Southwest Ohio Regional Water Study (RWS)

Study Overview for OKI Regional Planning Forum

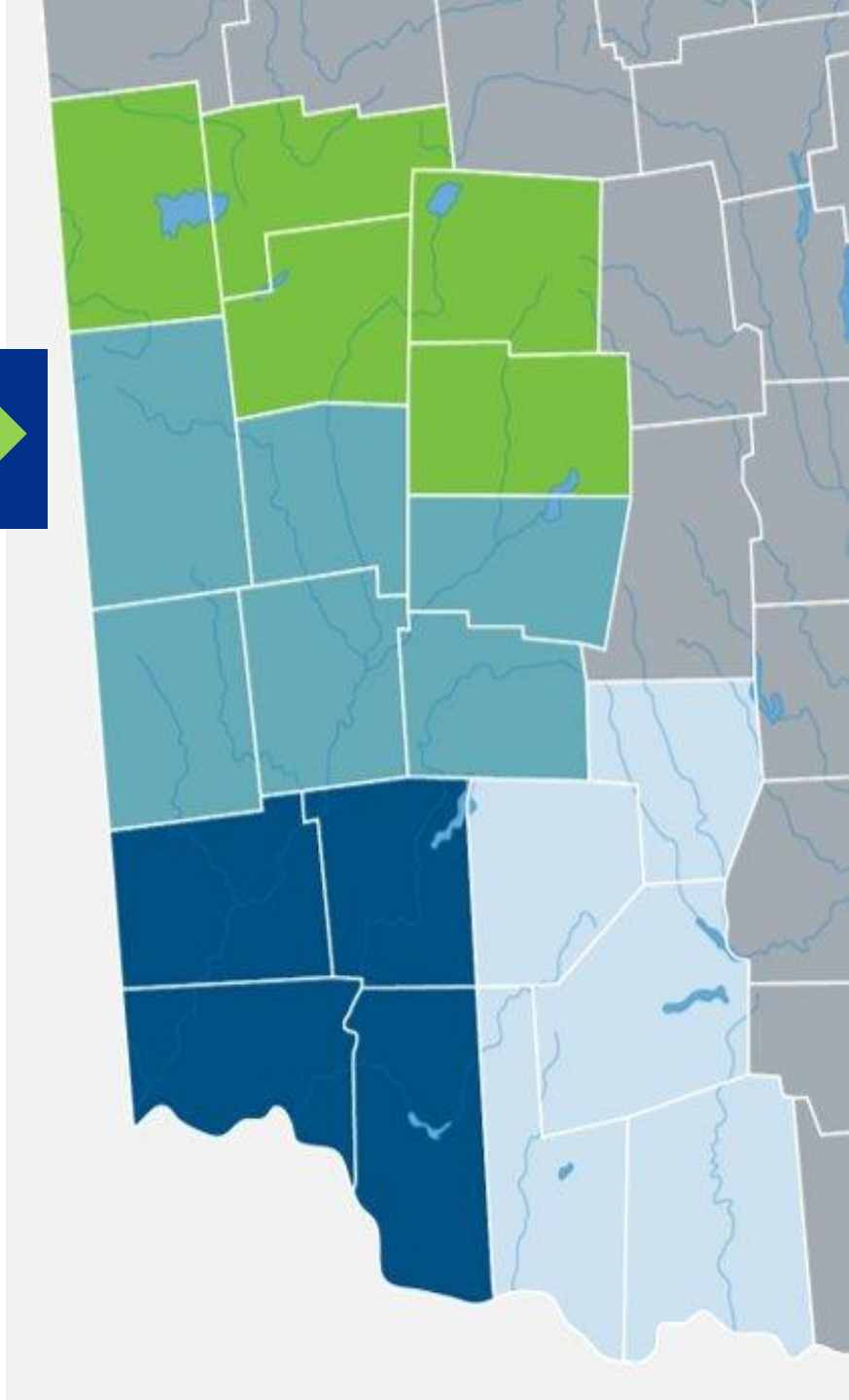
March 3, 2026

CDM Smith

Agenda

SW Study Area

1. Project Team
2. Project Goals, Driving Factors and Outcomes
3. Project Approach
4. Modeling Approach
5. Project Schedule
6. Stakeholder Communication
7. Discussion/Questions



Project Team

Project Team

Primary Consultant Team

CDM Smith

BLACK & VEATCH

TETRA TECH

TERRAN

RAFTELIS

RASOR
COMMUNICATORS, STRATEGISTS, CREATIVES.

