Southwest Ohio Regional Water Study (RWS)

MVRPC – January Water & Environment Sub-Committee Meeting

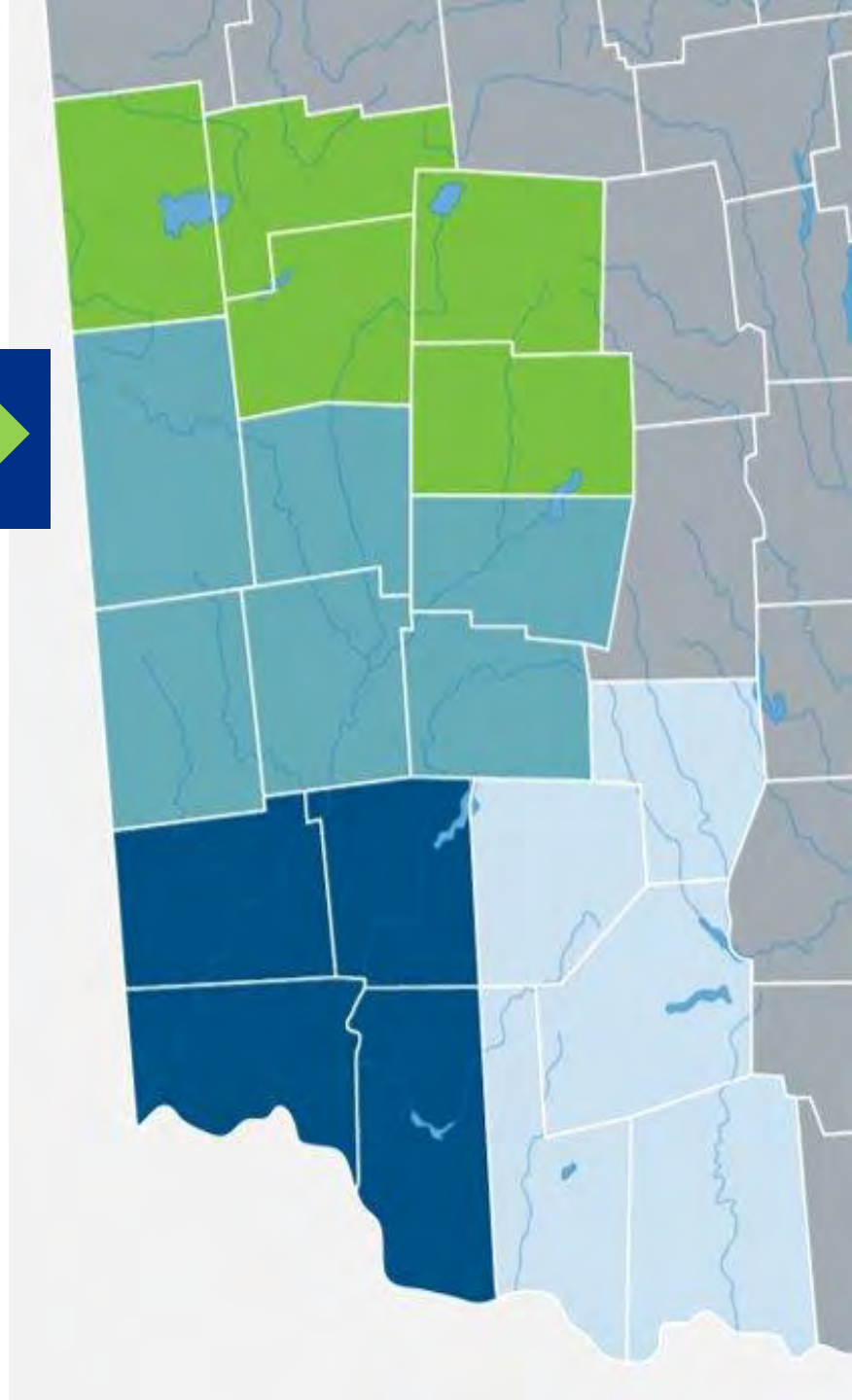
January 14, 2026

CDM Smith

Agenda

SW Study Area

1. Project Team
2. Project Goals, Driving Factors and Outcomes
3. Project Approach
4. Modeling Approach
5. High-Level Schedule
6. MVRPC Role in Regional Planning
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

