



Advisory Committee Update

November 30 2023

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- Final report overview
- Main findings
- Recommended resilience strategies
- Moving forward

Ch. 1: Introduction

Purpose

Integrate resilience and sustainability into investment decisions

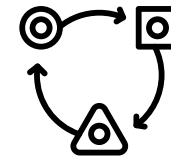
Provide mitigation techniques



Vision Statement

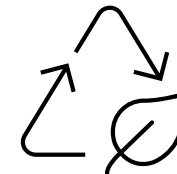
The RGVMPO will leverage their position as a clearinghouse for regional, collaborative planning to encourage sustainable practices that make the region more resilient in the face of risk.

Guiding Principles



Adaptive Development

Connected Communities



Sustainable Future

Collaborative Governance



Just Choices

Ch. 2: Public Engagement



- SWOT workshop
- Virtual workshops
- Surveys
- Posters & flyers
- Story map



RGVMPO Resilience and Sustainability Analysis

The Rio Grande Valley Metropolitan Planning Organization is conducting a Resilience and Sustainability Analysis. To find out more please visit the RGVMPO website: rgvmppo.org

Connectivity, criticality, and vulnerability were evaluated to develop a Resilient Transportation System (at right). The System is a starting place for identifying key segments of the roadway system which are critical for their connectivity and support of regional transportation need. Learn more about the System by visiting the online map!

Visit the online map here! (tinyurl.com/rgvstudy)

To improve long term quality of life in the RGV, this study will provide:

- Assessment of resilience and sustainability vulnerabilities of the transportation system and communities
- Analysis of regional stressors: hurricanes, floods, population growth, and heat
- Public engagement and outreach with local governments, RGV community, and stakeholders

This project is being developed on behalf of the RGVMPO by **ATG** and **DCCM**

RGVMPO
Resilience and Sustainability Analysis

La planificación es un proceso accionado por la comunidad. Ayúdenos a comprender mejor sus necesidades respondiendo unas preguntas breves.

¿Alguna vez ha sido afectado por factores estresantes en su comunidad?
(Los factores estresantes representan peligros potenciales que afectan la resiliencia regional).

Si
 No
 No estoy seguro

¿Qué tan preparados se siente usted y su vecindario o comunidad para los factores estresantes?
(Los factores estresantes representan peligros potenciales que afectan la resiliencia regional).

No preparado Neutral Algo preparado Preparado Muy Preparado

La sostenibilidad incluye pensar en el futuro de la comunidad. ¿Qué es importante para las personas que viven aquí y qué quieren asegurarse de que haya aquí para los hijos de sus nietos?

¿Hay carreteras cruciales que cree que deben incluirse en Sistema de Transporte Resiliente?

