

Hernando Citrus MPO Vulnerability and Risk Assessment

MPO Advisory Committees 9/27/2023

MPO Board 10/5/2023



Outline

- Review of study objectives
- Identification of vulnerable areas
- Vulnerability Assessment
- Criticality Assessment
- Priority Recommendations
- Mitigation Strategies



Review of Study Objectives

- Identify vulnerable transportation infrastructure
- Develop resilient mitigation strategies
- Rank vulnerable locations
- Create a tiered list of vulnerable and critical locations
- Identify potential mitigation strategies for consideration in 2050 Long Range Transportation Plan



Identification of Vulnerable Areas

- Storm Surge / Inundation
 - Data Source: Sea, Lake, and Overland Surges from Hurricanes (SLOSH)
 - Data Provider: National Hurricane Center
 - Data Analysis: Included all 5 hurricane levels
- Flood Hazard
 - Data Source: Digital Flood Insurance Rate Map
 - Data Provider: Federal Emergency Management Agency
 - Data Analysis: Included areas listed as High Risk and Very High Risk
- Fire Hazard
 - Data Source: Wildfire Hazard Probability
 - Data Provider: US Department Agriculture Forest Service
 - Data Analysis: Used two highest categories of High and Very High



21% of MPO roads
at storm surge risk



15% of MPO roads
at flood risk



14% of MPO roads
at wildfire risk

Vulnerability Assessment – Criteria & Scoring

- Measured by evaluating the roadway segment’s exposure to and likelihood/severity of being impacted by the three event types considered.
- Scores calculated by multiplying the percentage of each roadway segment located within each impact area by the following factors:

Event Type	Multiplier	Impact Area Vulnerability Criteria
Storm Surge	x 1	Segments in Category 1 & Category 2 Areas
Storm Surge	x 0.33	Segments in Category 3, Category 4, & Category 5 Areas
Inland Flooding	x 0.1	Segments in 100-Year Floodplain Area (1% Annual Chance of Flooding)
Wildfire	x 0.05	Segments in High & Very High Wildfire Risk Areas

Criticality Assessment (Transportation Function)

- Measured by evaluating the roadway segment's transportation function and the access it provides to critical destinations or critical facility locations – 11 possible points.

	Evacuation Route	Primary Access or Bridge	Traffic Volumes	Transit Services	Functional Class	FDOT SIS Facility
0 Points	No	No	AADT < 12,000	No Transit Routes	Local or Minor Collector	No
1 Points	<i>Not Possible</i>	<i>Not Possible</i>	AADT ≥ 12,000 but < 35,000	At Least One Transit Route	Major Collector or Minor Arterial	<i>Not Possible</i>
2 Points	Yes	Yes	AADT ≥ 35,000	<i>Not Possible</i>	Principal Arterial	Yes