Organizational and Project Goals

Ohio Environmental Protection Agency

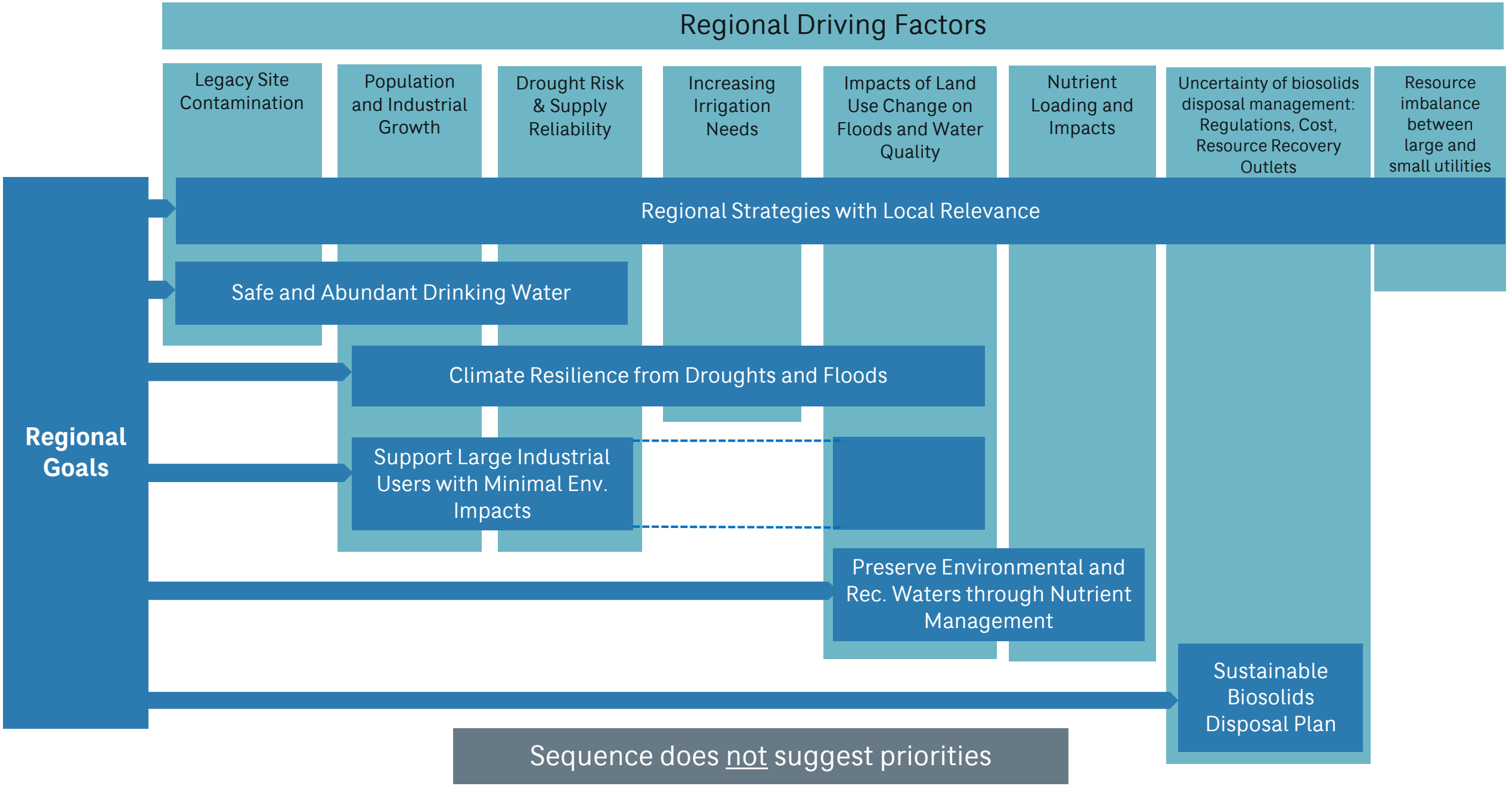
- Protect the environment and public health