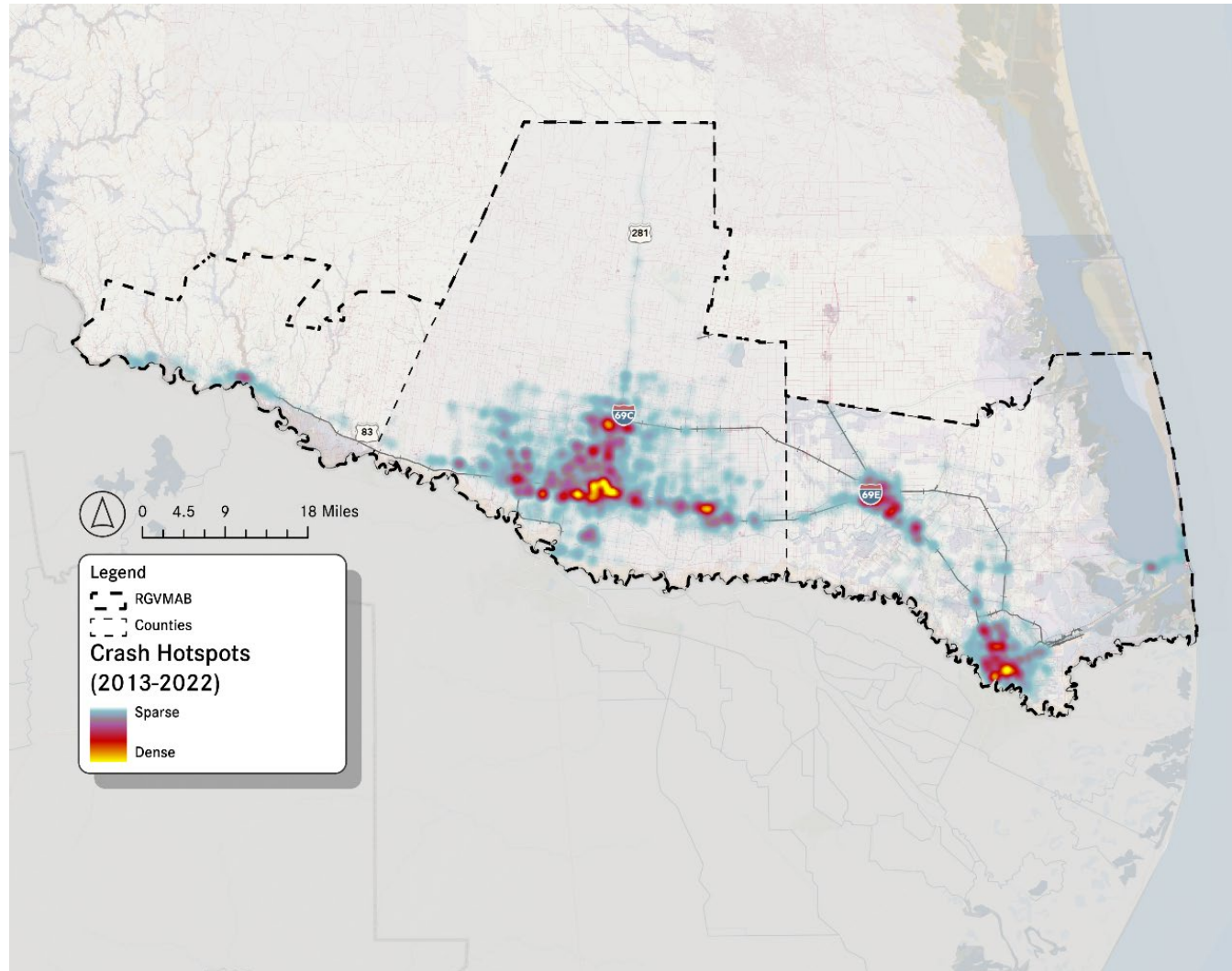
¿Algo más que le gustaría compartir?

Encuesta de Análisis de Resiliencia y Sostenibilidad de RGVMPO

Ch. 2: Public Engagement

Strengths	Opportunities
Coordination/cooperation of government/entities; affordability; connectivity; border proximity; active transportation network; growth; local universities; culture; regional and local support for transit.	Technology and electrification; border crossings/major ports of entry; ecotourism; public involvement and education; dual uses (active transportation and resiliency).
Sprawled, car-centric region with low connectivity; low-lying terrain leading to drainage issues; education gaps; road and pedestrian safety.	Climate change; skill gaps; staff shortages; blackouts; border crossings; overdevelopment; poverty; poor road conditions; flooding.
Weaknesses	Threats