Stakeholder Engagement

MIAMI VALLEY
Regional Planning Commission

OKI REGIONAL COUNCIL OF GOVERNMENTS

Project Owner and Stakeholders

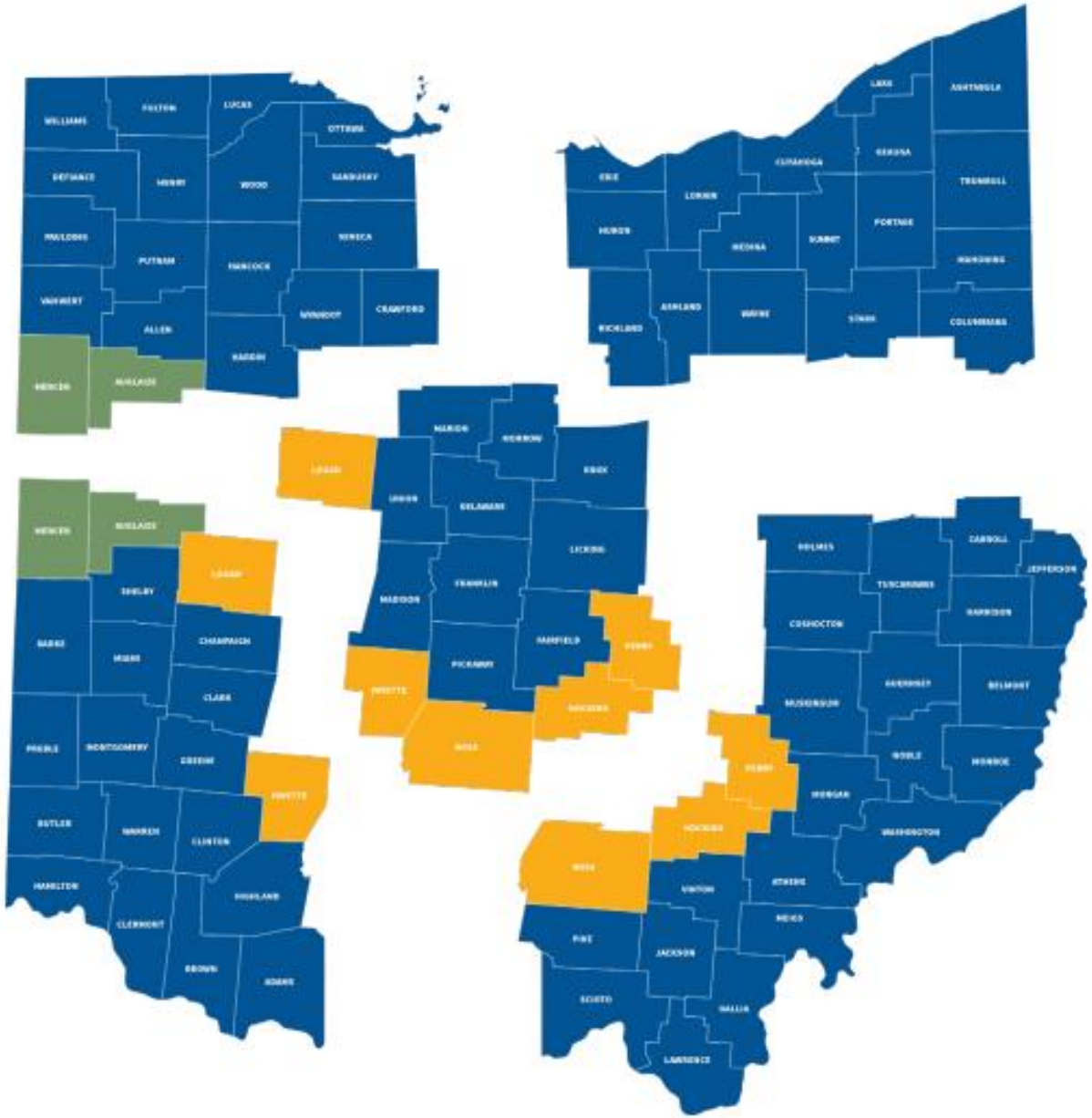
Ohio Environmental Protection Agency

OHIO DEPARTMENT OF NATURAL RESOURCES

Ohio Water Development Authority

Project Goals, Driving Factors and Outcomes

Map of Regional Comprehensive Water Studies Across Ohio



Source: Ohio EPA. [Online] ohio_epa_sw_regional_water_study.pdf

Organizational and Project Goals

Ohio Environmental Protection Agency

- Protect the environment and public health

OHIO DEPARTMENT OF NATURAL RESOURCES

- Balance between use and protection of Ohio's natural resources

The SW Ohio Water Plan shall:

- set the stage for long-term preservation of public health and protection of the environment