OHIO DEPARTMENT OF NATURAL RESOURCES

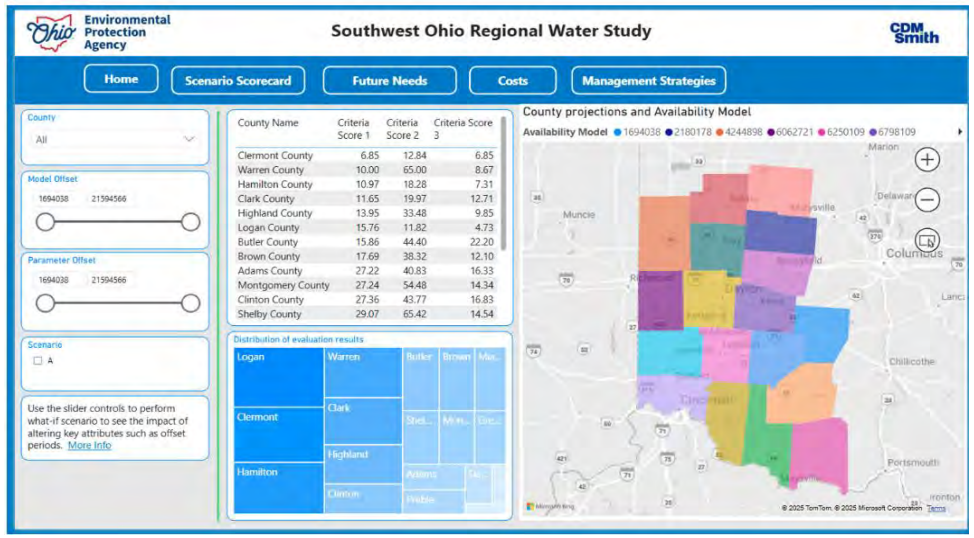
- Balance between use and protection of Ohio's natural resources

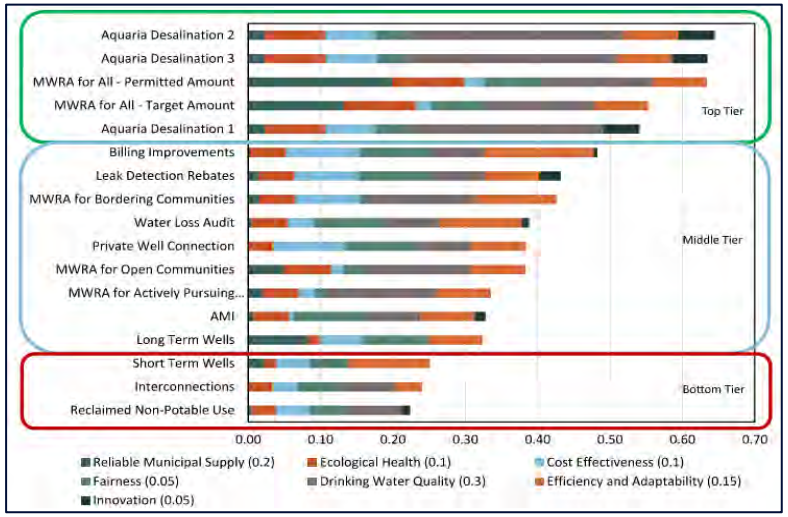
The SW Ohio Water Plan shall:

- 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
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
Uncertainty of biosolids disposal management: Regulations, Cost, Resource Recovery Outlets
Resource imbalance between large and small utilities
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 Management
Sustainable Biosolids Disposal Plan
Sequence does not suggest priorities

