulnerability, we assess the adoption of our Smart Watershed and flood management across quantity/quality issues for public and private operations, projects



**Academic Data Alliances + Existing Local Data Sources**  
Strategic partnerships with three (3) national cutting-edge academic-based alliances for stochastic analysis, modeling complimentary to hyper-local data sources for confirming forecast impacts



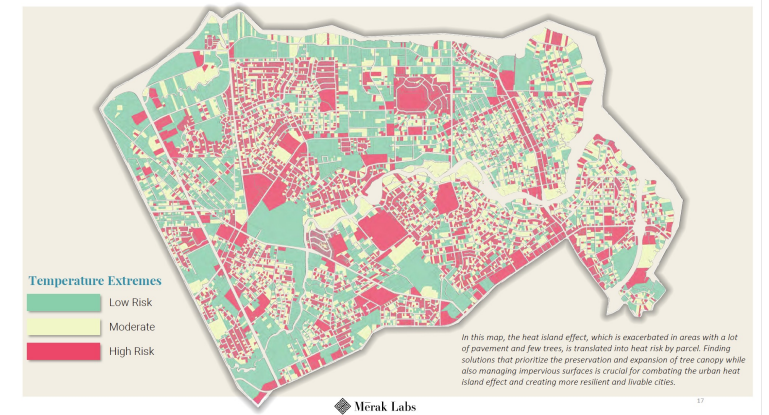
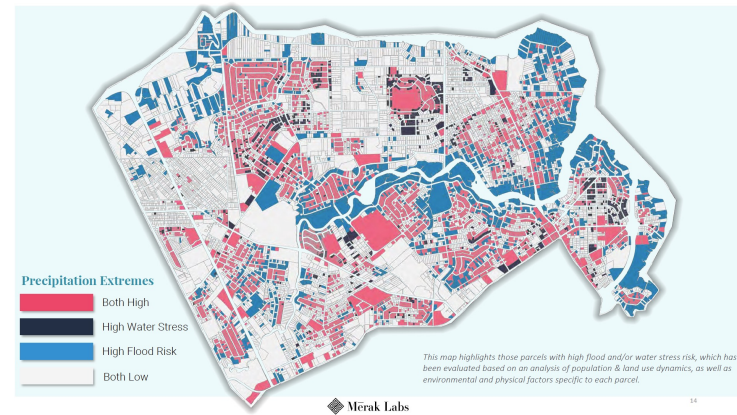
Over 40 billion data points at the census tract level on economic, employment/workforce, fiscal, and societal elements with an overlay of disaster consequences on community and local impacts – we assess the cascading effects for elected-appointed officials, industries, citizens and taxpayers. We conduct the [Impact Rate of Return](#) for each geography



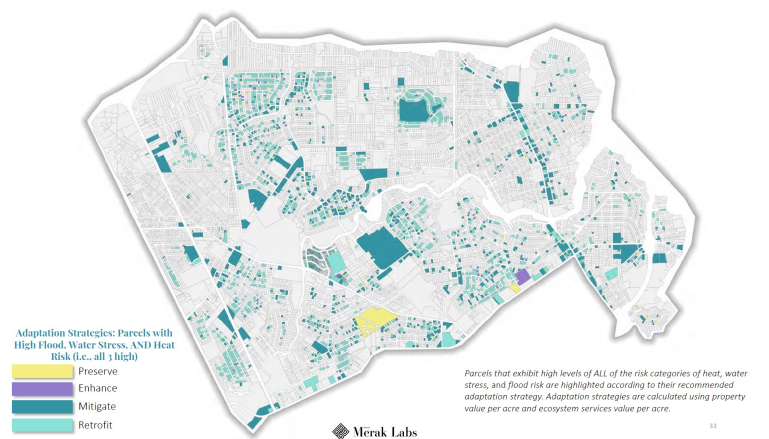
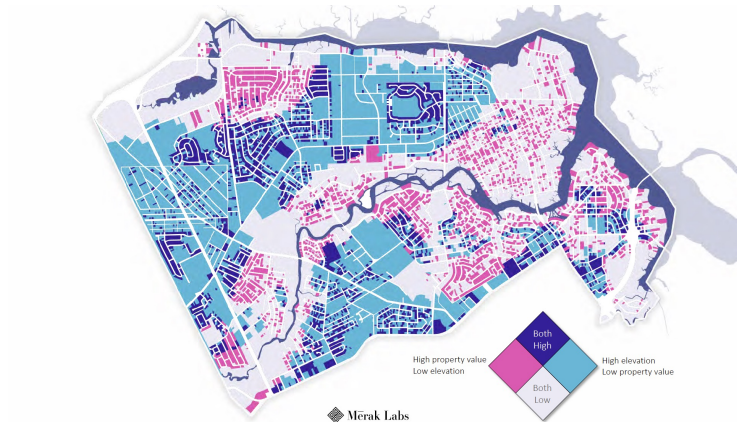
We assess - through several integrated data layers that can be used alone or in combination - climate financial risk questions at the parcel, asset, and total portfolio basis. Collectively, these data layers – a risk digital twin - represent the world's physical assets and capture the future uncertainty of climate physical and transition risk, including extreme events, for industry sector and company comparison

