District Profile

# Perry Water Works

**Dallas County**
**Hazard Mitigation Plan 2023**

# Local Planning Team

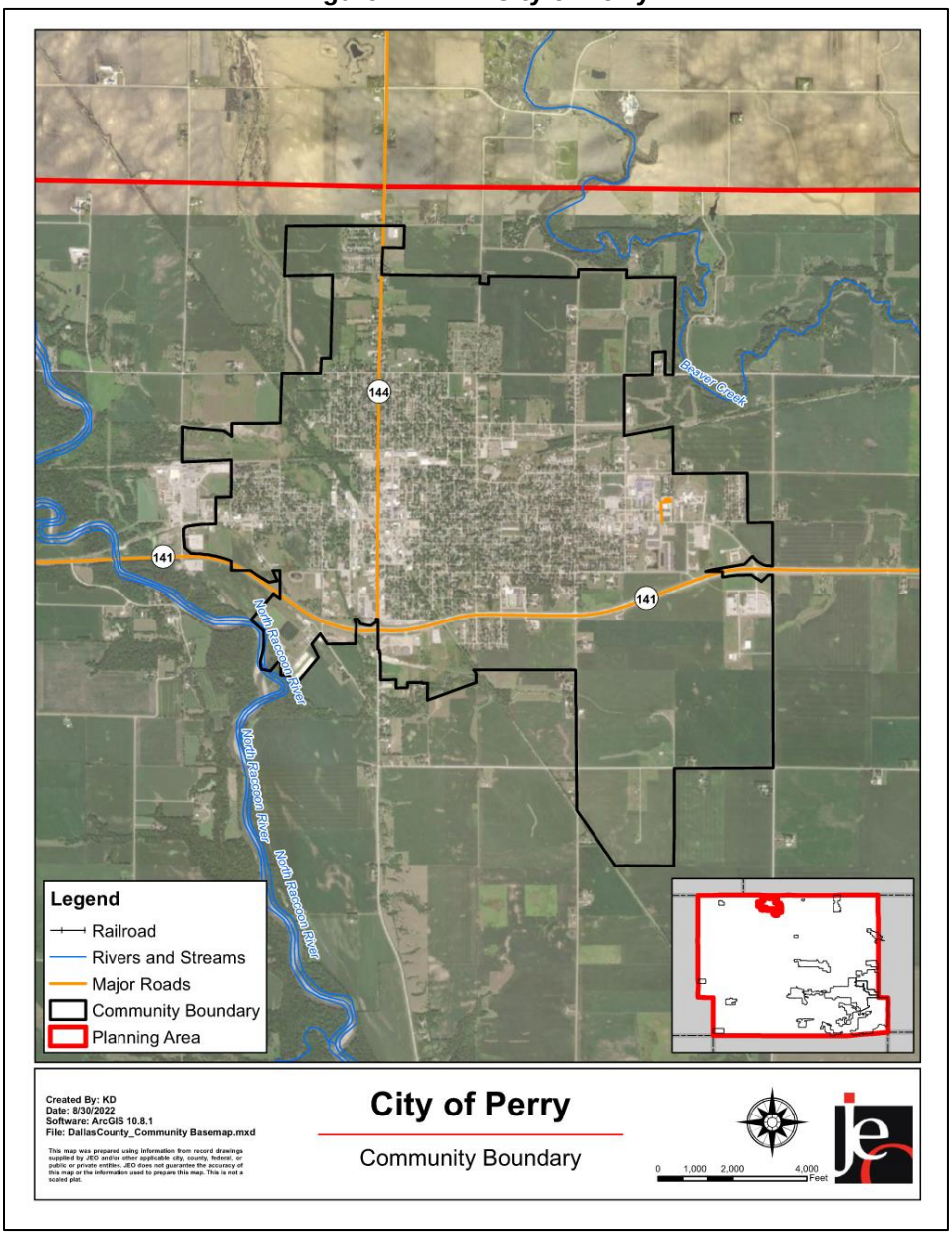
**Table PWW.1: Perry Water Works Local Planning Team**

| Name | Title | Jurisdiction |
|---|---|---|
| Matt Holmes | Superintendent | Perry Water Works |

# Location and Geography

Perry Water Works supplies water to the City of Perry and surrounding homes and businesses within two miles outside city limits. Originally a part of the City of Perry, the Board of Trustees was created in the 1950s to oversee operations. There are approximately 8,000 people serves within 3,050 billed accounts.