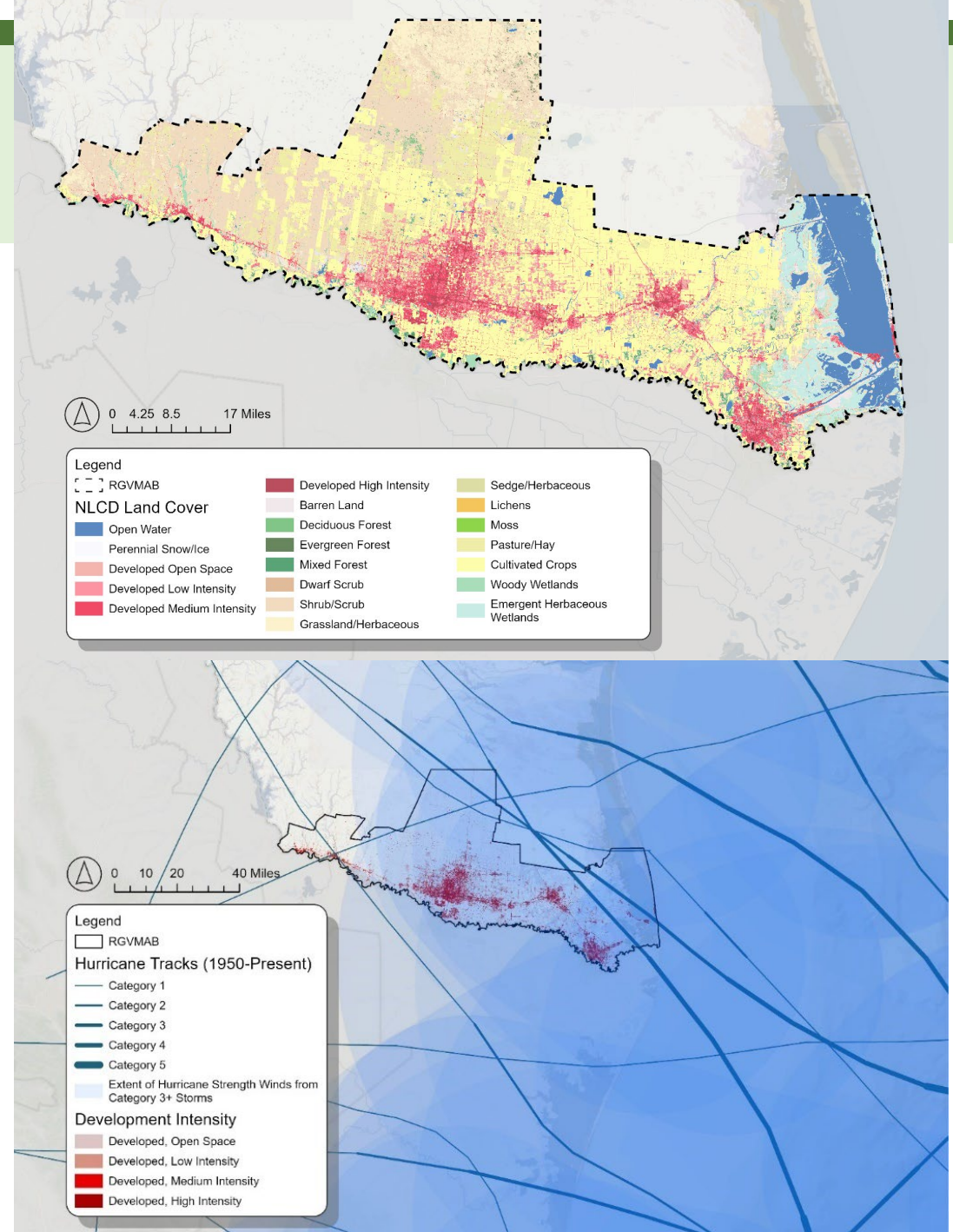
Ch. 3: Transportation Network Assessment



- Roadways
- Active transportation
- Transit
- Freight
- Evacuation routes
- Border crossings
- Bridge conditions
- Pavement conditions
- Crash hotspots

Ch. 4: Risk Profiles

- Cost of risk
- Estimated annual loss
- Social vulnerability (very high)
- Community resilience (very low)
- Resilience risk profiles
 - Natural hazards
- Sustainability risk profiles
 - Air/water quality, housing, etc.