# Actionable Intelligence:

100 billion data points across financial, economic, fiscal, societal metrics



Drowning in Data but Thirsty for Actionable Intelligence = What Newer Solutions Exist to Transform Houston's Risk Exposure





# Future Proofing America's Communities and "Resilience Zones" A Conceptual Design



The issues of Natural and Human Environment Challenges:

## Disaster Vulnerabilities

- Drought
- Flood
- Overland Water flow
- Wild or Urban Fire
- Coastal Storm Surge
- Windstorms
- Urban Heat island

*Response: Large Scale Disaster Mitigation Design, Development, and Hazard Reduction Methods for Residential, Commercial, Industrial, Public-Sector assets, facilities, infrastructure*

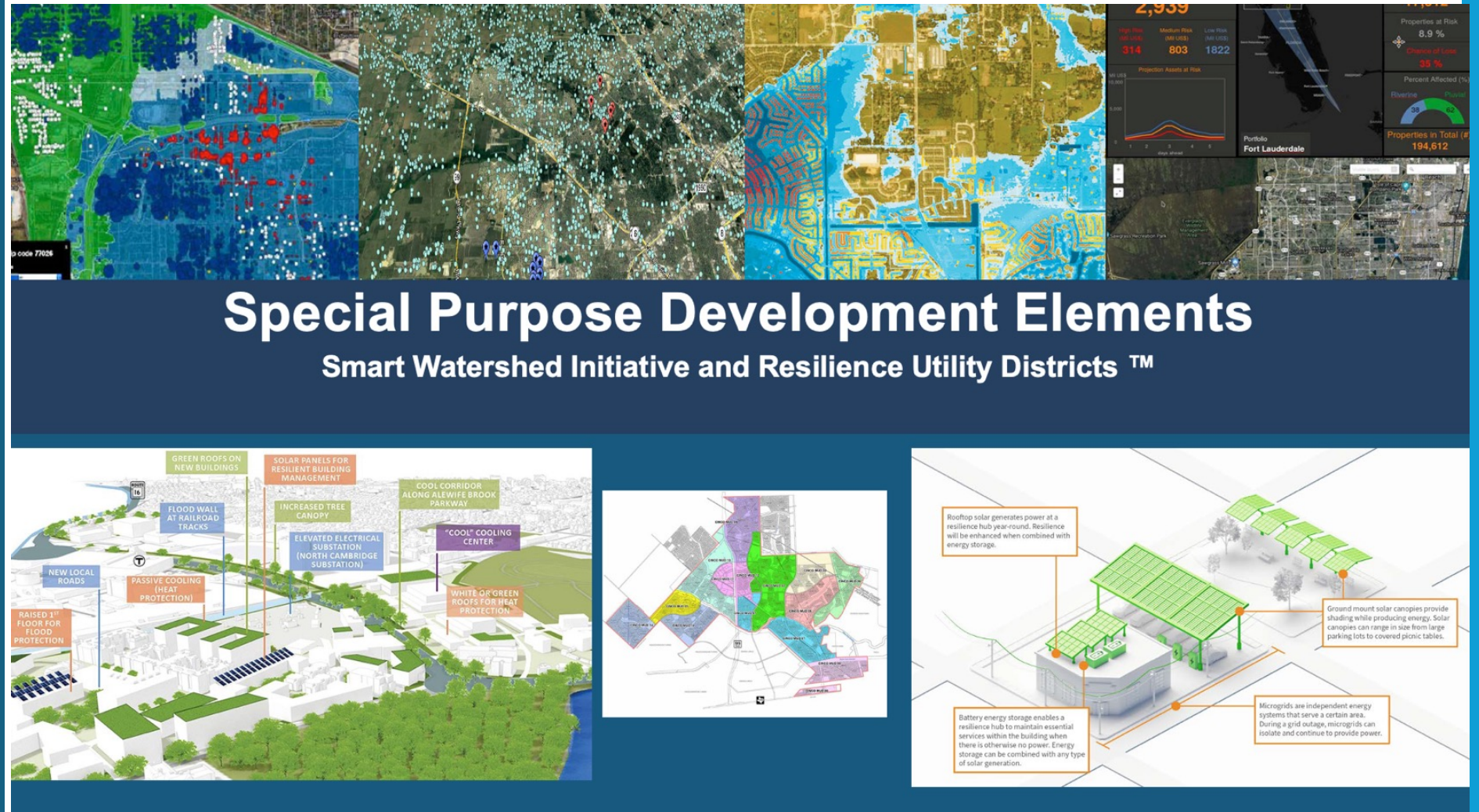
## Social Vulnerabilities

- Health and Pandemics
- Food 'Deserts' and Nutrition Options
- Limited Weatherization and Fortified Structures/Homes
- Limited Broadband and Critical Communications Access
- Training and Certification for New Opportunities in Resilience/Sustainability

*Response: Integrated "Thriving Not Just Surviving" strategic programs, projects for homeowners, citizen and civic groups*



# Solution 1: Alternative Land-Use and Functionality for Higher Values of Resilience



- 6700+ Detention-Retention Ponds = 1-million-acre feet of storage capacity