AADT = Annual Average Daily Traffic

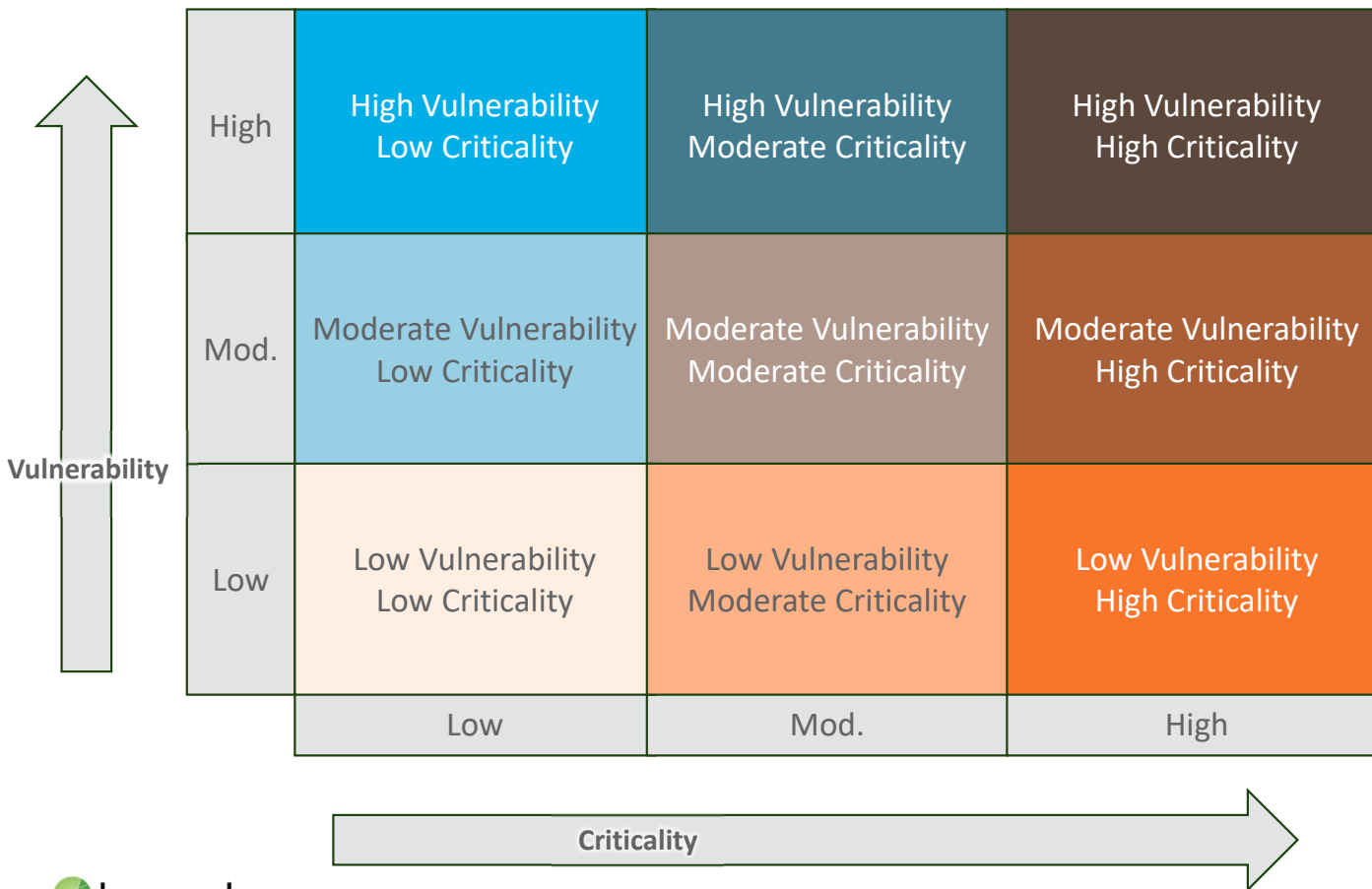
Criticality Assessment (Access to Destinations)

- Measured by evaluating the roadway segment's transportation function and the access it provides to critical destinations or critical facility locations – 8 possible points.

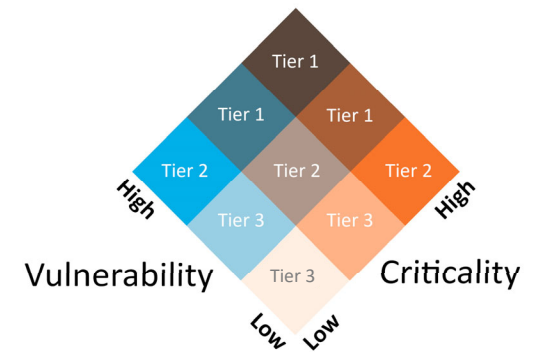
Criteria
Medical & Emergency Response - Hospital, EMS, Police, Fire
Evacuation Shelters - Listed on Hurricane Evacuation Maps
Airports - Public, Private, Heliport
Utility Services & Emergency Resources - Water, Electric, Debris Removal

Scoring	
0 Points	Per category with zero critical facilities within one mile
1 Point	Per category with at least one critical facility within one mile
2 Points	Per category with two or more critical facilities within one mile

