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Purchase Area Development District

2025 Water Management Plan

Approved by Water Management Council: June 24, 2025

Approved by Purchase Area Development District Board: August 6, 2025

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1002 Medical Drive

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#### **WATER GOALS**

#### Infrastructure Development Goal(s) and Objectives

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| **Goal 1:** | **Repair/Replace Existing Infrastructure:** Repair damages in the existing water infrastructure and replace aging infrastructure in the region. |
| Objective 1.1 | Implement waterline replacement projects to replace aging lines in all systems, including Barlow Water System, LaCenter Water Company, Dexter-Almo Heights Water District, Murray Water System, South 641 Water District, Arlington Water Department, Bardwell Water System, Cunningham Water District, Milburn Water District, Hickman Water System, Fulton Municipal Water System, Wingo Water System, Symsonia Water District, North Marshal Water District #1, Jonathan Creek Water District, Benton Water System, Calvert City Water System, Paducah Water Works, Graves County Water District (Consumers), Graves County Water District (Hickory), Graves County Water District (Sedalia), Mayfield Electric & Water System. |
| Objective 1.2 | Implement water meter replacement in Bardwell Water System, North Marshall Water District. |
| Objective 1.3 | Rehabilitate or replace storage tanks Kevil Water System, Milburn Water District, Hickman Water Department, Graves County Water District (Consumers), Symsonia Water District, Benton Water System. |
| Objective 1.4 | Drill new well in Kevil Water Department, Wickliffe Municipal Water System, Arlington Water Department, and Calvert City Water System. |
| Objective 1.5 | Rehabilitate, replace, or upgrade WTP in the Wickliffe Municipal Water System, Murray Water System, Arlington Water Department, Mayfield Electric & Water System, Columbus Water Works, Benton Water System. |
| Objective 1.6 | Implement water line extensions in the Bardwell Water System, Barlow Water System, Kevil Water Department, Wickliffe Municipal Water System, Dexter-Almo Heights Water District, Arlington Water Department, Cunningham Water District, Milburn Water District, Fulton Municipal Water System, Hickman Water Department, Graves County Water District (Consumers), Graves County Water District (Hickory), Graves County Water District (South Graves), Benton Water System, Hardin Water System, Jonathan Creek Water District, North Marshall Water District. |
| Objective 1.7 | Demolition of obsolete water system components in Fulton Municipal Water System. |
| Objective 1.8 | Implement Lead and Copper Rule compliance measures in Mayfield Electric & Water System, Paducah Water Works. |
| Objective 1.9 | Implement PFAS compliance measures in North Marshall Water District. |

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| **Goal 2:** | **Economic Development:** Expand water system to accommodate new business/industry within the region. |
| Objective 2.1 | Implement water line extensions in the Bardwell Water System, Barlow Water System, Kevil Water Department, Wickliffe Municipal Water System, Dexter-Almo Heights Water District, Arlington Water Department, Cunningham Water District, Milburn Water District, Fulton Municipal Water System, Hickman Water Department, Graves County Water District (Consumers), Graves County Water District (Hickory), Graves County Water District (South Graves), Benton Water System, Hardin Water System, Jonathan Creek Water District, North Marshall Water District. |

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| **Goal 3:** | **Meet Regulatory Requirements:** Achieve and maintain compliance with Division of Water and other water system regulating entities. |
| Objective 3.1 | Implement Lead and Copper Rule compliance measures in Mayfield Electric & Water System, Paducah Water Works. |
| Objective 3.2 | Implement PFAS compliance measures in North Marshall Water District. |
| Objective 3.3 | Implement measures to meet the 24-hour storage capacity regulation in the Kevil Water District. |

#### Management/Operations Goal(s) and Objectives

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| **Goal 4:** | **Training:** Provide sufficient training for operators, office staff, and utility management. |
| Objective 4.1 | Promote Kentucky Rural Water Association’s on-site training program. |
| Objective 4.2 | Plan and coordinate a solution for limited-staffed systems to remain staffed while operators are attending training events. |
| Objective 4.3 | Implement a process for effectively communicating local training and testing opportunities to system operators. |
| Objective 4.4 | Promote Kentucky Rural Water Association’s Utility Management and Utility Leadership Institutes. |

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| **Goal 5:** | **Leak Detection & Water Loss:** Implement practices to identify water leaks and other sources of water loss to reduce the annual average water loss. |
| Objective 5.1 | Design a regional Leak Detection Program that can be implemented by smaller systems. |
| Objective 5.2 | Ensure adequate operator training in leak detection methods. |
| Objective 5.3 | Coordinate and promote equipment-sharing for systems with limited resources to detect water leaks. |