Ch. 5: Cost Benefit Analysis

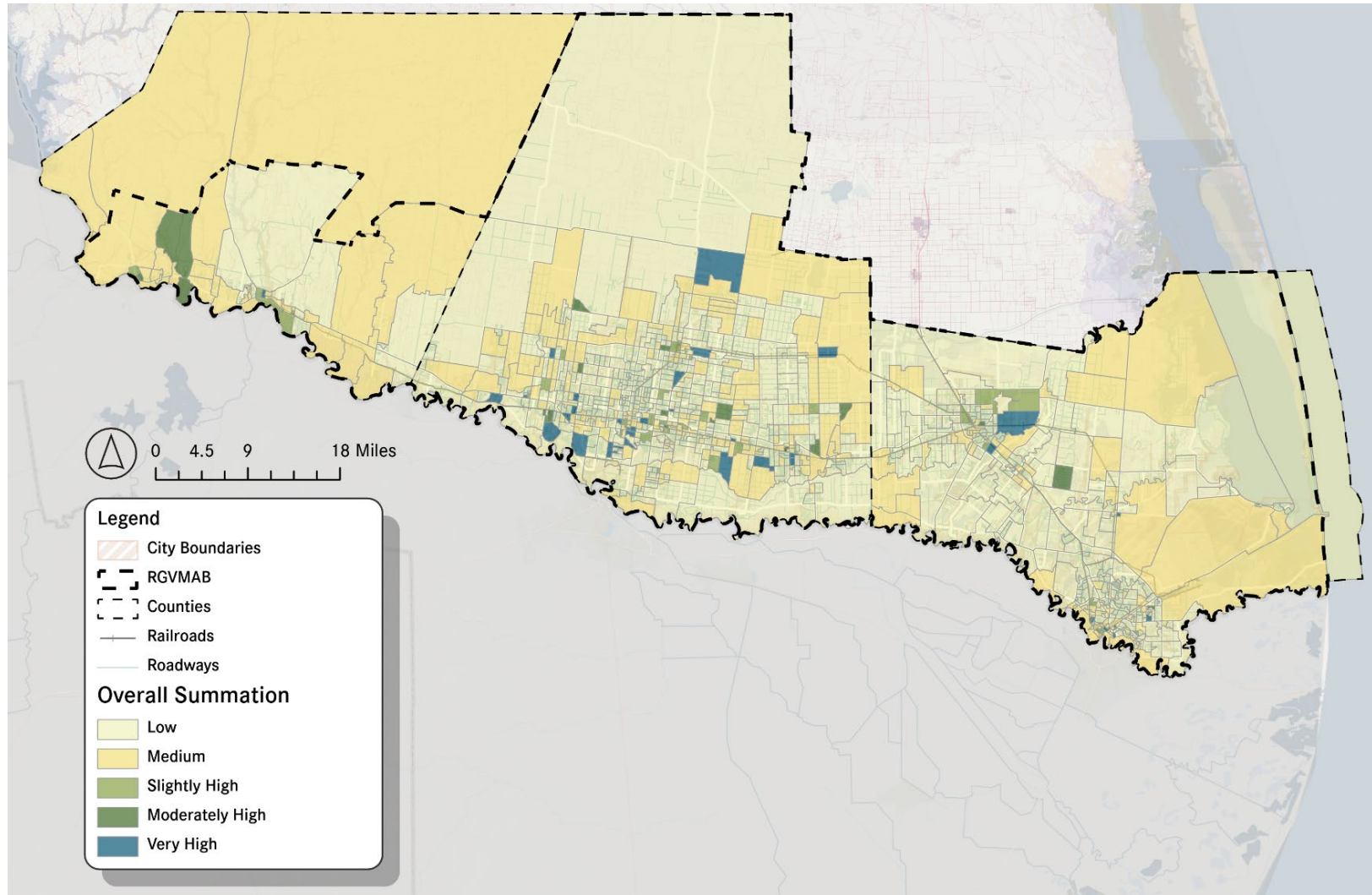
Green Infrastructure Cost	Annual Maintenance Cost (\$/ft ²)
Turf to native prairie	\$0.16
Naturalized swale	\$0.16
Bioretention	\$0.16
Permeable pavement	\$0.15
Grassland restoration	\$0.21
Woodland restoration	\$0.21
Naturalized detention basin	\$0.41
Rain garden	\$1.55