Approach for Determining Priority

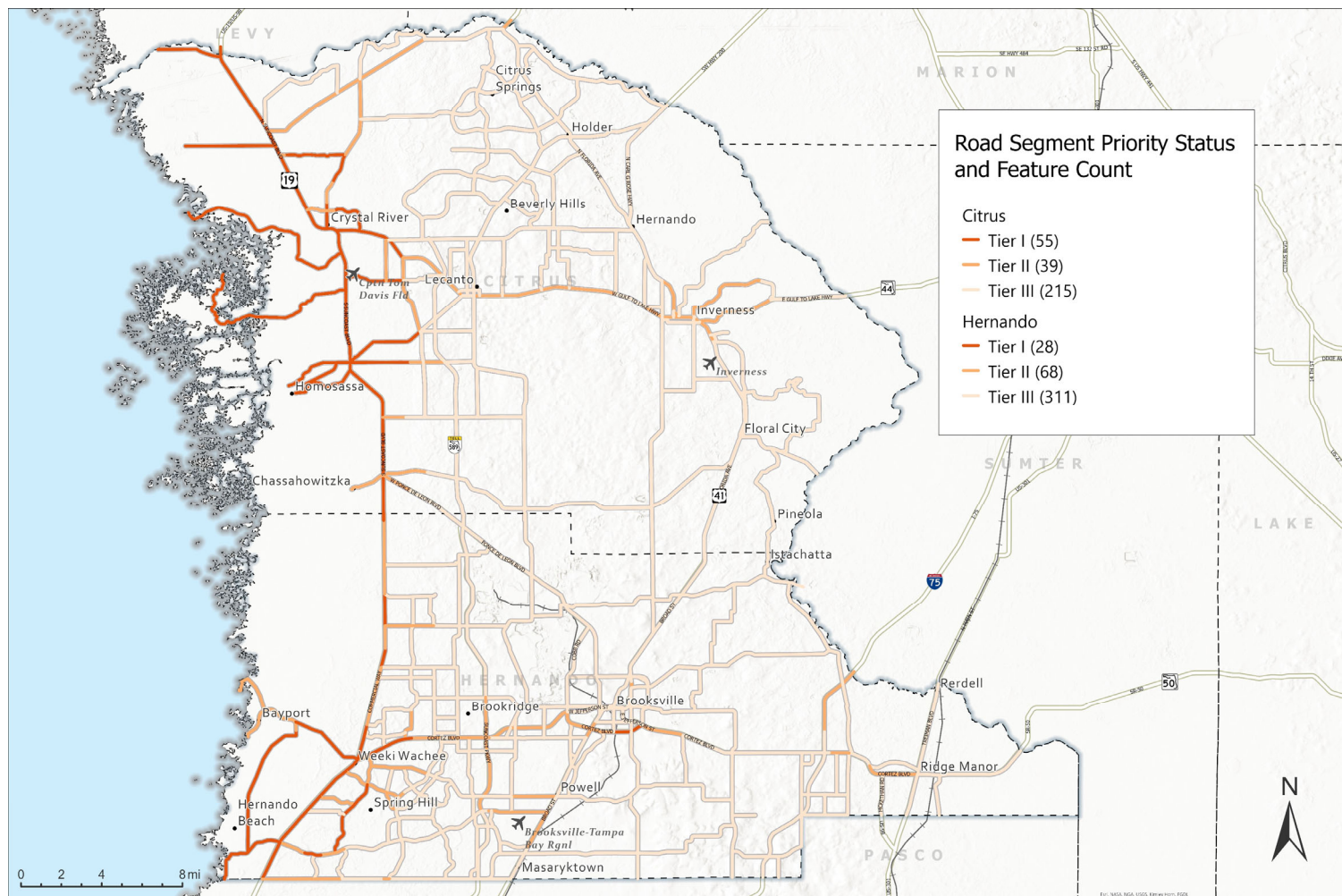


Segments are grouped into three tiers with Tier 1 being the highest priority:

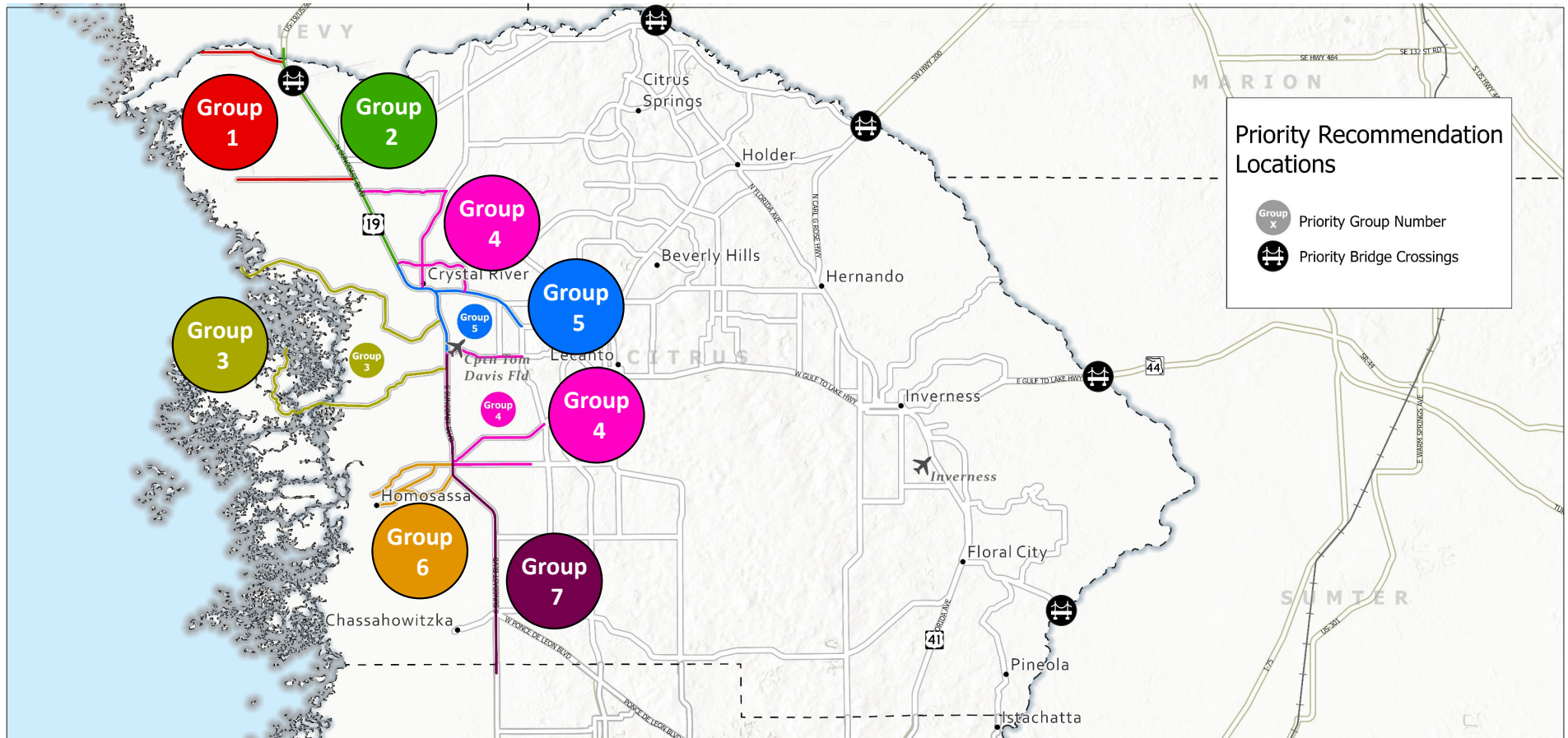


Tier Group Results

- Tier 1 segment count and coverage is highest in NW Citrus County and SW Hernando County
- Tier 2 segments have a wider distribution pattern that includes large portions of major east-west state roads, proximity to airports, primary routes in/out of each county



