Integrating Socioeconomic Data in a Climate Change Vulnerability

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City of Boynton Beach
Climate Compact Implementation Workshop
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Multi-Jurisdictional Climate Change Vulnerability Assessment
Began meeting to discuss common climate threats and needs

Decision to pursue grant funding for Regional CCVA

Received Pro-Bono assistance from Harvard University

Determined governance structure and cost share strategy

Hired consultants and began assessment

The COVID-19 pandemic resulted in pivoting to a completely virtual format for public outreach and working sessions with CRP and the consultant.
Climate Threats Assessed

- High Winds
- Rainfall-Induced Flooding
- Harmful Algal Blooms
- Pest & Disease Outbreaks
- Extreme Heat
- Drought
- Wildfire
- Shoreline Recession
- Tidal Flooding
- Storm Surge
- Groundwater Inundation
- Saltwater Intrusion
Spatially Assessed Threats

- High Winds
- Rainfall-Induced Flooding
- Extreme Heat
- Tidal Flooding
- Storm Surge
Asset Categories Assessed

- Critical Facilities
- Property
- Water Infrastructure
- Transportation & Mobility
- Economic Factors
- People and Socioeconomics
- Natural Resources
Vulnerability

Understanding the susceptibility of societal assets due to physical and social factors.

Exposure: presence of assets in harm's way

Sensitivity: the degree to which assets are affected by a threat

Adaptive Capacity: the ability to cope

Risk

Understanding the probability and negative outcome of threats.

Probability: the likelihood of a threat or hazard event occurring

Consequence: the negative outcome of a threat or hazard event
Results for study area, at planning scale, and asset-level

Citywide Analytics

Rainfall-Induced Flooding (2020)

- Businesses: 1,135 (30%)
- Homes: 48,648 (43%)
- Health & Medical Facilities: 75 (37%)

Census Tracts/ Neighborhood Areas

Asset-level (AccelAdapt)
How socioeconomic data are used in the CCVA

- Used in the “ruleset” for Extreme Heat assessment
- Overlaid on all spatial threat assessments to examine social vulnerabilities

Used to ask and answer specific questions:
- What are the types and areas with the most social vulnerability?
- Where are high social vulnerabilities co-located with high physical vulnerabilities?
- Are equity and justice being prioritized when identifying adaptation investments?
Extreme Heat

Potential Impact
• Sensitive populations (over age 65, under 18)
• Developed land cover

Adaptive Capacity
• Households below the poverty line
• Tree canopy coverage

Vulnerability
For all other spatial threat assessments, overlay data include:

Socioeconomic metrics from U.S. Census (ACS)
CDC’s Social Vulnerability Index (SVI)

### Overall Vulnerability
- **Socioeconomic Status**
  - Below Poverty
  - Unemployed
  - Below Poverty
- **Household Composition & Disability**
  - Aged 65 or Older
  - Aged 17 or Younger
  - Civilian with a Disability
  - Single-Parent Households
- **Minority Status & Language**
  - Minority
  - Aged 5 or Older who Speaks English “Less than Well”
- **Housing Type & Transportation**
  - Multi-Unit Structures
  - Mobile Homes
  - Crowding
  - No Vehicle
  - Group Quarters
High Winds & Residential Property

- 12,242 residential properties (11%) are highly vulnerable & at risk

- 5,207 of these properties are sensitive housing types (multi-residence, assisted housing, group home, mobile home)

- 17 of the most socially vulnerable Census tracts also contain >23% of vulnerable residential properties
Storm Surge & Residential Property

- 8,458 of residential properties (7%) are highly vulnerable/at risk in 2020
- By 2070 (+33” SLR), this increases to 11% of properties
- 721 sensitive properties (multi-residence, assisted housing, group homes, mobile home)
- Overlap with 3 Census tracts with high housing/transportation vulnerability (e.g., no vehicle)

Critical for evacuation
Rainfall-Induced Flooding & Critical Facilities
2020 (25, 100, and 500-year flood extents)

- 37% of Health & Medical and 29% of Food Infrastructure assets are highly vulnerable & at risk
- 11 of the most socially vulnerable Census tracts have vulnerable health & medical facilities
- 10 of the highest SNAP participation Census tracts have vulnerable food retailers/pantries
SOCIAL EQUITY & ADAPTATION

It is important to consider frontline communities – those that will experience climate change first and worst and ensure that we all rise above the challenge together.

Shared Benefits
Can the benefits of an action or strategy reduce historical or current disparities, economic or otherwise?

Relationship Building
Does the action help foster building effective, long-term relationships and trust between diverse communities and local government?

Alignment and Partnership
Does the action align with existing priorities of frontline communities and allow for collaboration and partnership?

Capacity Building
Does the action help build frontline community capacity through funding or expanded knowledgebase?
Next Steps

- Integrate assessment results and equity metrics into interdepartmental planning and operations
- Prioritize and implement adaptation strategies with equity
- Engage with Florida “Always Ready” resilience law and prepare for state and federal funding opportunities
- Host public meetings about climate threats and solutions that are easily accessible to underserved populations
- Continue to collaborate as the Coastal Resilience Partnership
Racial and Social Equity Comprehensive Community Needs Assessment

ANALYTICS

ENHANCED COMMUNITY ENGAGEMENT

POLICY RECOMMENDATIONS

Economic Development, Education, Housing, Criminal Justice and Safety, Public Health

Community survey, focus groups, formation of standing committees

Detailed policy recommendations that take into account the varied economic and social needs of residents
Thank You

Consultant Team:

Expert Panel:
Questions?

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Visit www.coastalresiliencepartnership.org for full CCVA report and all jurisdictional contacts