- consider future changes in population, economic development and climate.
- inform future, practical policy and rule making decisions.

Regional Driving Factors

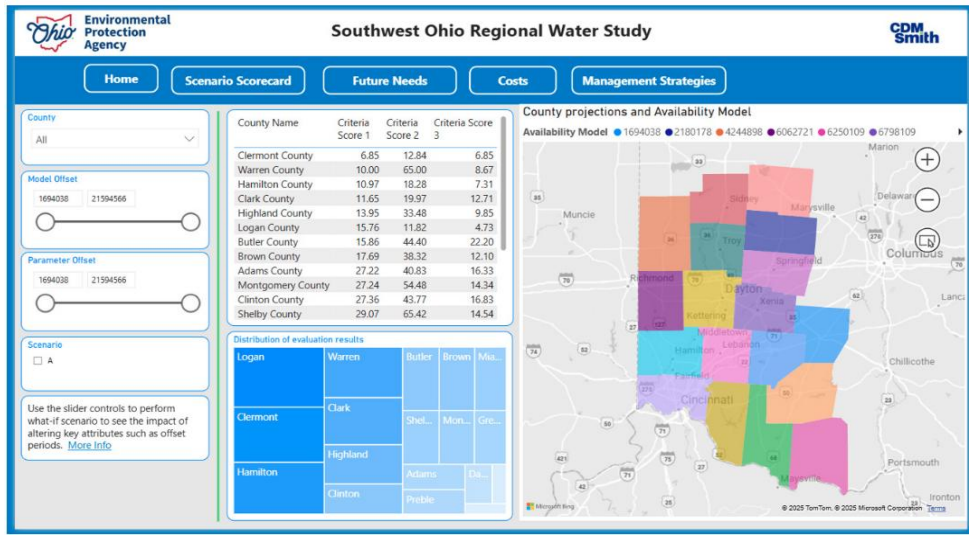
- Legacy Site Contamination Including PFAS
- Population and Industrial Growth
- Drought Risk & Supply Reliability
- Increasing Irrigation Needs
- Impacts of Land Use Change on Floods and Water Quality
- Nutrient Loading and Impacts
- Pending Changes in Biosolids Disposal Regs
- Imbalance of Needs and Resources

Regional Goals

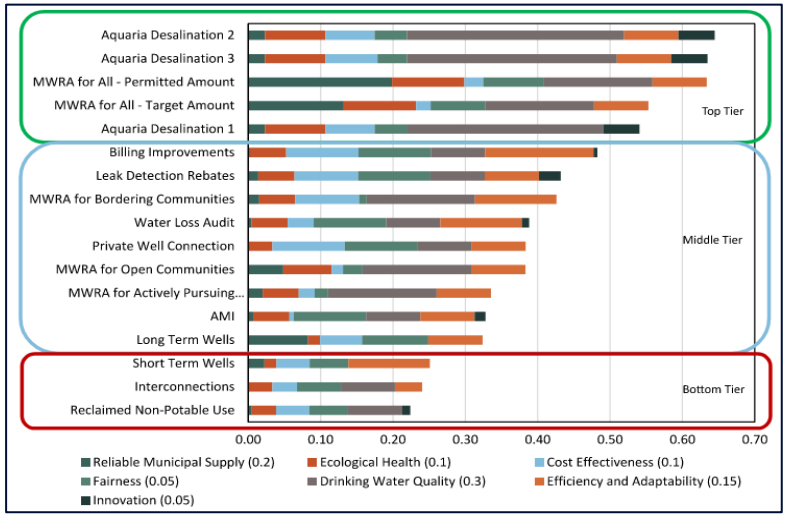
- Regional Strategies with Local Relevance
- Safe and Abundant Drinking Water
- Climate Resilience from Droughts and Floods
- Support Large Industrial Users with Minimal Env. Impacts
- Preserve Environmental and Rec. Waters through Nutrient Mgt
- Sustainable Biosolids Disposal Plan