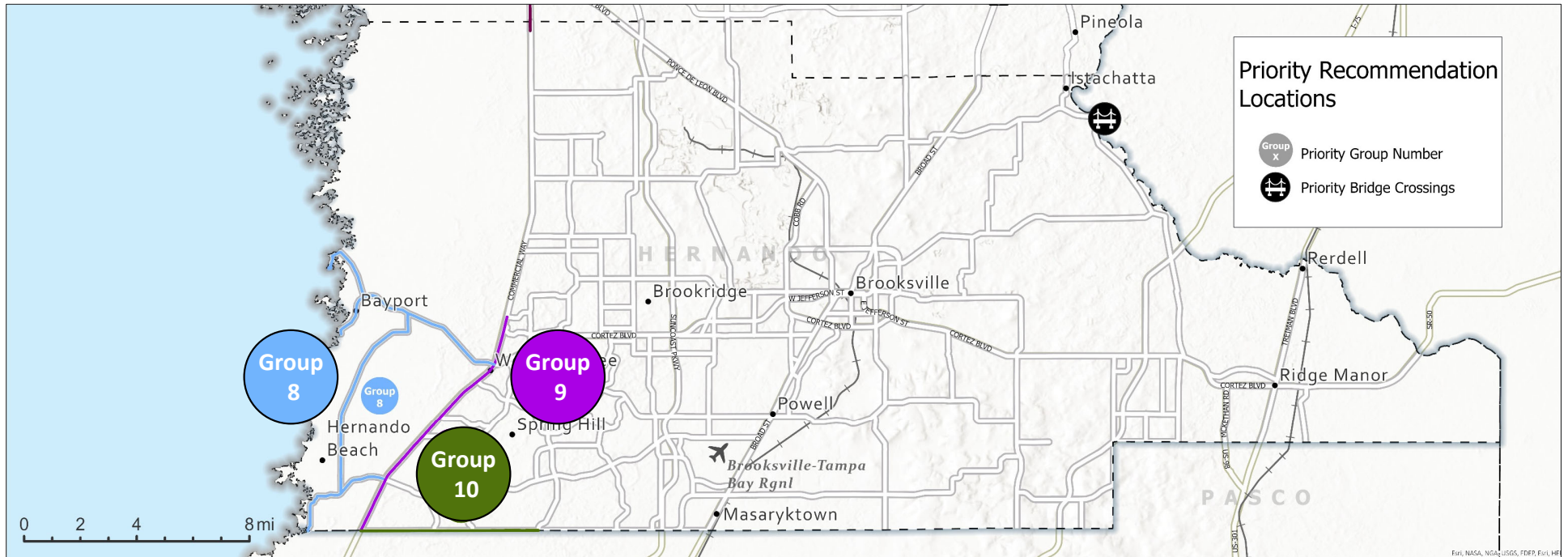
Priority Recommendations – Citrus County



Priority Recommendations – Citrus County

Group	Roadway Segment	From	To	Length
1	Power Line St	Power Plant	US 19	3.9 miles
	River Rd	US 19	Caribee Point	2.8 miles
2	US 19	Turkey Oak Dr	Levy County	9.0 miles
3	CR 44 (Ft. Island Trail)	Fort Island Park	US 19	9.2 miles
	CR 494 (Ozello Trail)	Sanddollar Lane	US 19	9.4 miles
4	CR 490 (Homosassa Trail)	US 19	Rock Crusher Rd	3.6 miles
	CR 490A (Grover Cleveland Blvd)	US 19	Claridge Avenue	2.6 miles
	CR 495 (Citrus Ave)	US 19	Emerald Oaks Dr	3.9 miles
	Emerald Oaks Dr	US 19	CR 495	2.9 miles
	Turkey Oak Dr	US 19	SR 44	3.3 miles
	Venable St	US 19	Rock Crusher Rd	2.6 miles
5	SR 44 (Gulf to Lake Hwy)	US 19	Rock Crusher Rd	3.4 miles
	US 19	Venable St	Turkey Oak Dr	4.2 miles
6	CR 490 (Yulee Dr)	Woodland Place	US 19	3.2 miles
	CR 490A (Halls River Rd)	Riverview Circle	US 19	3.1 miles
	Fishbowl Dr	CR 490	CR 490A	2.0 miles
7	US 19	Hernando County	Venable St	12.6 miles