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| **Goal 6:** | **Operator Retention:** Retain a sufficient number of operators to operate and maintain collection and treatment systems. |
| Objective 6.1 | Survey employee benefits packages throughout the region and find solutions to help systems that are unable to provide adequate benefits to attract and retain operators. |
| Objective 6.2 | Invest in technology (such as SCADA) to increase the efficiency of workforce, while attracting younger, tech-savvy recruits. |
| Objective 6.3 | Coordinate with high schools and vocational schools in our region to promote careers in utility operations and management, with an emphasis on increasing the public awareness that operators are guardians of public health. |
| Objective 6.4 | Coordinate with workforce development organizations to promote careers in utility operations and management to working-aged adults. |

#### Planning Goal(s) and Objectives

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| **Goal 7:** | **Project Development, Prioritization, & Funding:** Develop capital improvement plan to identify projects, scopes of work, estimated budgets, schedules, and potential funding sources. |
| Objective 7.1 | Utilize PADD services to assist with seeking project funding. |
| Objective 7.2 | Utilize PADD services to assist with seeking strategic planning grants to fund engineering plans and cost estimates for projects. |
| Objective 7.3 | Utilize PADD services to assist with seeking strategic planning grants to fund water rate studies. |

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| **Goal 8:** | **Asset Management & Mapping:** Develop and/or maintain an asset inventory of physical components in the system along with mapping. |
| Objective 8.1 | Implement asset inventory and mapping for Arlington Water District, Bardwell City Utilities, Cunningham Water District, Columbus Water Works, Benton Water System, and Hardin Water Department. |

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| **Goal 9:** | **Growth & Development:** Forecast capacity and treatment demands for potential economic and residential growth in the service area. |
| Objective 9.1 | Utilize strategic planning grants to fund capital infrastructure plans that are based on and support each system’s county economic development plan. |
| Objective 9.2 | Identify and map growth areas in the region. |
| Objective 9.3 | Implement a regional system capacity and gap analysis to forecast future capacity shortfalls. |

### Regional Water Planning Recommendations

1. Regional Water Rate Study & Affordability Analysis
2. Regional Capacity and Gap Analysis
3. Small Utility System Workforce Planning Analysis.
4. Artificial Intelligence (AI) in System Management & Operations Analysis.

#### **WASTEWATER GOALS**

#### Infrastructure Development Goal(s) and Objectives

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| **Goal 1:** | **Reduce Inflow and Infiltration:** Eliminate sources of inflow and infiltration in the system during wet weather events. |
| Objective 1.1 | Implement sewer line and manhole relining or replacement in every system in the district. |
| Objective 1.2 | Implement a downspout disconnection program to educate public and incentivize private disconnections. |
| Objective 1.3 | Implement storm sewer management projects that directly affect sewer systems. |

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| **Goal 2:** | **Repair/Replace Existing Infrastructure:** Repair damages in the existing wastewater infrastructure and replace aging infrastructure in the region. |
| Objective 2.1 | Implement sewer line and manhole relining or replacement to reduce I&I in every system in the district. |
| Objective 2.2 | Implement WWTP rehab/replacement in Kevil Water and Sewer System, Barlow Sewer System, Murray Wastewater System, Carlisle County Sanitation District #1, Fulton Municipal Water System, Hickman Municipal Sewer System, Mayfield Electric and Water, Wingo Sewer System, Paducah McCracken County Joint Sewer Agency (Reidland), Paducah McCracken County Joint Sewer Agency (Woodlawn), Calvert City Municipal Sewer System. |
| Objective 2.3 | Implement collection system rehab in Arlington Sewer Department, Murray Wastewater System, Hickman Municipal Sewer System Graves County Water District (Fancy Farm), Mayfield Electric and Water, Wingo Sewer System, Clinton Sewer System, Paducah McCracken County Joint Sewer Agency (Paducah), Paducah McCracken County Joint Sewer Agency (Reidland), Paducah McCracken County Joint Sewer Agency (Woodlawn), Benton Sewer System, Calvert City Municipal Sewer System. |
| Objective 2.4 | Implement WWTP modifications in LaCenter Water System, Mayfield Electric and Water, Paducah McCracken County Joint Sewer Agency (Paducah), Benton Sewer System. |
| Objective 2.5 | Implement lift station/booster pump upgrades in Wickliffe Sewer System, Murray Wastewater System, Carlisle County Sanitation District #1, Fulton Municipal Water System, Hickman Municipal Sewer System, Mayfield Electric and Water, Mayfield Electric and Water (Highland Club), Symsonia Water District, Paducah McCracken County Joint Sewer Agency (Paducah), Benton Sewer System, Marshall County Sanitation District #1. |
| Objective 2.6 | Implement demolition of old WWTP in Barlow Sewer System. |