Sequence does **not** suggest priorities

Study Outcomes



County Name	Criteria Score 1	Criteria Score 2	Criteria Score 3
Clermont County	6.85	12.84	6.85
Warren County	10.00	65.00	8.67
Hamilton County	10.97	18.28	7.31
Clark County	11.65	19.97	12.71
Highland County	13.95	33.48	9.85
Logan County	15.76	11.82	4.73
Butler County	15.86	44.40	22.20
Brown County	17.69	38.32	12.10
Adams County	27.22	40.83	16.33
Montgomery County	27.24	54.48	14.34
Clinton County	27.36	43.77	16.83
Shelby County	29.07	65.42	14.54



Goals to Outcomes

1 Early Stakeholder Engagement with Regional Buy-In

2 Demographically Focused and Driven Plan

3 Accessible, Utilized, and Straightforward Dashboard Tool

4 Innovative Technical Analysis with Open-Source Modeling Platform

5 Cost of Service Driven Regional Solutions

6 Regional Strategies to Support Growth Opportunities in Supply Limited Areas

7 Informed Need for Future Rules and Policy Making

8 Sustainable Long Term Water Supply

9 Preserve Recreation while Protecting River Water Quality

Project Approach

Information Flow Diagram: SW Ohio Regional Water Plan

Task 3: Data Acquisition

Task 4: Data Map/Model

Task 6: Water Budget Model

Task 7: Scenarios/Gaps

Task 5: Scenario Scorecard

Main Subtasks

OKI/MVRPC Data:
Population
Demands by Sector *(e.g., Agricultural, Industrial, Municipal)*
Water Sources
Discharges

USGS, NOAA Data
Historical Flows
Historical GW Levels
Historical Climate

Future Climate Scenario Data

Interviews

GIS
Current Land Use/Soils
Known Contamination

Projections
Population Projections
Demand Projections by Sector *(e.g., Agricultural, Industrial, Municipal)*
Land Use Projections
Water/Sewer Expansion

Integrated Modeling Plan

Surface Water Models

Groundwater Models

Water Quality Models

Current State Water Budget

Yield
Flow
Drawdown
Recharge

Biosolids Assessment

Validation of preferred strategies

Regionalization Opportunities

Large Industrial User Opportunities

Alternatives
Identify and characterize alternatives
Evaluate individual alternatives and develop portfolios alternatives

