Integrating Information Flows and Supporting Communities as Decision-Makers in Response to Acute and Chronic Stressors

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Project Overview

With residents of the Dove Springs neighborhood of Austin (TX) and our community partners (Go Austin!/Vamos Austin!, the City of Austin, and St. Edward's University), we identified a community need for an online interface where residents can:
- access information to address acute and chronic stressors (e.g., flooding, food insecurity) &
- share information useful for developing more effective stressor-related policies and programs (e.g., identifying areas in need of more shade to address heat events).
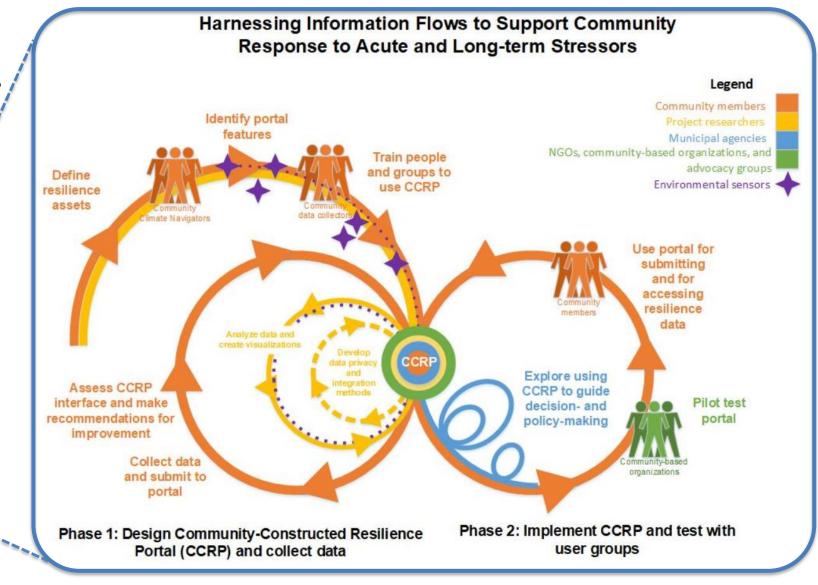
Expected Outcomes and Project Activities to Date (9.1.20 – 3.15.21)

- Outcome: a community-led, innovative technological interface to help residents prepare for acute stressors & respond to chronic stressors. *Sociotechnical Design developed; Sites & Stories (portal) template developed.*
- Outcome: a safe, secure,& private technological system to collect, store, & analyze local knowledge. *Will begin after pilot portal developed and tested.*
- Outcome: a co-developed process to integrate local data into policy and decision-making. *Reactivated Climate Navigator program (after COVID) and recruitment of additional Navigators; interviews conducted & scheduled; new Navigator trainings scheduled.*
- Outcome: an original knowledge management framework to support planning, policy making, &decision making. *Literature review conducted; initial interviews in process; draft knowledge graph produced; researchers/City/NGO communications established.*
- Outcome: a system to integrate local knowledge into big-dataset integrative modeling critical for developing scenarios to envision & plan for resilient futures at regional and statewide scales. *Early stages of working with TACC, DataX, and MinT; most progress will occur in Year 3 once portal has launched & data have been collected.*

Community-Identified Problem & Project Vision

- Produce a community-led, innovative data interface to help residents prepare for acute stressors while building long-term resilience to chronic ones
- Integrate local knowledge with existing data to improve municipal, NGO, & household decision making related to climate & health stressors

(right) Integrative framework for project.

Harnessing Information Flows to Support Community Response to Acute and Long-term Stressors
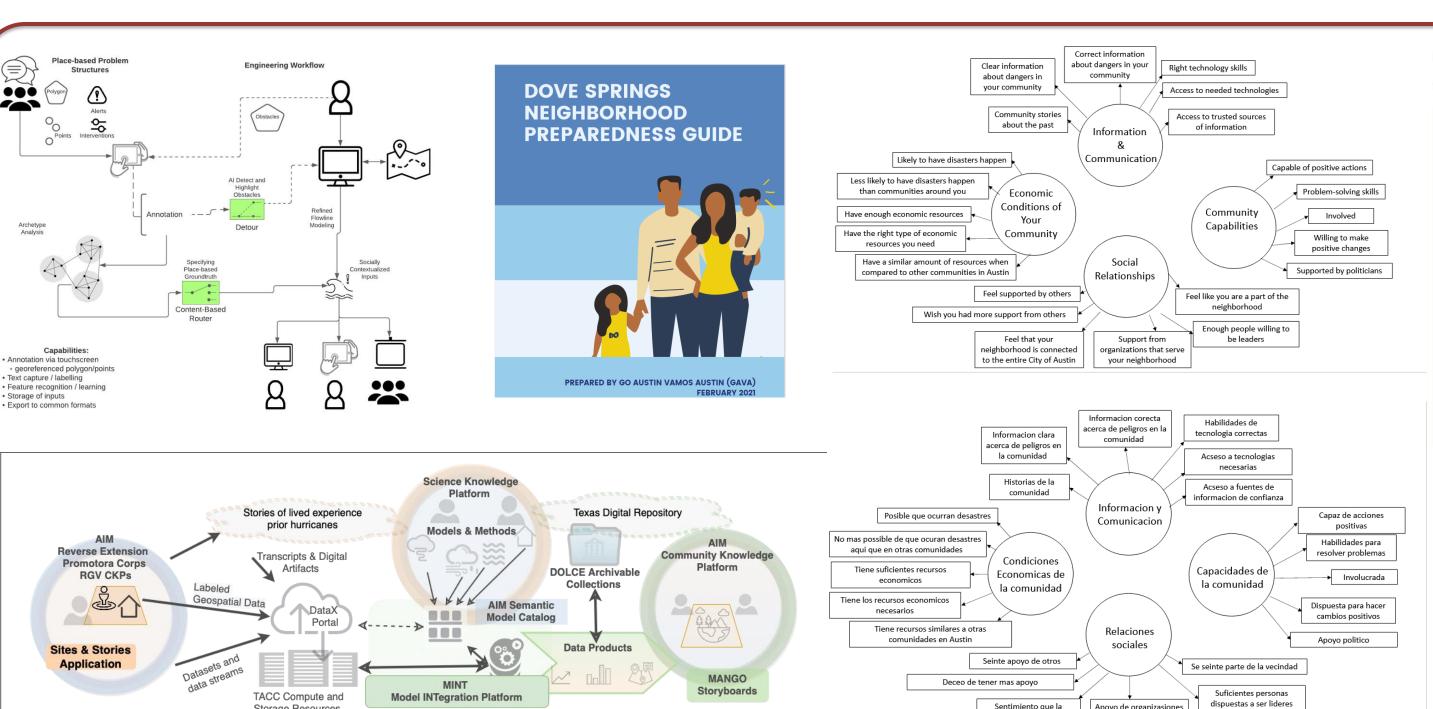
Intellectual Merit