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| **Goal 3:** | **Meet Regulatory Requirements:** Achieve and maintain compliance with Division of Water and other wastewater system regulating entities. |
| Objective 3.1 | Identify and implement solution to discharge permit’s seasonal issues in LaCenter Sewer District. |
| Objective 3.2 | Implement regional I&I reduction projects to address max capacity issue of the WWTP in Carlisle County Sanitation District #1. |
| Objective 3.3 | Continued compliance with agreed order in Fulton Sewer System. |
| Objective 3.4 | Implement solution to discharge permit issue during storm events in Wingo Water & Sewer System. |

#### Management/Operations Goal(s) and Objectives

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| **Goal 4:** | **Collection Operations:** Implement efficient maintenance, repairs, and operations of the distribution and transmission system. |
| Objective 4.1 | Implement regional I&I reduction projects to address max capacity issue of the WWTP in Carlisle County Sanitation District #1. |
| Objective 4.2 | Implement I&I reduction measures in every system. |
| Objective 4.3 | Implement project to replace clay pipe in Barlow Sewer System. |
| Objective 4.4 | Implement new pump station project to a new development in the Barlow Sewer System. |
| Objective 4.5 | Implement Capacity, Management, Operations, and Maintenance (CMOM) framework at North Marshall Sanitation District #1 and Benton Water & Sewer System. |

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| **Goal 5:** | **Treatment Operations:** Implement efficient maintenance, repairs, and operations of the treatment plant. |
| Objective 5.1 | Increase treatment capacity at Kevil Water & Sewer System. |
| Objective 5.2 | Identify and implement solution to discharge permit’s seasonal issues in LaCenter Sewer District. |
| Objective 5.3 | Implement a solution to the algae problem at WWTP at Wickliffe Sewer System. |
| Objective 5.4 | Implement solution to the excess I&I that leads to over-capacity problem at Wingo Water & Sewer’s WWTP. |

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| **Goal 6:** | **Fiscal Management:** Ensure effective management of system’s financial resources, including revenue collection, budgeting, and expenditure. |
| Objective 6.1 | Utilize PADD services to assist with seeking strategic planning grants to fund water rate studies. |
| Objective 6.2 | Utilize the Kentucky Rural Water Association’s Financial Services (Cost of Service Study, Revenue Requirement Analysis, Purchase Water Adjustments, Customer Relations and Satisfaction Program, etc.) |
| Objective 6.3 | Smaller systems may consider outsourcing billing and collections operations to larger systems. |

#### Planning Goal(s) and Objectives

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| **Goal 7:** | **Project Development, Prioritization, & Funding:** Develop capital improvement plan to identify projects, scopes of work, estimated budgets, schedules, and potential funding sources. |
| Objective 7.1 | Utilize PADD services to assist with seeking project funding. |
| Objective 7.2 | Utilize PADD services to assist with seeking strategic planning grants to fund engineering plans and cost estimates for projects. |
| Objective 7.3 | Utilize PADD services to assist with seeking strategic planning grants to fund water rate studies. |

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| **Goal 8:** | **Asset Management & Mapping:** Develop and/or maintain an asset inventory of physical components in the system along with mapping. |
| Objective 8.1 | Implement asset inventory and mapping for Carlisle County Sanitation District (Bardwell), Wingo Sewer System, Marshall County Sanitation District #1 and #2, Paducah/McCracken Joint Sewer Agency (Paducah, Reidland, and Woodlawn). |

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| **Goal 9:** | **Growth & Development:** Forecast capacity and treatment demands for potential economic and residential growth in the service area. |
| Objective 9.1 | Utilize strategic planning grants to fund capital infrastructure plans that are based on and support each system’s county economic development plan. |
| Objective 9.2 | Identify and map growth areas in the region. |
| Objective 9.3 | Implement a regional system capacity and gap analysis to forecast future capacity shortfalls. |
| Objective 9.4 | Implement new pump station project to a new development in the Barlow Sewer System. |

### Regional Wastewater Planning Recommendations

1. Regional Inventory of Combined Sewer Systems.
2. Regional Water Rate Study & Affordability Analysis
3. Regional Capacity and Gap Analysis
4. Small Utility System Workforce Planning Analysis.
5. Artificial Intelligence (AI) in System Management & Operations Analysis.