Planning for a Resilient Houston - Galveston Region

Addressing Resiliency in Regional Transportation Plans Workshop

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Resiliency Planning

June 1980

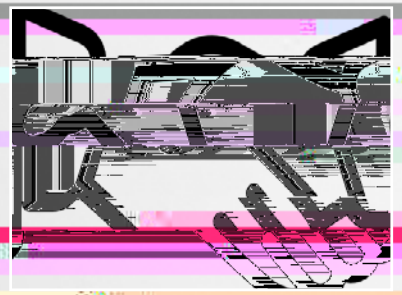
Regional Planning

- Regional Flood Management Council
- Hazard Mitigation Plans
- Our Great Region 2040
- Foresight Panel on Environmental Effects
- Transportation

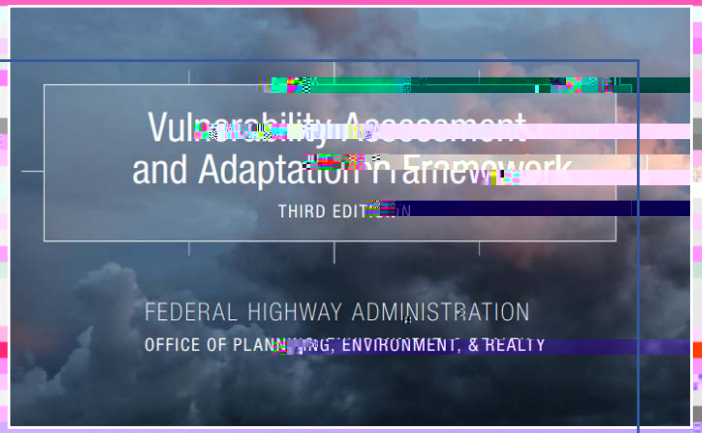
Transportation Resiliency Efforts

2018 Call for Projects

Long Range Plan



Coordination



Resilience and Durability Pilot

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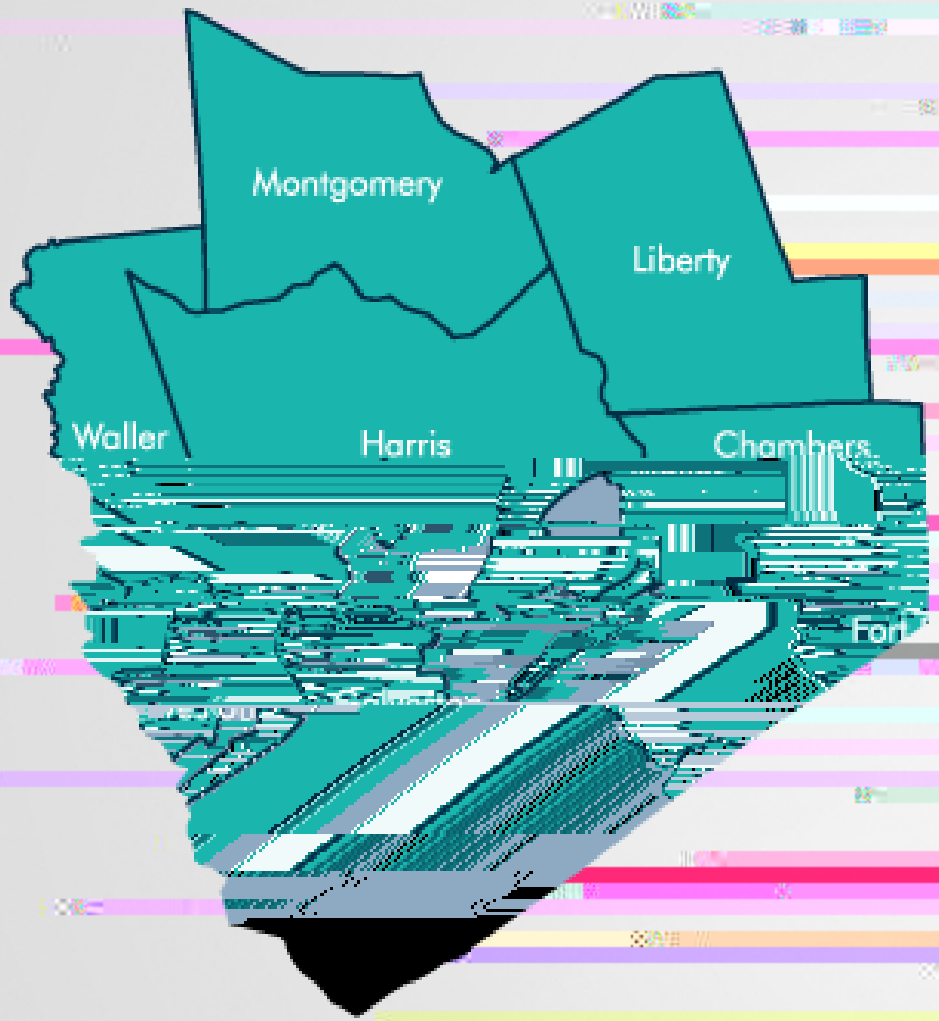


