# Combining Multi-Agency Data and Analytical Tools for Assessing Municipal-Scale Water Resiliency

Michael H. Young<sup>1</sup>, Vianey Rueda<sup>2</sup>, Ben Eldredge<sup>3</sup>

<sup>1</sup>University of Texas at Austin <sup>2</sup>University of Michigan <sup>3</sup>Cibolo Center for Conservation

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#### Data are Important ...



## ... But Information and Knowledge are Vital for Making Decisions

- Recharge is critical for aquifer sustainability, especially in the Hill Country of Texas
- Dry (weather) conditions lead to more water uptake in deeper soils and rocks → less recharge
- Broader knowledge can help us know when and why recharge is decreasing, impacting community water resources





### Internet-of-Water Approach and Boerne, TX

# Internet of Water aims to

enable sustainable, equitable, and resilient water management by <u>transforming and</u> <u>combining water data and</u>

information from many

different sources





### **IoW Roadmap for Boerne**



Source: internetofwater.org

### Working with the Community

# **Engaging Stakeholders**

- Boerne Water Committee
  - Public and private water utilities and electer officials
- Focus group discussions
  - County agency representatives
  - Business leaders
  - Community service organizations
  - Environmental groups
- Citywide survey of water-related concerns/opinions, data needs, method of distribution





## What is the Community Thinking About





#### **Outcomes from Discussions**

### **Recommendations**

- Build public trust
- Diversify Water Committee
- Ensure integration with other initiatives
- Ensure data content responds to user needs
- Integrate water data with other public data sources

Community Engagements on Water Data and Information in Boerne, Texas

> Summary, Analysis and Recommendations

> > April, 2021



#### **Understanding the Movement of Water Across Boerne**



#### **Understanding the Movement of Water Across Boerne**

#### **Systems Dynamic Modeling – simulates supply, demand, impacts of interventions**





### **Beta Version of the Dashboard – Splash Page**

#### Boerne Water Dashboard





Disclaimer: This tool is best viewed in Chrome, Firefox, Microsoft Edge, and Safari.

Welcome to the Boerne Water Dashboard. The purpose of this dashboard is to provide water-related data to users in one easy to navigate website. As part of the efforts by the City of Boerne to increase water sustainability and resilience, this website is meant to assist individuals in their decisions as they pertain to water. Simply put, we believe this will better help residents of Boerne and Kendall County better understand where the water they consume every day comes from and how our water resources across the Lone Star State are connected. These efforts tie into a broader Internet of Water, where data can lead to better management. Join the City of Boerne in expanding these efforts by exploring data below.

To get started, select a utility from the map or drop down menu (as this project grows, more utilities will be included).

- Next, users can select different tabs on the right to learn more about water supply conditions.
- The help icons and text descriptions provide more details to understand each tab.

Note, throughout the dashboard you will find underlined text. These are links that can transfer you to other websites with more information.



#### Data Current as of: Aug 20, 2023

Select a utility from the drop down menu: City of Boerne			~				
Turn Map Layers On and Off Once a layer is chosen, hover over it for more information. For definitions on these layers, scroll to the bottom of the map	My Utility	Demand Data	Population Data	Surface Water	Rain & Drought	Ground- water	Reclaimed Water



### **Dashboard – Drought and Precipitation**



#### **Dashboard – Community-wide Water Demand**



Daily Demand

### **Final Thoughts**

- Internet-of-Water approach in Boerne allows data from a dozen agencies (Fed, State, Local) to be combined and updated automatically.
- Combined with community-based knowledge, local officials can make informed decisions that best reflect community values and needs
- Expanding these tools to other communities will empower them to manage their resources for their stakeholders



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- Boerne Water Committee and Office of the Mayor
- Municipal and county agency representatives, business leaders, community organizations, and environmental groups
- Participating community members