Benefit	Green Roofs (\$/ft ²)	Permeable Pavement (\$/ft ²)	Bio-retention (\$/ft ²)	Urban Trees (\$/tree)
Energy cost savings	\$0.05			\$17.05
Carbon sequestration and avoided emissions	\$0.01	\$0.003	\$0.02	\$6.33
Drought risk reduction		\$0.13	\$0.52	\$5.53
Habitat	\$0.05		\$0.11	\$40.18
Heat risk reduction				\$910.28
Property value improvement	\$0.19		\$0.40	\$53.15
Removal of air pollutants	\$0.001		\$0.004	\$2.50
Stormwater volume and quality	\$0.09	\$0.51	\$1.80	\$20.17
Total	\$0.40	\$0.64	\$2.84	\$1055.19

Source: Headwaters Economics, 2022

Source: FEMA Economic Benefit Values for Green Infrastructure. July 2022, p. 15

Ch. 6: Equity Analysis



- Tri-county regional average scoring system that allowed for above average areas of the region to be identified

Ch. 7: Mitigation Measures and Recommendations

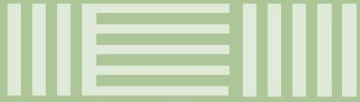


Safety

Safety is a pillar of community resilience. Ensuring communities and without fear is paramount to building a resilient community forms. Communities face the adverse effects of extreme weather events, including flooding, hurricanes, and wildfires. Taking a proactive approach to these situations can help communities be better prepared to meet these challenges when they arise.

Action Items

- Implement traffic calming measures, such as speed bumps, speed limits, and traffic circles in areas identified as high-risk areas.
- Construct more pedestrian-friendly infrastructure, such as sidewalks, crosswalks, and biking trails.
- Create public health campaigns focused on better health outcomes.
- Designate local government buildings as resilience hubs for emergencies.

Coastal and Riverine Flooding

Flooding presents a challenge for communities and for the built environment. Low-lying areas of Cameron, Starr, and Hidalgo Counties are susceptible to river flooding during heavy rainfall events.

Additionally, low-lying areas of Cameron County are subject to repetitive coastal flooding. Natural systems, or green infrastructure, such as wetlands, bioswales, and rain gardens have been proven to be effective mitigation strategies when complemented with traditional grey drainage infrastructure.

Action Items

- Integrate wetlands restoration and creation into new and existing recreation and active transportation projects.
- Identify public right of ways and roadways where bioswales, rain gardens, and green stormwater infrastructure could be constructed.
- Update development guidelines to encourage options for nature-based solutions and green infrastructure in private development.
- Assess the costs and benefits of implementing green infrastructure projects.




RGVMPO

Resilience and Sustainability Analysis

Resilience Recommendations



Introduction: Hazards

Understanding natural disasters and extreme weather events is essential for communities to mitigate negative impacts. It is important to be aware of the dangers of frequent and severe weather events, such as hurricanes and flooding, as well as other hazards like extreme cold or heat. Extreme heat events are a growing concern for many communities. Understanding how to protect themselves and their families is crucial for overall regional resilience from these events. Hazard maps help people to understand their risks and provide a starting point for targeted mitigation and public education on natural hazards. Some key points for natural hazards are listed below:

- Ignition from people (campfires, burning of tires, sparks from trailer chains, etc.)
- Homes by creating a defensible buffer zone with fire-resistant materials
- Stay away from smoke (stay indoors, close doors, etc.)


Structures:

- Identify cooling center locations
- Postpone signs, treatments, and when to get help
- Heat stroke, heat exhaustion, heat cramps, heat rash
- Gas leaks on neighbors
- Gas pipes and carbon monoxide poisoning

Preparedness:

- Know how to take action to protect yourself, family, and neighbors.
- Preparedness kits: water, nonperishable food, medications, etc.
- Store important documents and valuables so they won't be damaged.
- Sign up for local emergency messages.