- Use VAST tool + risk analysis + economic analysis to identify most vulnerable assets/ road segments
- Develop recommendations for most vulnerable assets/ road segments
- Update H-GAC publications and project selection criteria

Geography
- 8-County Region

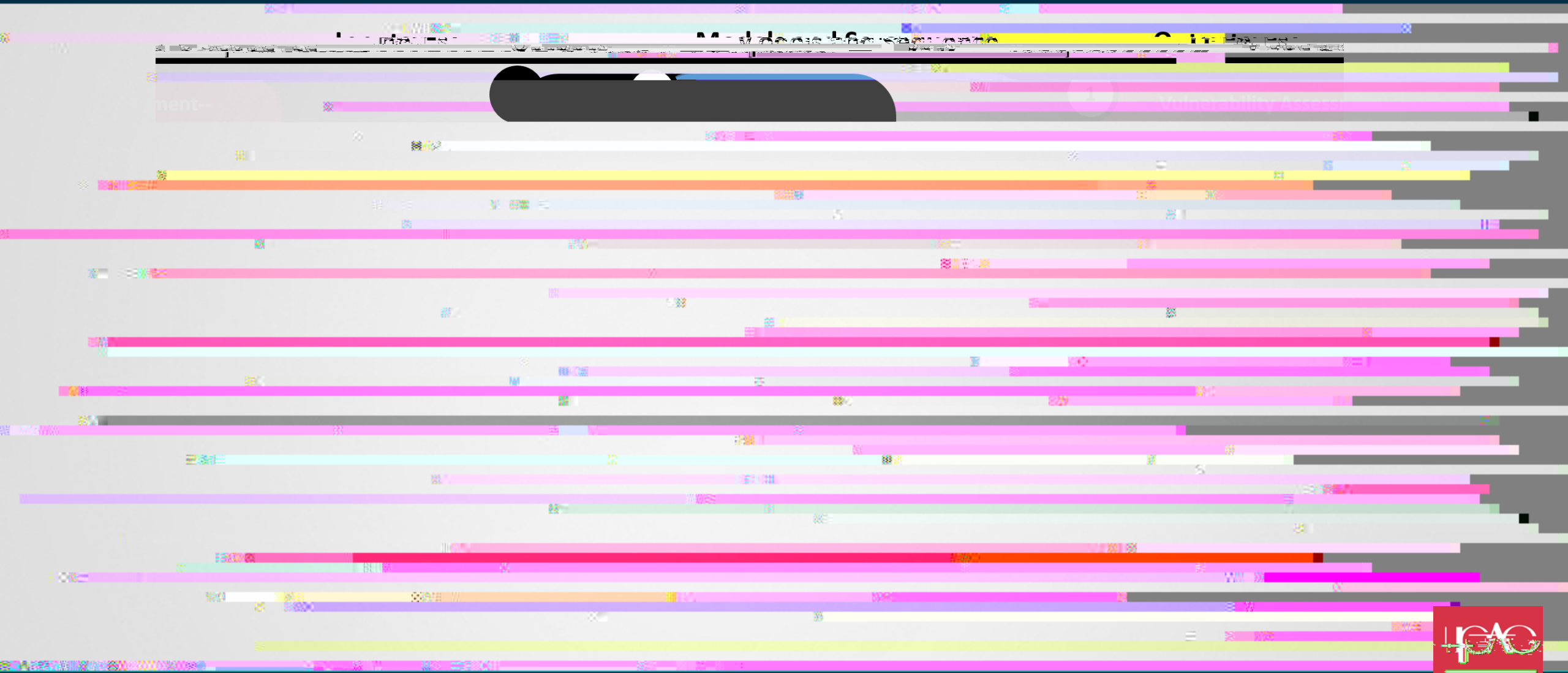
Extreme Weather Threats
- Coastal Flooding
- Inland Flooding