- 500,000 acres of land for leverage as a distributed grid option
- 2 million square feet of buildings, facilities with potential for additional resilience



## Solution 2: Integrated Affordability



70% of SBA Disaster Funds are for homes...

Yet, all public funds are fragmented, disjointed from thriving versus surviving strategies

### Example of What Will Our Projects Do?

Thousands of homes, neighborhoods, communities – once future proofed at the residential level and expanded to commercial and industrial developments – will generate a 1:6 or better cost-benefit for public and private sector (re)insurance, banking-financing, taxpayer resources, and economic competitiveness.

### Future Proofing America's Homes, Housing, Neighborhoods



Integrating fortified built environment with food and nutrition, health and wellbeing, communications access, alternative energy, and smart transportation –must become part of the measured performance for future proofing community outcomes.

# Once Again...Resources are NOT the Challenge

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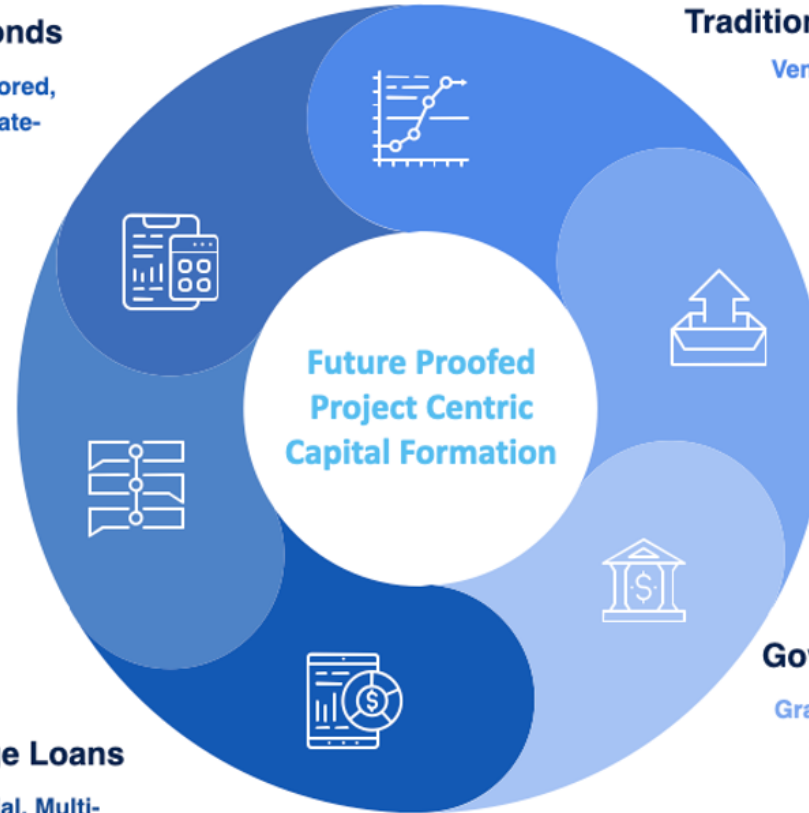
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will provide national debt finance  
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# Solution 3: A Proposed Houston Community Mutual Risk Pool, Fund