Priority Recommendations – Hernando County

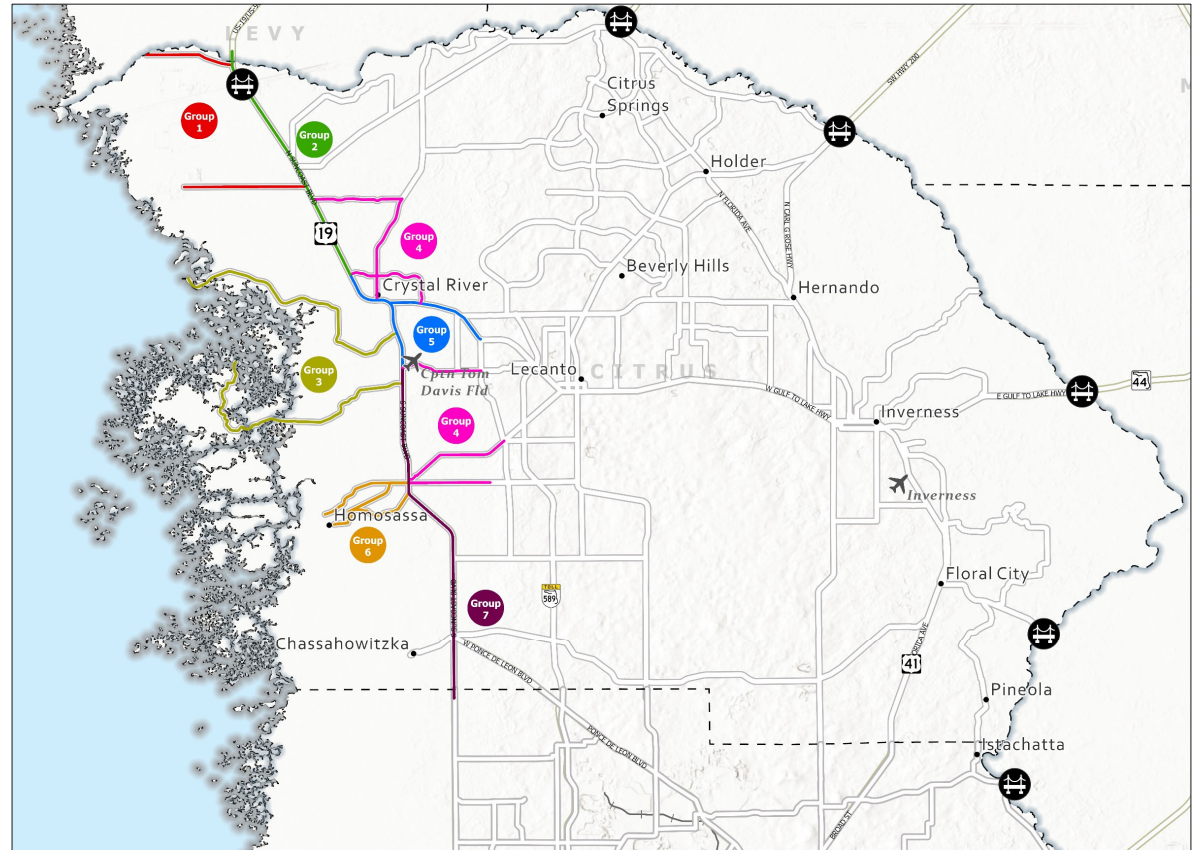


Priority Recommendations - Hernando County

Group	Roadway	From	To	Length
8	Cortez Blvd (CR 550)	Bayport Park Pier	US 19 (SR 55)	6.6 miles
	Osoaw Blvd (CR 595)	Pasco County	US 19 (SR 55)	3.8 miles
	Pine Island Drive	Pine Island Park	Cortez Blvd	2.7 miles
	Shoal Line Blvd	Osoaw Blvd	Cortez Blvd	7.3 miles
9	US19 (SR55)	County Line Rd	Ridge Rd	9.0 miles
10	County Line Road	US 19	Mariner Blvd	2.16 miles

Priority Recommendations – Bridge Crossings

- CR 476 / Lake Lindsey Road
- SR 48 / Bushnell Rd
- SR 44 / Gulf to Lake Hwy
- SR 200 / Carl G Rose Hwy
- US 41 / Florida Ave
- US 19 / US 98



Mitigation Strategies

- Location specific strategies for priority locations
 - Planning & Policy-Based Strategies.
 - Capital Improvement & Infrastructure Strategies.
 - Technology-Based Strategies.
- MPO coordination activities with FDOT, counties, and cities
 - Data sharing and exchange.
 - Training and technical support partnerships.
 - Seek grant and future funding opportunities.

Strategies grouped by risk factor



Storm Surge



Flooding



Wildfire



Recommendation

It is recommended that the MPO Board approve the Vulnerability and Risk Assessment Study.

Questions?



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