Time Horizons
- Current
- 2030 (~ 10-year plan)
- 2045 (Long range plan)

Assets to Consider
- Roads (freeways and major streets)
- Bridges

TxDOT on-system

Project Analysis, Methodology



Project Phases & Timeline

0. Initiation
- Identify Objectives
- Stakeholder Meeting

1. Data Collection
- Compile Resiliency Recommendations
- Collect and Process Climate Data
- Inventory Transportation Assets

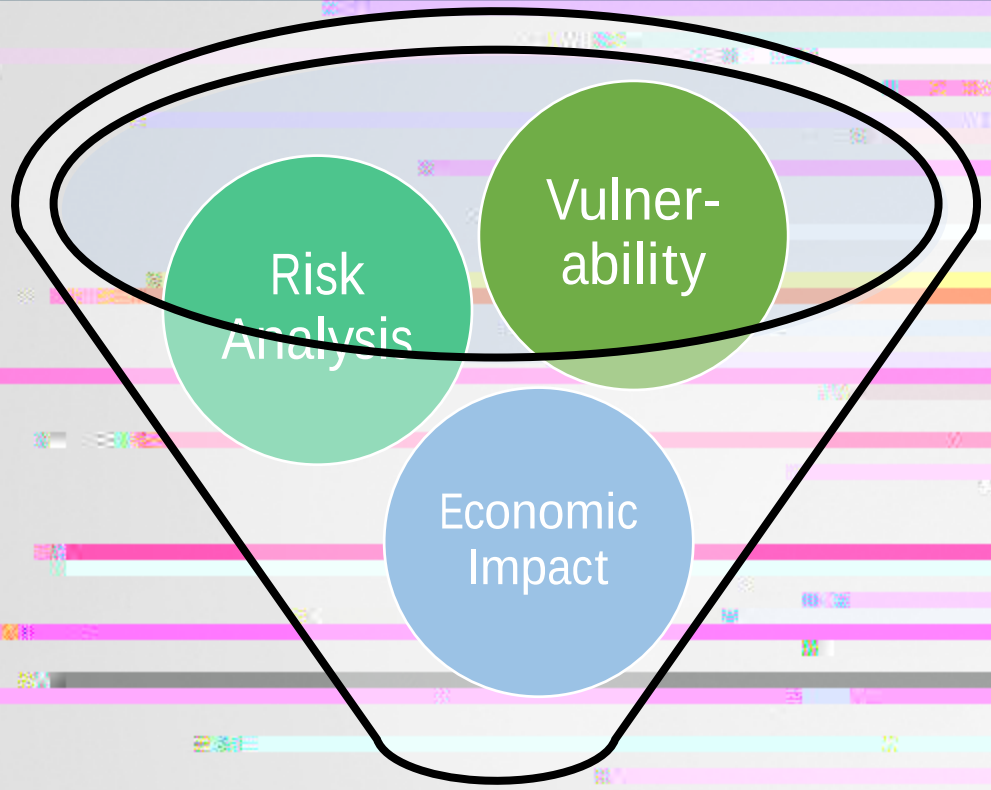
2. Assessment
- Define Critical Transportation Assets
- Conduct Vulnerability Assessment
- Risk Analysis
- Economic Analysis