Table 1: U.S. Billion-Dollar Disaster Events (2019-2024) and Potential CMRP Intervention

Year	Number of Events	Total Cost (CPI-Adjusted)	Predominant Disaster Types	Geographies Primarily Affected	Potential CMRP Interventions
2019	14	>\$55 Billion	Severe Storms, Flooding, Tropical Cyclones	Midwest, South, Southeast	Residential retrofits (roofs, windows), small business continuity planning, localized flood barriers.
2020	22	>\$110 Billion	Severe Storms, Wildfires, Drought, Tropical Cyclones	West, Central, Southeast, Gulf Coast	Wildfire defensible space programs, agricultural water conservation projects, strengthening of coastal infrastructure.
2021	20	>\$160 Billion	Winter Storms, Wildfires, Severe Storms, Tropical Cyclones	Texas, West, South, Northeast	Grid resilience measures, improved building insulation standards, advanced weather warning systems.
2022	18	>\$180 Billion	Drought, Severe Storms, Tropical Cyclones, Flooding	West, Central, Southeast	Large-scale water infrastructure projects, community safe rooms, enhanced stormwater management systems.
2023	28	>\$90 Billion	Severe Storms, Flooding, Wildfires	Across the U.S.	Widespread adoption of updated building codes, public awareness campaigns for disaster preparedness.
2024	25	>\$75 Billion	Severe Storms, Tornadoes, Tropical Cyclones	Central, South, Southeast	Strengthening of critical facilities (hospitals, schools), undergrounding of utilities in high-risk areas.

Source: NOAA National Centers for Environmental Information (NCEI)

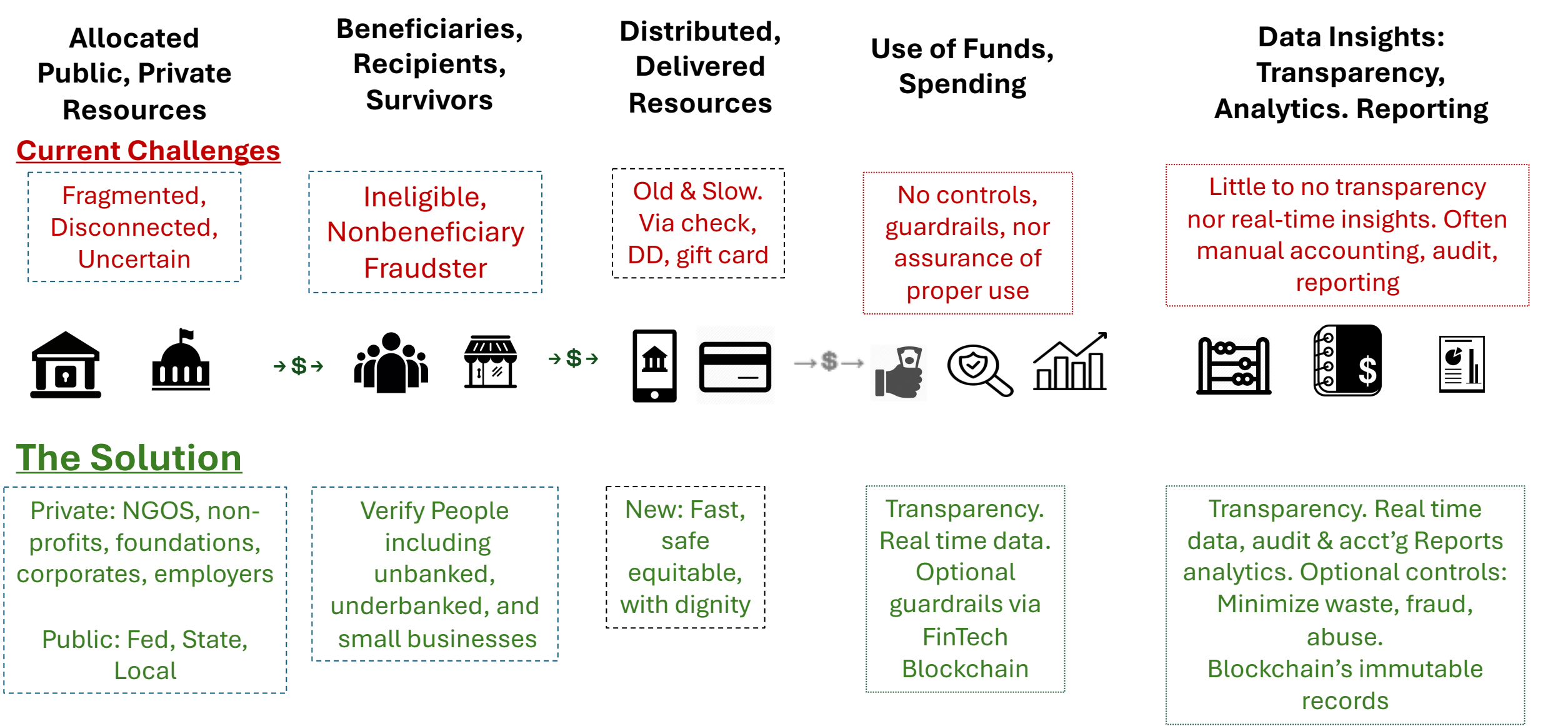
Table 2: Forecasted U.S. Disaster Landscape (2025-2030) and the Strategic Role of a CMRP