**Figure PWW.1: City of Perry**



## Capability Assessment

Due to the unique structure of water districts, the typical capability assessment table was not used. The following table summarizes the district's overall capabilities. Perry Water Works will continue to utilize existing relationships with local, county, state, and federal agencies in the implementation of mitigation projects.

**Table PWW.2: Overall Capability**

| Overall Capability | Limited/Moderate/High |
|---|---|
| Financial resources needed to implement mitigation projects | Moderate |
| Staff/expertise to implement projects | Limited |
| Public support to implement projects | Moderate |
| Time to devote to hazard mitigation | Limited |

## Plan Integration

Perry Water Works has an emergency response plan that was completed in 2021. This plan fully covers wells, the treatment facility, storage tanks, administration, and controls. Current protective measures, redundancies, and issue correction procedures are outlined within the plan. Future mitigation actions are not discussed in this plan.

## Critical Infrastructure

Perry Water Works owns a water treatment plant on West 4th, an administrative office on West 3rd, and three well houses.

### Critical Facilities

The local planning team identified critical facilities that are vital for disaster response, public shelter, and essential for returning the jurisdiction's functions to normal during and after a disaster per the FEMA Community Lifelines guidance. Critical facilities were identified during the original planning process and updated by the local planning team as part of this plan update. The following table and figure provide a summary of the critical facilities for the jurisdiction.

**Table PWW.3: Critical Facilities - City**

| CF # | Name | Mass Care (Y/N) | Generator (Y/N) | Floodplain (Y/N) |
|---|---|---|---|---|
| **1** | Perry Municipal Airport | N | Y | N |
| **2** | Pegasus TV | N | N | N |
| **3** | The Perry Chief | N | N | N |
| **4** | Iowa Electric Power & Light Co - Electric Substation | N | Y | N |
| **5** | McCreary Community Building | Y | Y | N |
| **6** | Perry City Hall | N | Y | N |
| **7** | Perry Public Works | N | Y | N |
| **8** | Hy Vee Perry | N | N | N |
| **9** | KDLS Radio Station | N | N | N |

| | | | | |
|---|---|---|---|---|
| **10** | Iowa National Guard and Alternative School | Y | Y | N |
| **11** | Perry Police and Fire Departments | Y | Y | N |
| **12** | Perry Lutheran Home - Main Campus | N | Y | N |
| **13** | Trinity Evangelical Lutheran Church | N | N | N |
| **14** | St Patrick's School | Y | N | N |
| **15** | Pearl Valley Rehabilitation & Health Care Center | N | Y | N |
| **16** | Perry Lutheran Home - Spring Valley Campus | N | Y | N |
| **17** | Perry Lutheran Home – Eden Acres Campus | N | Y | N |
| **18** | Perry Wastewater Treatment Plant | N | Y | N |
| **19** | Interstate Power and Light Company Electric Substation | N | Y | Y (0.2%) |
| **20** | Dallas County EMS - Perry Station | N | Y | N |
| **21** | Dallas County Hospital | Y | Y | N |
| **22** | Perry Elementary School | Y | N | N |
| **23** | Perry High School | Y | N | N |
| **24** | Perry Middle School | Y | N | N |

**Table PWW.4: Critical Facilities – Water Works**

| CF # | Name | Mass Care (Y/N) | Generator (Y/N) | Floodplain (Y/N) |
|---|---|---|---|---|
| **25** | Perry Water Treatment Plant | N | Y | N |
| | Chlorine Building | N | Y | N |
| | 1 Million Gallon Reservoir | N | N/A | N |
| | 0.5 Million Gallon Reservoir | N | N/A | N |
| | Pump House | N | Y | N |
| | Well 12 | N | Y | N |
| | Well 19 | N | Y | N |
| **26** | Well 9R | N | N | Y (1%) |
| | Well 18 | N | N | Y (1%) |
| **27** | Well 13 | N | Y | Y (1%) |
| | Well 14 | N | Y | Y (1%) |
| **28** | Well 15 | N | N | N |
| | Well 16 | N | N | N |
| **29** | Well 17 | N | N | N |
| **30** | Well 20 | N | N | N |
| | Well 21 | N | N | N |
| **31** | Well 22 | N | N | N |
| | Well 23 | N | N | N |
| **32** | Water Tower | N | N | N |
| **33** | Perry Water Works Administration Building | N | Y | N |