3. Strategy Recommendations
- Develop Strategy Recommendations
- Long Range Plan and TIP selection

4. Information Dissemination
- Final Report
- Case Study
- Knowledge Exchange

Declaration Date	Incident Type	Title
9/26/2002	Coastal Storm	TROPICAL STORM FAY
6/9/2001	Coastal Storm	TX-TROPICAL STORM ALLISON-06-06-2001
9/9/2011	Fire	WILDFIRES
7/1/2011	Fire	WILDFIRES
1/11/2006	Fire	EXTREME WILDFIRE THREAT
6/11/2016	Flood	SEVERE STORMS AND FLOODING
4/25/2016	Flood	SEVERE STORMS AND FLOODING
3/19/2016	Flood	SEVERE STORMS, TORNADOES, AND FLOODING
10/21/1998	Flood	TX-FLOODING 10/18/98
10/18/1994	Flood	SEVERE THUNDERSTORMS AND FLOODING
3/20/1992	Flood	SEVERE STORMS & FLOODING
12/26/1991	Flood	SEVERE THUNDERSTORMS
7/18/1989	Flood	

Proper approach?

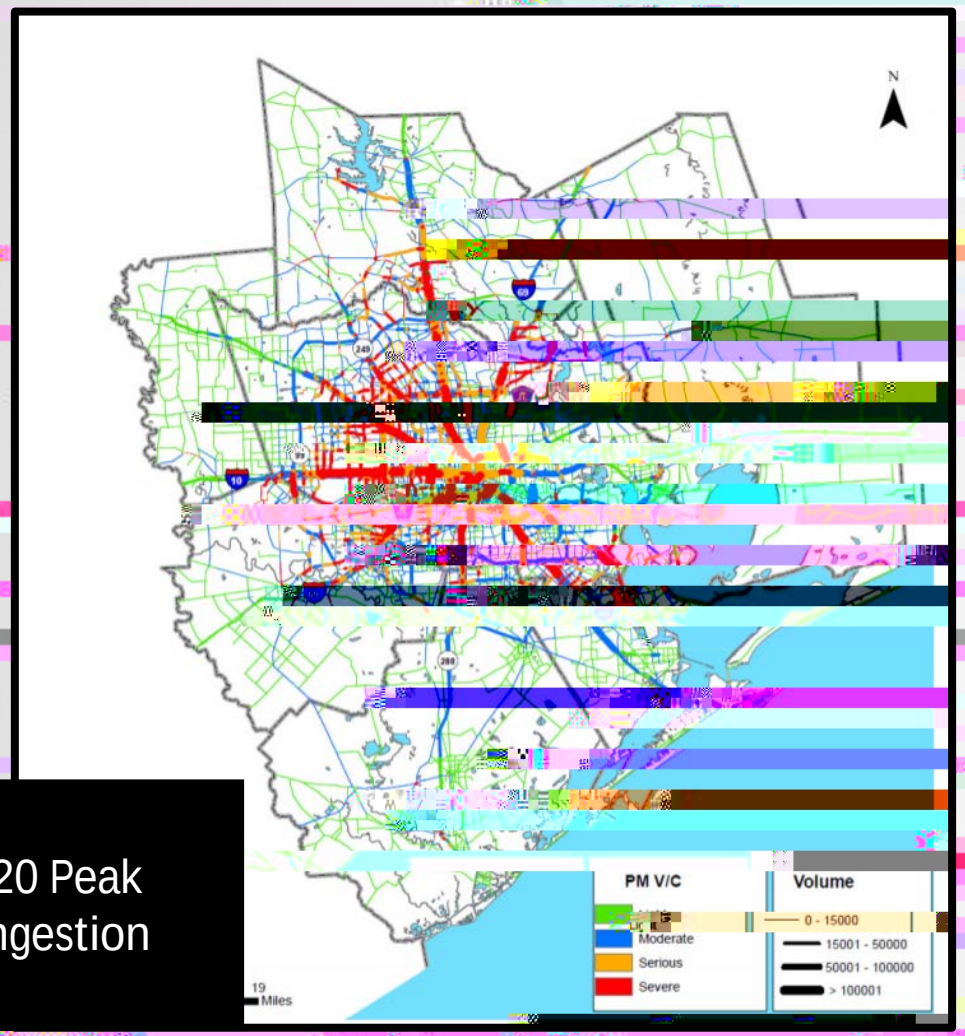


Candidate Locations for Adaptation Solutions

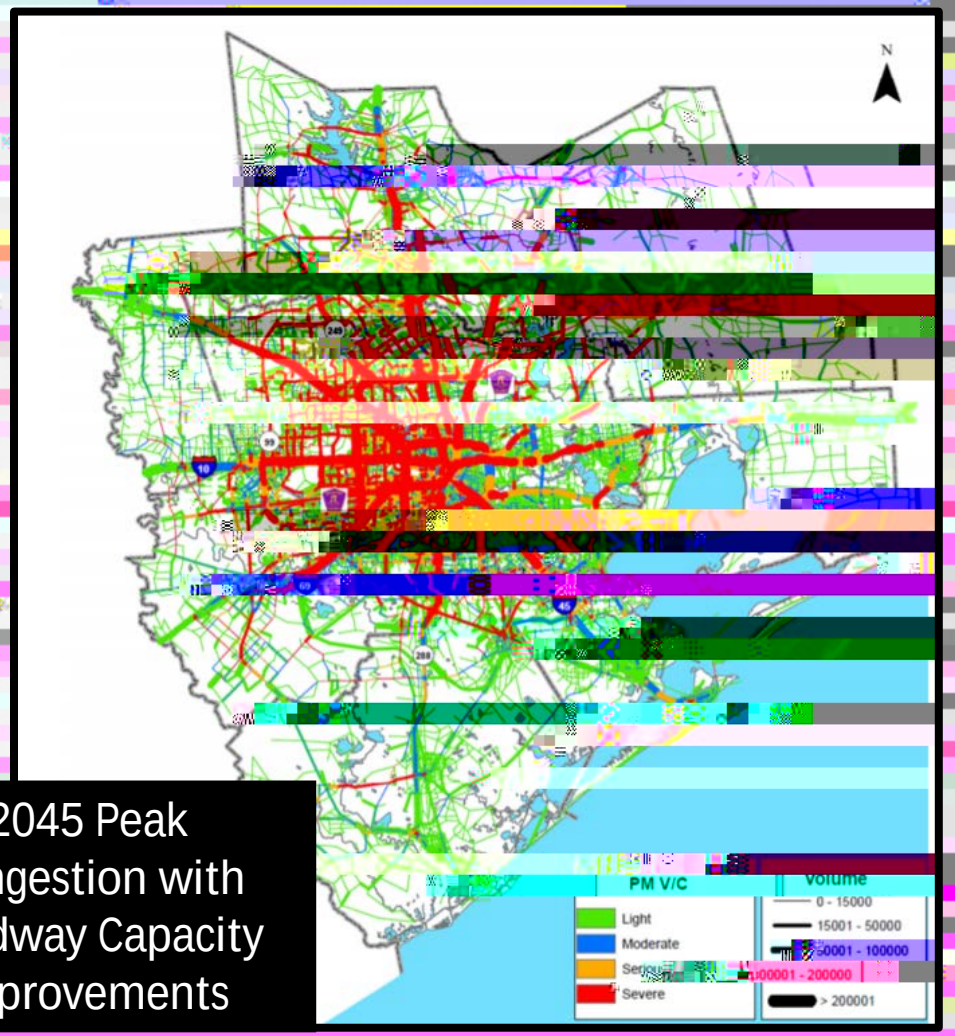
Transportation Resilience

"a system's ability to continue to function at an acceptable level of efficiency in the face of disruptive or unexpected conditions"