Hazard Type	Forecasted Trend (2025-2030)	High-Risk Geographies	Strategic CMRP Focus Areas
Hurricanes & Tropical Storms	Increased frequency and intensity of major hurricanes (Category 3+).	Atlantic and Gulf Coasts	Coastal resilience projects (e.g., dune restoration, seawalls), hardened infrastructure, pre-positioned emergency resources.
Wildfires	Lengthening of the wildfire season and increased acreage burned.	Western U.S., expanding into new regions	Proactive forest management, ignition-resistant construction materials, community-wide firebreak creation.
Inland & Coastal Flooding	More frequent and severe flooding events due to extreme precipitation and sea-level rise.	Coastal areas, riverine communities, urban centers	Green infrastructure for stormwater management, property-level flood mitigation (e.g., elevation), early warning systems.
Drought & Heatwaves	Increased duration and intensity of drought conditions and more frequent extreme heat events.	Western and Central U.S.	Water conservation and recycling infrastructure, resilient agricultural practices, urban heat island mitigation.
Severe Convective Storms	Continued high frequency of severe thunderstorms, tornadoes, and hail.	Midwest, South, Southeast ("Tornado Alley" and "Dixie Alley")	Enhanced building codes for wind resistance, community shelters, impact-resistant roofing materials.

Source: National Climate Assessment, NOAA Climate Prediction Center, and academic climate modeling studies.



# Solution 4: Creating Efficient, Effective, Economical, AND Impactful Resource Allocation, Distribution





# Launch of the Disaster Resilience Fintech Platform



For immediate release

## Innovative Disaster Preparedness, Risk Mitigation Payments Platform Launched to Address Urgent Resource Distribution Challenges

**HOUSTON, Texas and MIAMI, Florida | November 5, 2025**

[Future Proofing America](#) ("FPA") and [Payments As A Lifeline](#) ("PaaL") have jointly announced an alliance in an integrated financial technology platform for real-time payments distribution, data, tracking, impact reporting, and protections against waste, fraud, and abuse - to transform America's current public, private, philanthropic resource distribution for people, communities, and small businesses. **The Disaster Resilience Fintech Platform** ("the Platform") challenges the status quo by unlocking innovation and investment for ensuring communities are thriving not just surviving from one event to the next.