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Leaders

Municipalities, RGVMPO

Time Frame

Short-Term (1-5 years)

Funding

Resilient Communities Program (Texas GLO)

Introduction: Regional

Working at the municipal or regional level is essential for contributing to region-wide resilience. This is best performed if the individual communities are first surmounted so that information can be shared and interjurisdictional communication is established.

Working with counterparts and agencies is essential. Policies that would benefit from this communication with regional authorities (virtually all) should be shared within the region.

Building resilience and resiliency



Leaders

Municipalities, RGVMPO

Time Frame

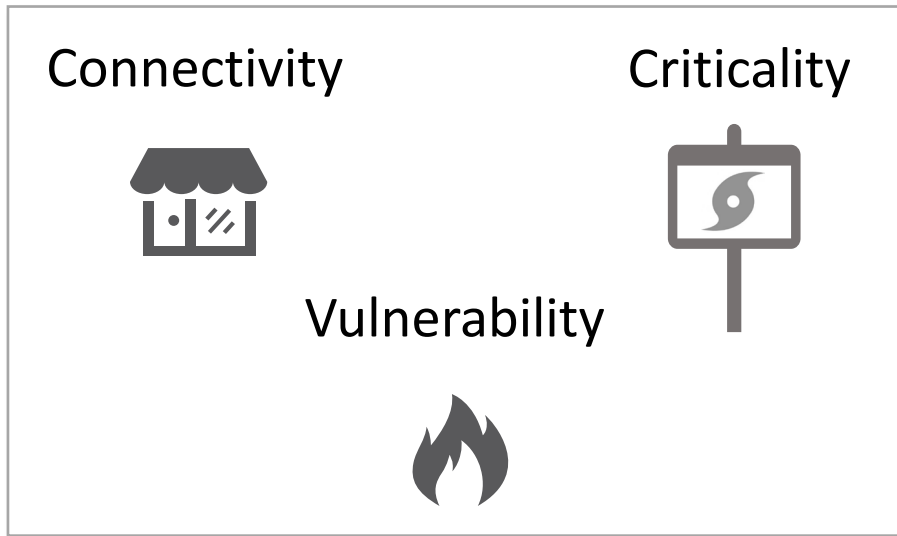
Short-Term (1-5 years)

Funding

Building Resilient Infrastructure and Communities Grant (FEMA), Inflation Reduction Act Environmental and Climate Justice Program (EPA), Cultural and Community Resilience Program (National Endowment for the Humanities), Our Town Creative Placemaking Grant (National Endowment for the Arts)