Congestion

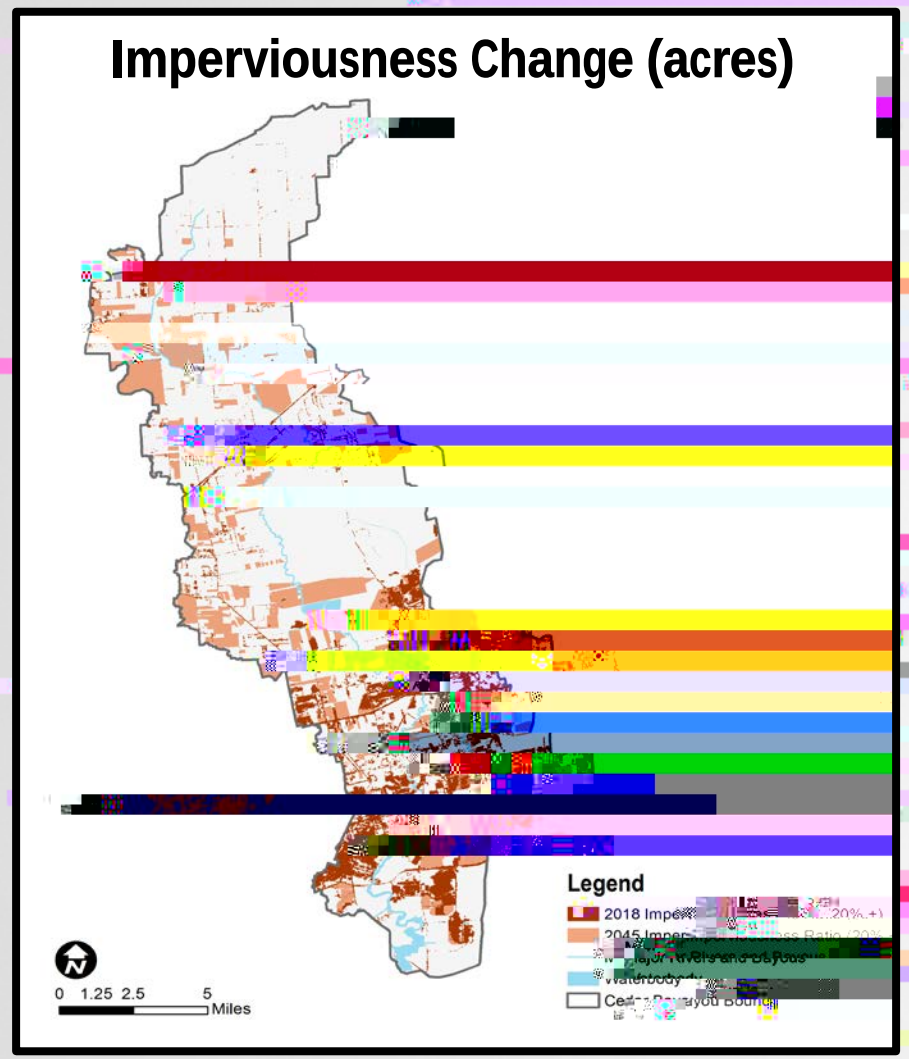


2020 Peak Congestion



2045 Peak Congestion with Roadway Capacity Improvements

Cedar Bayou Initiative, Land Use



Estimated Imperviousness Ratio by Land Use

Imperviousness ratio *represents urban impervious percentage of developed surface over every 30-meter (98.4252 feet) pixel.*

Imperviousness Change (2018-2045)