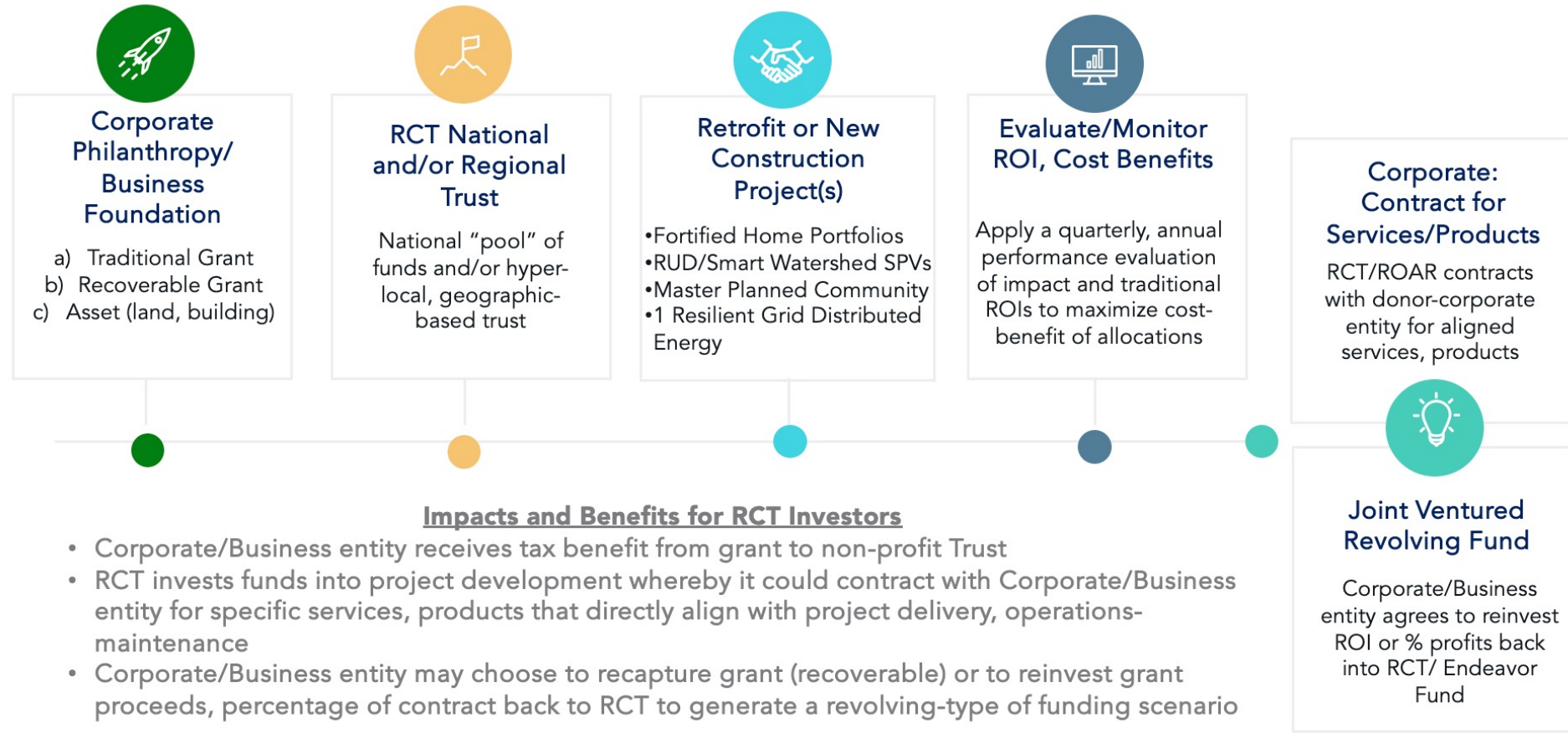
Both organizations are 501(c)(3)s, committed to driving disaster financial resilience across the U.S. The PaaL coalition brings together the top global fintech companies, and leverages unique fintech capabilities – in payments, data capture, automatic accounting and audit, AI and blockchain — enabling full-cycle transparency in delivery of funds, materials, equipment, and critical resources. The **PaaL Fintech Lifeline Hub** ("PFLH") is a central component of the announced nationwide disaster fintech ecosystem.

# Solution 5:

## Impact Investment in Higher Values of Individual, Family, Neighborhood Resilience

### Resilience Community Trust

#### Our Investment Workflow and Framework for Corporate Sponsors



For more information:

[www.roarpartners.co](http://www.roarpartners.co) | [www.futureproofingamerica.org](http://www.futureproofingamerica.org)

[rseline@futureproofingamerica.org](mailto:rseline@futureproofingamerica.org) | (703) 608-3000