Scenario Modeling and Gap Analysis

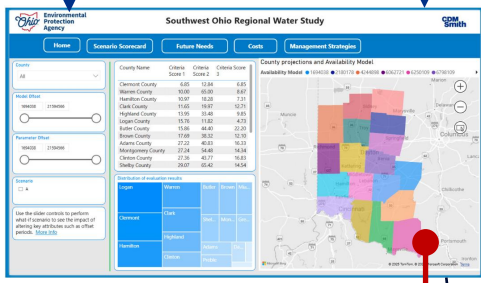
Cost Model

Goals and Criteria

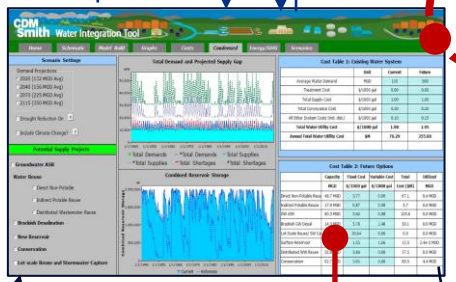
Scenario Development

- Data
- Opinions, Preferences, Ideas
- Information Exchange

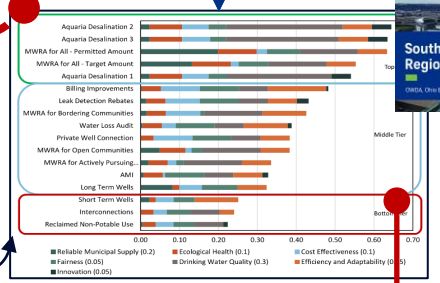
Key Work Products



Information Dashboard



Water Integration Tool



Alternatives Scorecard

Outreach Materials

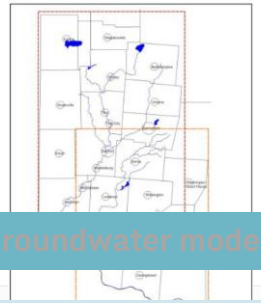
Regional Water Plan

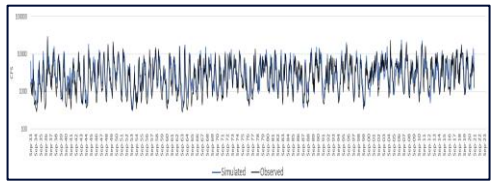
Task 8 Recommendations

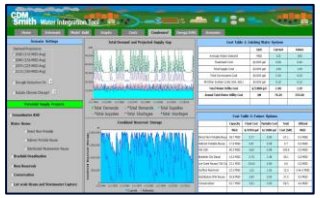
Task 9 Communications

Modeling Approach

Modeling Information Flow







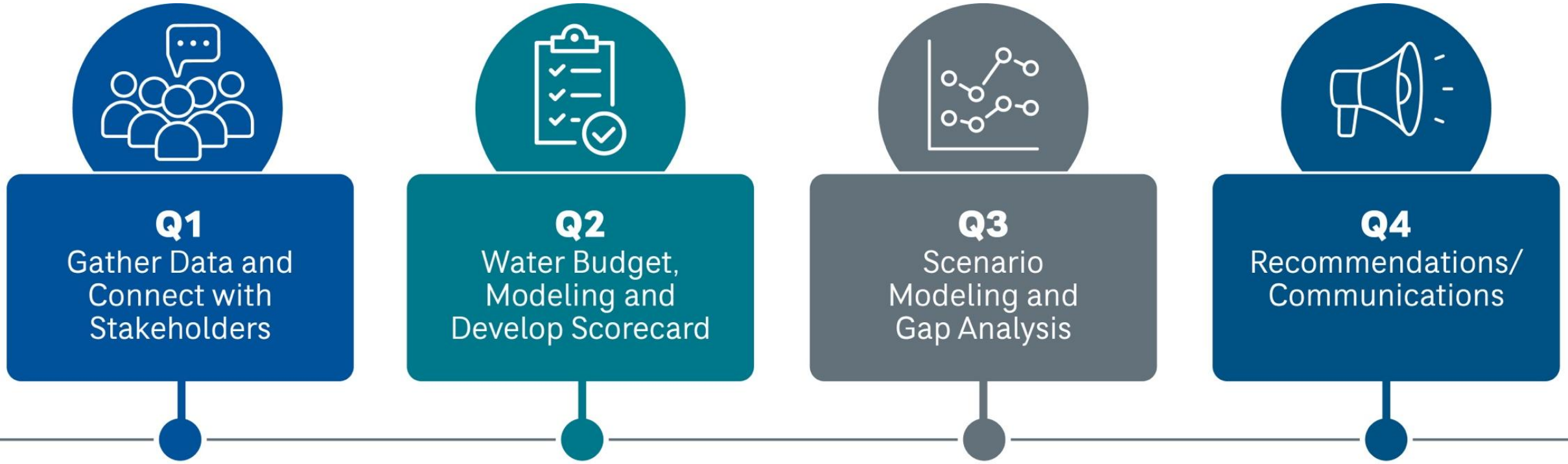
	Water quality tools	Groundwater models	Surface water model	Water Integration Tool (WIT)

How to use	• Mostly standalone, site-specific
	• Focus on nutrient loading and HAB risks
		Simulate drawdown and recharge in response to pumping rates, land use, climate, etc.	Simulate rainfall-runoff patterns, provide guidance on infiltration rates to GW as a function of land use	• Incorporate simplified results of groundwater and surface water availability and connectivity
				• Run multiple scenarios quickly:
				  • Different hydrologic/climate condition
				  • Different Water Management Strategies
				• Incorporate and see dependencies