Study Outcomes





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

Key Work Products

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

Scenario Modeling and Gap Analysis

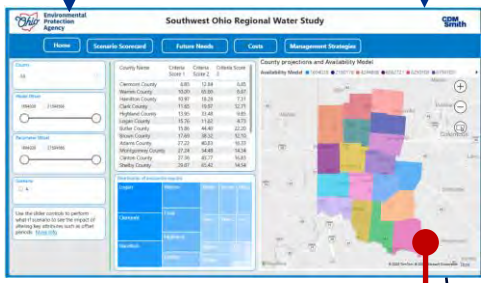
Cost Model

Goals and Criteria

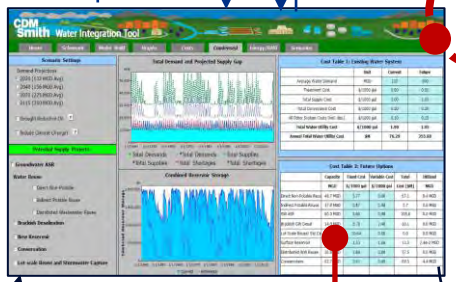
Scenario Development

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

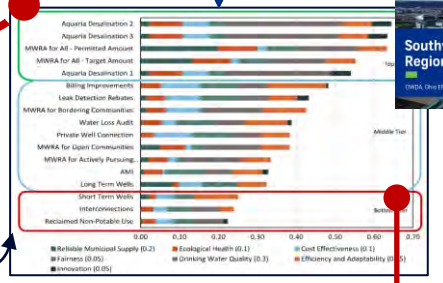
Data
Opinions, Preferences, Ideas
Information Exchange



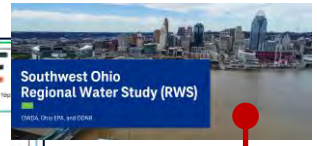
Information Dashboard



Water Integration Tool



Alternatives Scorecard



Outreach Materials

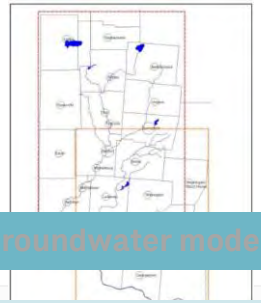
Regional Water Plan

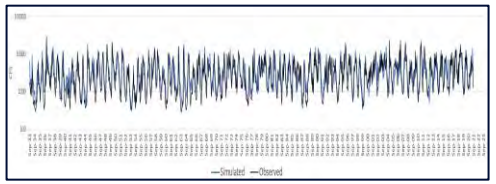
Task 8 Recommendations

Task 9 Communications

Modeling Approach

Modeling Information Flow





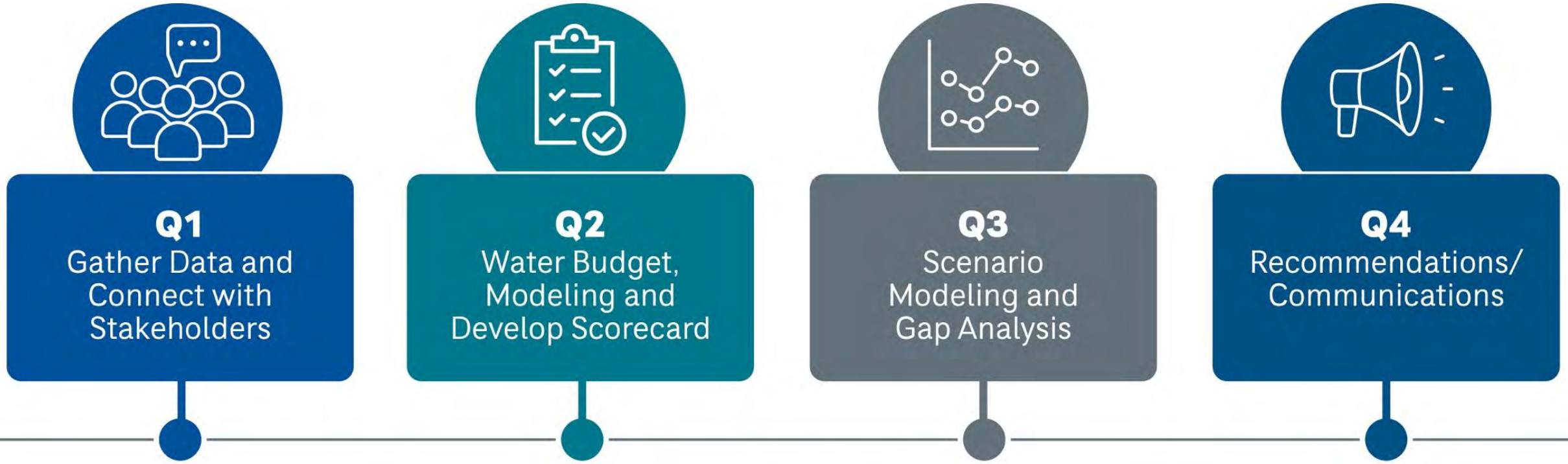
	Water quality tools	Groundwater models	Surface water model	Water Integration Tool (WIT)