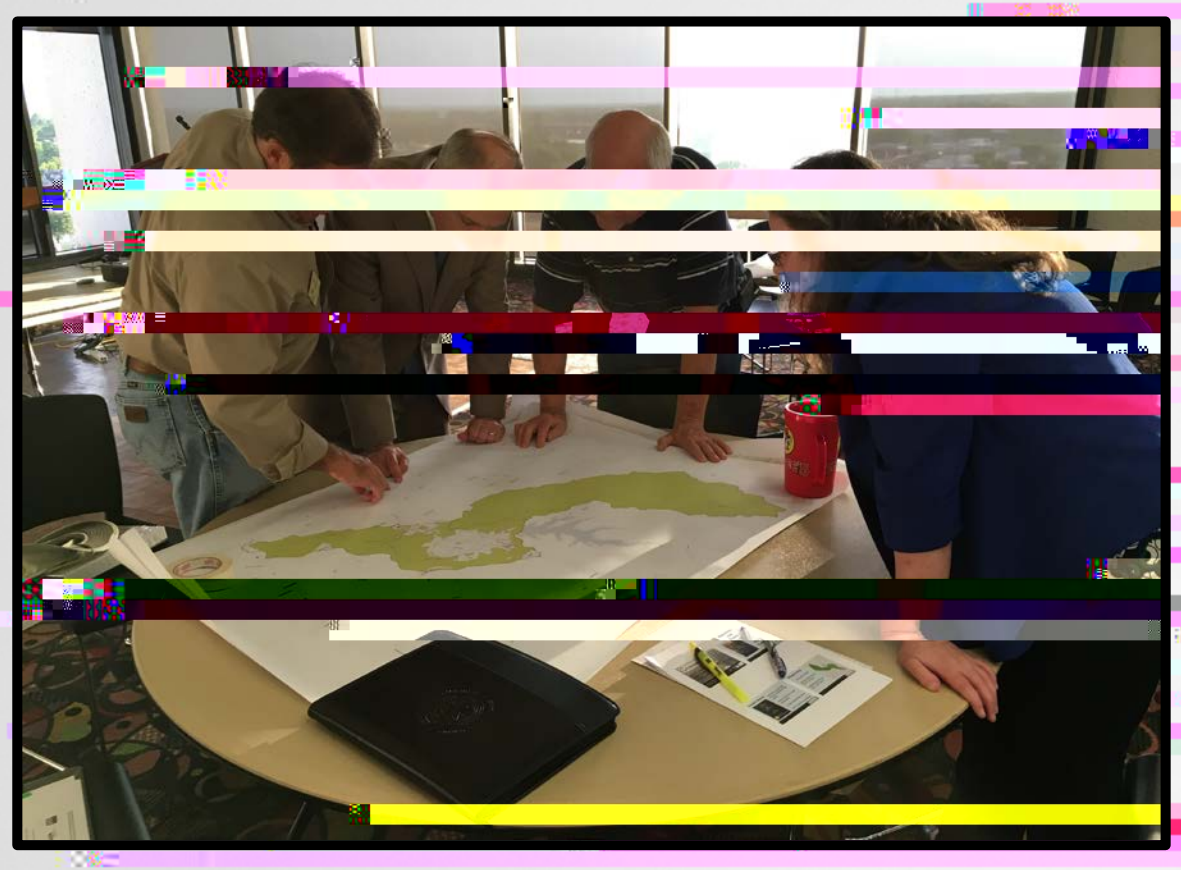
** 20% + is one of criteria for determining US Census Urbanized Area*

Source: 2016 NLCD Percent Developed Imperviousness, MRLC; 2018 10 Class Land Cover Data Set, H-GAC

Cedar Bayou Initiative, Back to Basics

- Channel and drainage ditch maintenance
- Jurisdictional authority and ownership
- Major upstream detention

Takeaways



- Off to a good start
- The multimodal perspective
- Back to basics
- Big challenges ahead
- A role for MPOs

Contact/ Resources

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Resources	Links