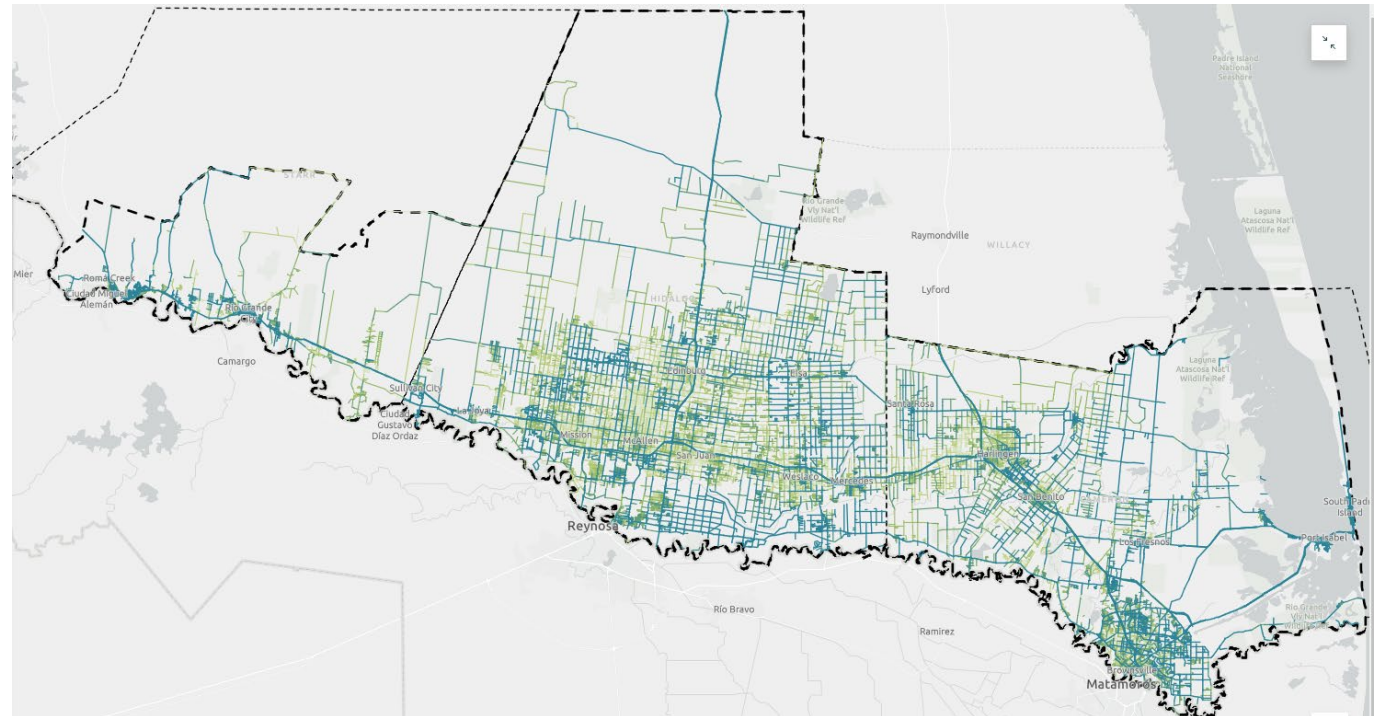
Ch. 8: Priority Investment Network



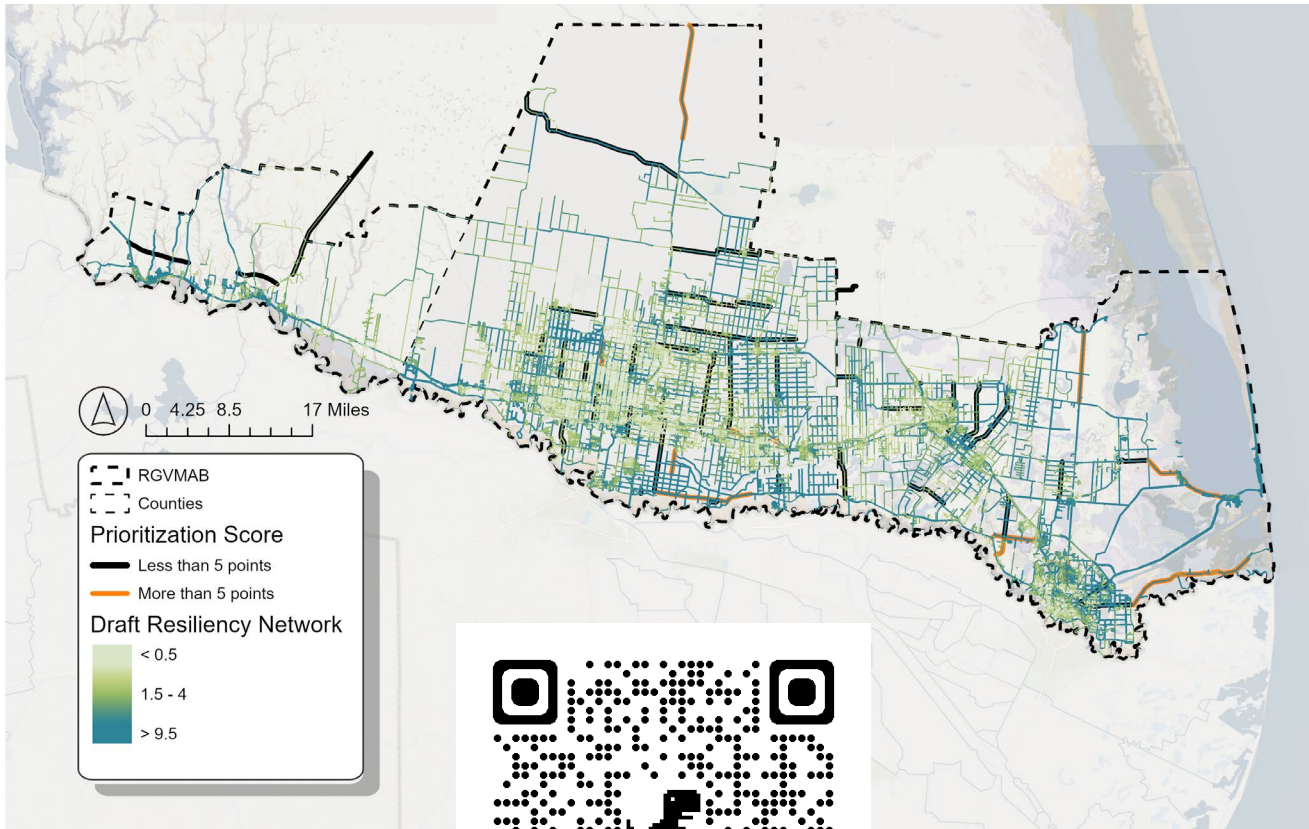
Scoring



Draft Resilient Transportation Network



Ch. 9: Implementation Steps



- Incorporate resilience plan into the MTP
- Form a resilience task force
- Identify *existing* projects that can add resilience improvement
- Identify *new* resilience projects based on Priority Investment Network
- Seek PROTECT and other funding sources

Main Findings

- Network
 - More than 10 highways designated as evacuation routes
 - 5 land ports crucial to U.S./Mexico exchange
 - 11 bridges in poor condition
 - 61% of roadways are in good condition
- Risks
 - The highest estimated annual loss is expected for flooding/hurricanes and urban heat /extreme heat
 - Social vulnerability (especially housing)
- Equity
 - Starr County displayed highest rate of vulnerability, but all 3 counties exhibit high rates of vulnerability to stressors

Main Findings

- Recommendations
 - Structural: Green infrastructure, natural solutions, and hardening of infrastructure
 - Non-structural: Communication, cooperation, and education
- Priority network
 - Connectivity, criticality, and vulnerability scores identified priority investment areas
- Implementation
 - Resilience should complement and be incorporated into all projects/plans

Moving Forward

Adaptive Development Action Items				
Action item	Supporting Actions	Who is Involved?	Timeframe	Possible Funding Source(s)