**Figure PWW.2: Map of Critical Facilities - City**

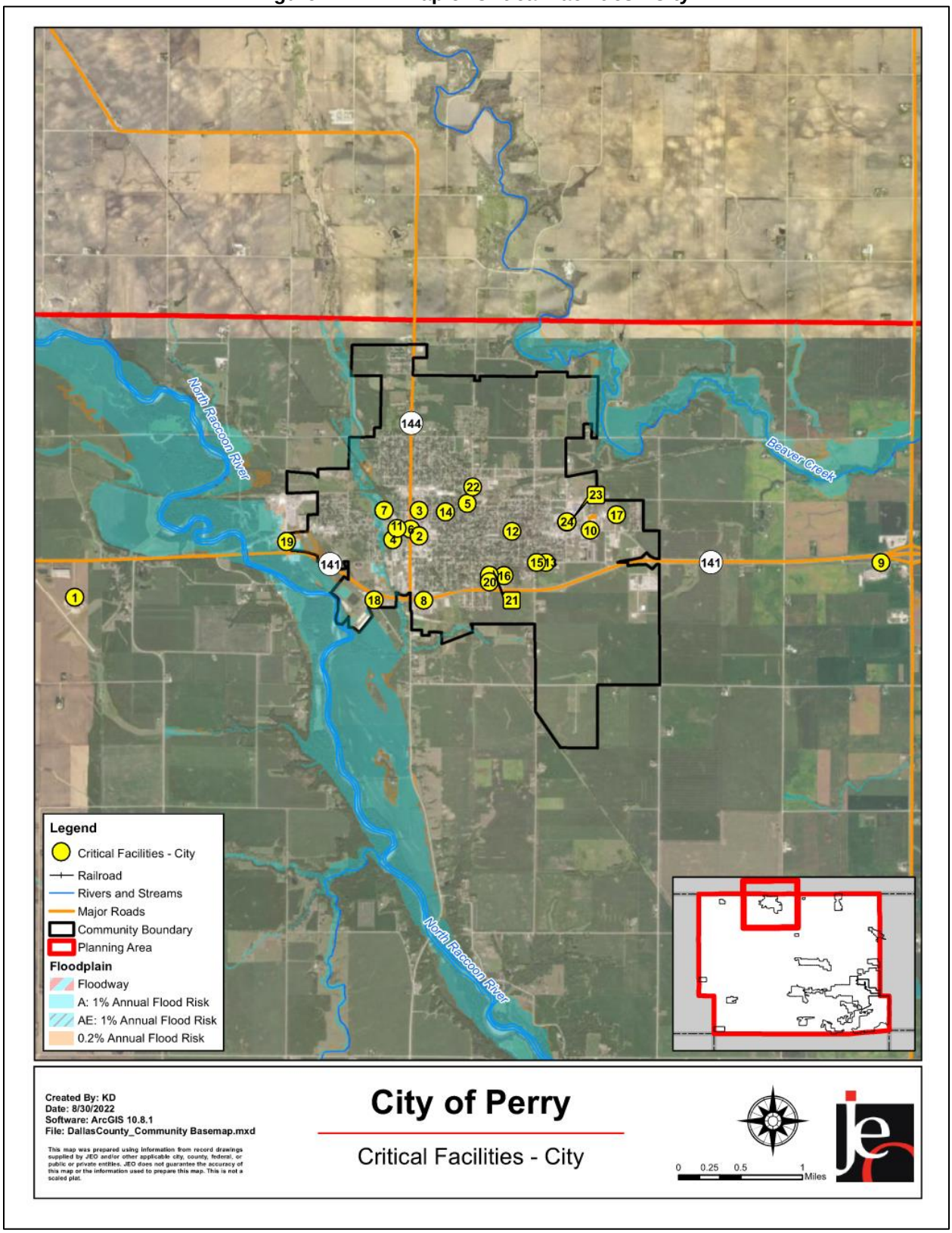
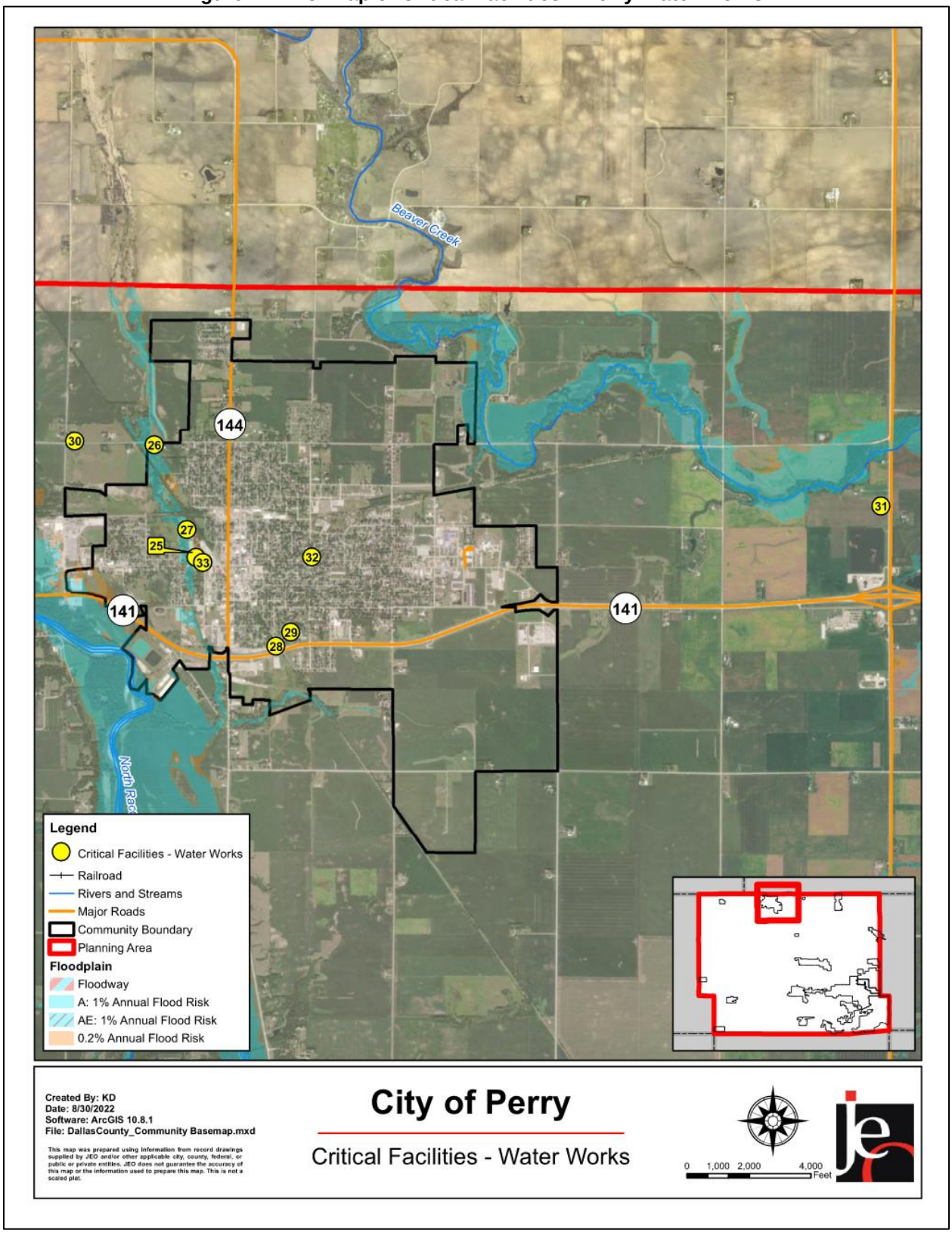


**Figure PWW.3: Map of Critical Facilities – Perry Water Works**



## Hazard Prioritization

The hazards discussed in detail below were selected by the local planning team from the county hazard list as relevant hazards for the district. The local planning team prioritized the selected hazards based on historical hazard occurrences, potential impacts, and the district's capabilities. For more information regarding regional hazards, please see *Section Four: Risk Assessment*.