- a community-led, innovative technological interface to help residents prepare for acute stressors & respond to chronic stressors
- a safe, secure,& private technological system to collect, store, & analyze local knowledge
- a co-developed process to integrate local data into policy and decision-making
- an original knowledge management framework to support planning, policy making, and decision making
- a system to integrate local knowledge into big-dataset integrative modeling critical for developing scenarios to envision & plan for resilient futures at regional and statewide scales

Research Team

Residents of Dove Springs Neighborhood
Go Austin!/Vamos Austin!: Carmen Llanes Pulido, Frances Acuña
City of Austin: Marc Coudert, Phoebe Romero
St. Edward's University: Rachael Neal

University of Texas at Austin: Patrick Bixler, Nancy Carlson, Catherine Cubbin, Ladd Hansen, Anastazja Harris, Anjum Khurshid, Fernanda Leite (co-PI), Katherine Lieberknecht (PI), Jonathan Lowell, Jong Won Ma, Luisa Milani, Suzanne Pierce (co-PI), Eric Nordquist, Natalia Ruiz-Juri, Keri Stephens (co-PI)

DOVE SPRINGS NEIGHBORHOOD PREPAREDNESS GUIDE

PREPARED BY GO AUSTIN VAMOS AUSTIN (GAVA) FEBRUARY 2021

Examples of Year 1 Research Products

(clockwise from left) Phase 1 of Sites & Stories development: AI-knowledge capture for data fusion using place-based and engineering workflows; Climate Navigator training materials, led by community partners with input from team; example interview materials, co-developed with community partners (English version); proposed cyberinfrastructure for data collection, storage, & analysis; preliminary knowledge graph; example interview materials, co-developed with community partners (Spanish version); sociotechnical design.

Broader Impacts (Immediate)

- Provision of local knowledge to improve municipal and nonprofit decision and policy-making and household/resident decision-making.
- Establishment and training of residents as Climate Navigators (community-based experts on the neighborhood-scaled impacts of climate events), which will increase short and long-term resilience in the community (including opportunities for professional development and a Higher Ed Pathway Project).
- In partnership with the Planet Texas 2050 research program, integration of local knowledge into computer-based modeling protocols to improve the ability to guide resilience, preparedness, and acute responses across the state.

Broader Impacts (Sustainability)

- Adoption of innovative contributions (a safe and secure data portal, knowledge management framework, a co-developed Climate Navigator training process, and policy process) with other Austin neighborhoods.
- Sharing of portal, knowledge management framework, Climate Navigator training process, and policy process with other US cities.

(clockwise from left): Flooding in neighborhood following Halloween Flood in 2015 (City of Austin); Damage in neighborhood following flooding (Jorge Sanhueza-Lyon, KUT News); Community partner and GAVA staff member Frances Acuña trains a Climate Navigator (GAVA); Children garden while parents participate in Climate Navigator trainings (GAVA).

Next Steps

Finish phase 1 of the longitudinal assessment of community resilience
- Conduct additional interviews with Climate Navigators, City of Austin staff, & Go Austin! Vamos Austin! (GAVA) staff.
- Analyze baseline interviews; supplement with context from A2SI survey & Census data.

Finish & launch Sites & Stories/portal
- Hold portal workshop with stakeholders & incorporate design suggestions.
- Finalize knowledge graph; design/develop an effective search & faceted browsing tool based on knowledge graph.
- Pilot test portal with Climate Navigators.

Train 20 additional Climate Navigators
- Assist GAVA with recruitment activities online, at grocery stores, places of worship, etc.
- Work with GAVA to conduct new training sessions.

Develop & implement data privacy process to secure data collection, storage, & analysis
- Develop technical infrastructure & consortium of digital identities.
- Train Climate Navigators to use credentials to upload data/download products to/from portal.
- Train research team to use credentials to access data for analysis.