	• Potentially include WQ relationships or risks in WIT	Conservative particle tracking	• Identify drought risks related to low flows – Supplement with DroughtLook • Identify flood risks related to high flows	• Use in stakeholder conversations
		Validate most promising alternatives	Validate most promising alternatives	• Screening and combining of regional alternatives to identify effective strategies for achieving regional goals
Outputs	• Areas with high risk under current conditions • Areas with future risk • Potential impacts of management measures	Under different climate/land use scenarios: • Calculate GW safe yield in different areas • Quantify groundwater/surface water interaction • Quantify regional drawdown relationships to pumping and recharge water budget components	Under different climate/land use scenarios, quantify relationships between: • Streamflow patterns and land use changes • Streamflow patterns and future climate • Infiltration patterns and land use and climate conditions • Help identify water quality risks	Regional Water Budget
		Identification of areas with future water quality risk (PFAS)	• Future drought and flood risk – statistical summary	Supply gaps for multiple scenarios
				Performance of alternatives: • Individual regional projects • Combinations of projects • Preferred strategies • Quantitative scores for scorecard

High-Level Schedule

Project Schedule



11/25 to 1/26

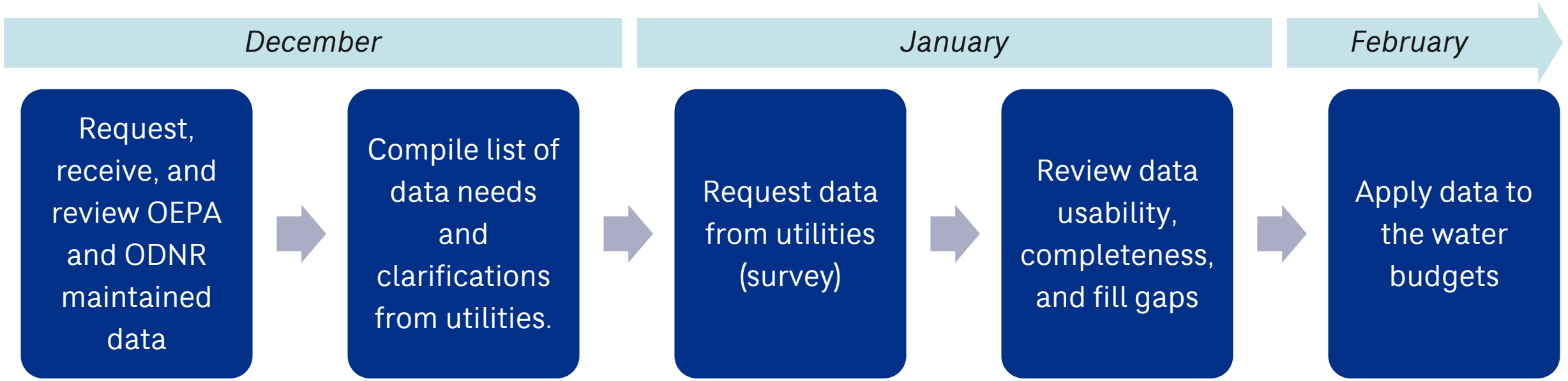
2/26 to 5/26

6/26 to 8/26

9/26 to 11/26

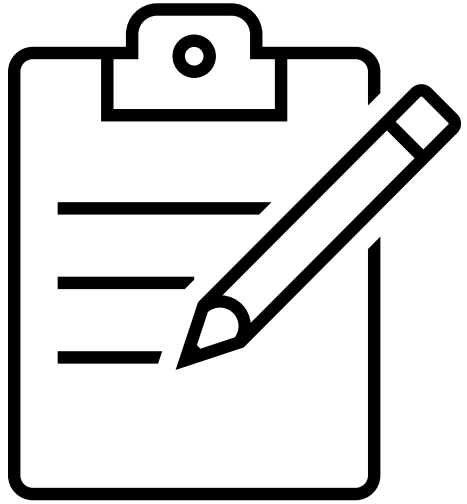
Ongoing Data Collection

Collecting data critical to development of the current and future water budgets:



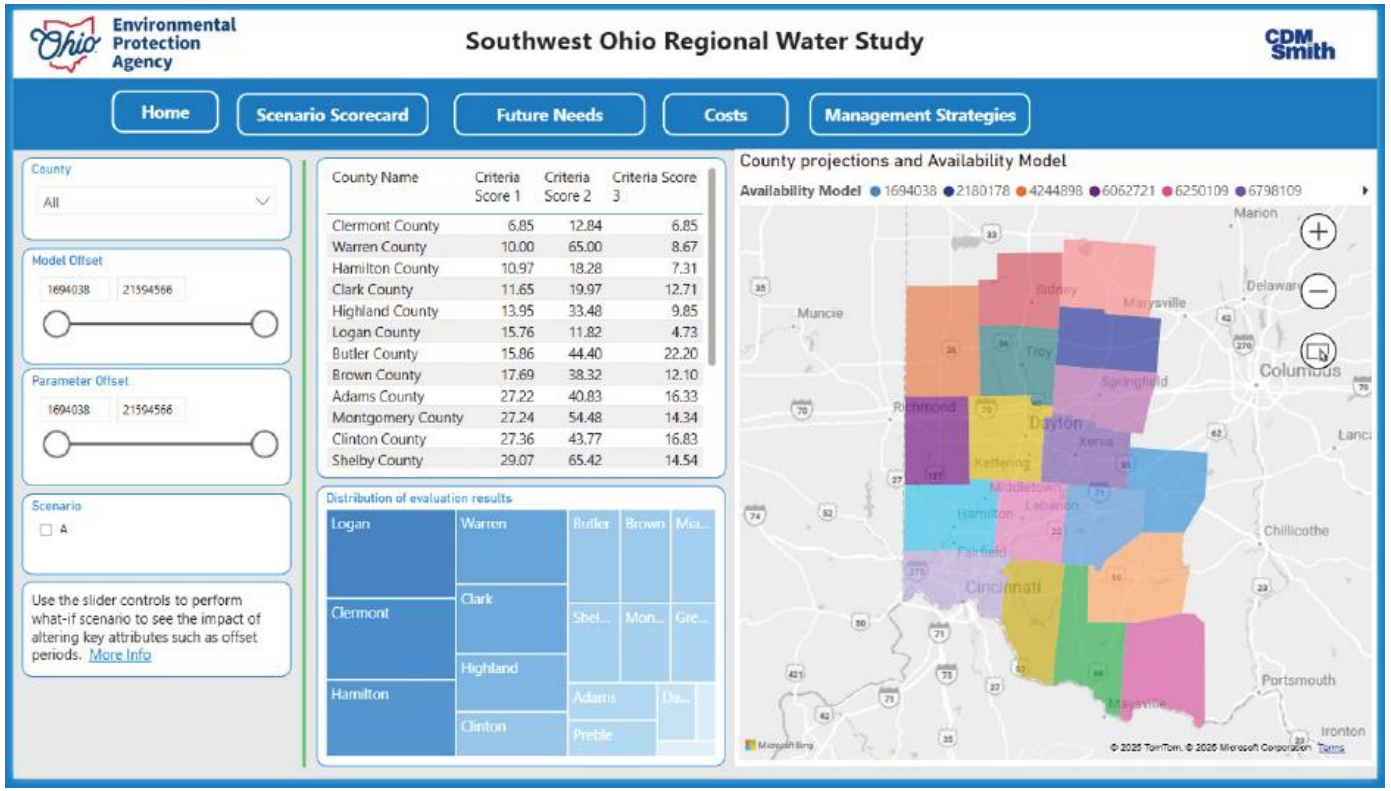
Utility Survey

- **Survey Objectives**:
  - Check current water and sewer service areas against EPA data
  - Consider planned service area expansions
  - Compare and align study-derived demand projections with utility-specific demand projections
  - Receive local perspective on:
    - Water supply availability
    - Water quality
    - Other water resource concerns
  - Begin to build stakeholder confidence in the study



Stakeholder Coordination and Communication

- Engage **OKI and MVRPC** to align with land use and population forecasts
- Partner with **Designated Management Agencies** and local utilities
- Communication tools: dashboard, summary briefs, and scorecards
- Host **regional workshops** to vet model results and shape recommendations



Example View of Publicly Accessible Data Visualization Dashboard for the Southwest Ohio Regional Water Study. Source: CDM Smith

Discussions/Questions?