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

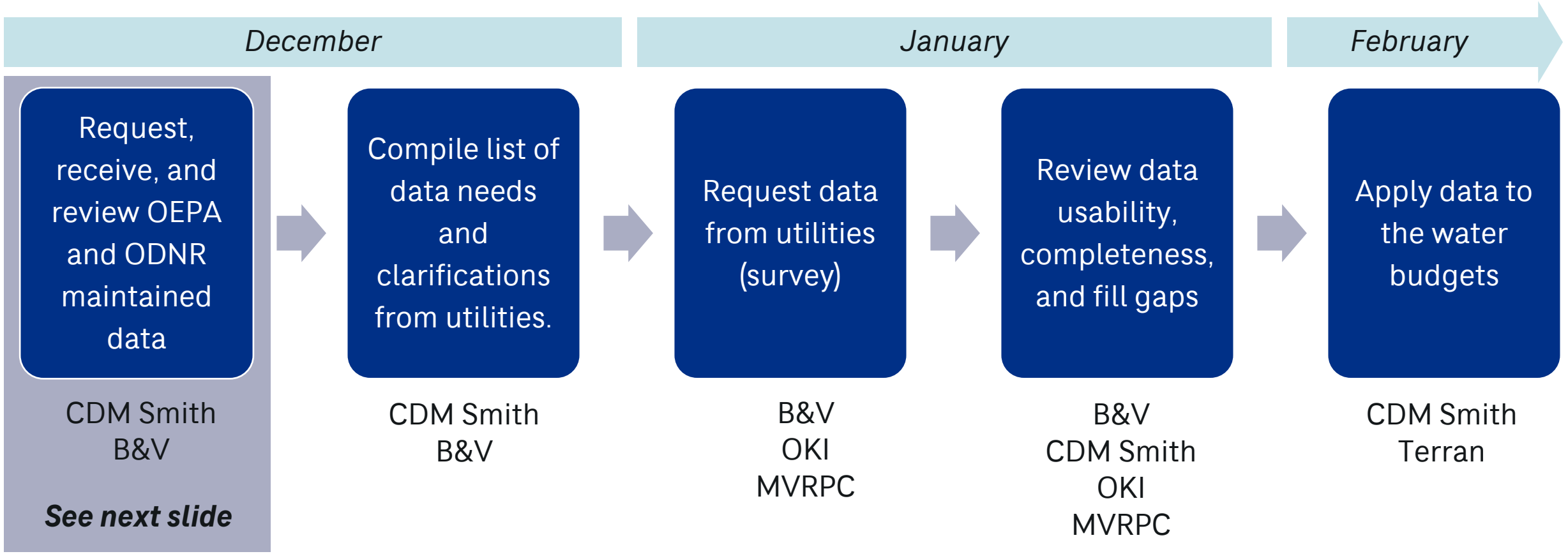
6/26 to 8/26

9/26 to 11/26

MVRPC Role in Regional Planning

Data Collection Strategy and Lessons Learned

Strategy for collecting data critical to development of the current and future water budgets:



Data Acquisition, Review, and Interviews

- Team member Black & Veatch will lead the data acquisition task and will coordinate with MVRPC to collect the following:
  - Current and future 2030/2040/2050 population estimates
  - Current job estimates 2030/2040/2050 job forecast
  - Number of current and future 2030/2040/2050 households
  - Current land use and 2050 land use
  - Other data such as water/wastewater master plans, wastewater capacities.
- Communicate with county leaders, key municipal leader, water/wastewater utilities and water purveyors.
- Counties: Darke, Greene, Miami, Mongomery, Preble, and Shelby.

Discussions/Questions?