Wetland preservation and restoration	Integrate wetland restoration and creation into new and existing recreational trails and active transportation projects	Municipalities (especially in Cameron County), TPWD	Long-term	PROTECT Grant (FHWA)
				Five Star and Urban Waters Restoration Grant (NFWF)
				National Coastal Resilience Fund (NFWF)
				Coastal Zone Management Habitat Protection and Restoration Grants (NOAA)
				Transformational Habitat Restoration and Coastal Resilience Grants (NOAA)
				Wetland Reserve Easement Program (NRCS)
				North American Wetlands Conservation Act Grants (USFWS)
Bioswales and rain gardens	Identify public right of ways and roadways where bioswales, rain gardens, or other green stormwater infrastructure could be constructed	Municipalities, RGVMPPO, TxDOT	Short-Term	PROTECT Grant (FHWA)
				Texas Clean Water State Revolving Fund
				Five Star and Urban Waters Restoration Grant Program (NFWF)
				National Fish and Wildlife Foundation America The Beautiful Challenge
				Surface Transportation Block Grant Alternatives Set Aside (FHWA)
Update development guidelines to support resilience to floods	Limit development in hazardous areas through building codes, zoning, and land use planning	Municipalities	Short-Term	Resilient Communities Program (Texas GLO)
	Encourage options for nature-based solutions like green infrastructure in private development	Municipalities	Short-Term	N/A

Thank you

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Shoutout to Javier Dominguez Jr.