**Extreme Temperature**

The water district identified extreme temperatures as a hazard of top concern due to damage to water mains during extreme cold and increase of water usage during extreme heat. During extreme cold temperatures, major water main breaks have occurred as water froze before reaching the storm drains, creating ice issues. Cold temperatures can result in equipment failure and frozen pipes at the treatment plant, impacting the production of treated water. On extreme heat temperature days, water usage within the City of Perry. In the past, the water district has had issues keeping up with demand as certain wells are unusable due to nitrification in the heat.

**Infrastructure Failure**

Most of the infrastructure within the water district is redundant. Failure of the non-redundant infrastructure is a major concern to the local planning team. In the past, the water district has experienced underground power failure that also disconnected the generator. Water continued to enter the treatment plant but could not be pumped out into the system, resulting in a flood within the plant that began to submerse the electric pumps and could have stopped all water production for weeks.

**Severe Winter Storms**

According to the local planning team, power outages during a severe winter storm are of concern. The water district can run a million gallons per day through onsite wells and generators and has a contract with Tyson for that amount of water. If a winter storm prevents the water district from getting back-up power to additional wells when Tyson pulls water, the water district could have a hard time fulfilling demand to other customers.

**Tornado and Windstorm**

The water district's water treatment plan is located within one building, making tornado and windstorms a hazard of concern. If the water treatment plant were to be damaged by a tornado or impacted by a large windstorm, water production could be stopped. During the 2020 derecho, the water plant was not affected, but power was lost to the well sites for several days. The water treatment plant's generator was able to operate all onsite wells and fulfill water demand during the power outage.

# Mitigation Strategy

**New Mitigation and Strategic Actions**

| Mitigation Action | **Backup Generators & Transfer Switches** |
|---|---|
| **Description** | Transfer switches installed on additional well sites as well as a permanent stand-by generator or portable generator. Current production of generated wells is 1,000,000 GPD. However, usage has recently increased from 850,000 GPD to 1,600,000 GPD. It is currently unknown if usage will stay this way or go back down. |
| **Hazard(s)** | Human Infectious Diseases, Infrastructure Failure |
| **Estimated Cost** | $30,000 |
| **Local Funding Source** | Local funds available |
| **Timeline** | 2-5 Years |
| **Priority** | Medium |
| **Lead Agency** | Perry Water Works |
| **Status** | Not started |

| Mitigation Action | **Implementation of Chlorine Scrubber System** |
|---|---|
| **Description** | The chlorine room protects employees from chlorine exposure but does not protect the community. A chlorine scrubber system is needed to reduce evacuation area in the event of a large chlorine leak. |
| **Hazard(s)** | Human Infectious Diseases, Infrastructure Failure |
| **Estimated Cost** | $50,000 |
| **Local Funding Source** | Local funds |
| **Timeline** | 5+ Years |
| **Priority** | Low |
| **Lead Agency** | Perry Water Works |
| **Status** | Not started |

| Mitigation Action | **Interconnections with Xenia Rural Water** |
|---|---|
| **Description** | Interconnections between Perry Water Works and Xenia Rural Water would provide an additional source of water to help supplement Perry Water Works in the event of an emergency. |
| **Hazard(s)** | Human Infectious Diseases, Infrastructure Failure |
| **Estimated Cost** | $2,000,000 |
| **Local Funding Source** | Local funds, SRF |
| **Timeline** | 5+ Years |
| **Priority** | Medium |
| **Lead Agency** | Perry Water Works |
| **Status** | Not started |

| Mitigation Action | **Water Treatment Plant** |
|---|---|
| **Description** | Usage has recently increased from 850,000 GPD to 1,600,000 GPD, increasing the burden on infrastructure. An additional water treatment plant is required to increase redundancies and avoid infrastructure failure. |
| **Hazard(s)** | Human Infectious Diseases, Infrastructure Failure |
| **Estimated Cost** | $10,000,000 |
| **Funding** | Local funds, SRF |
| **Timeline** | 2-5 Years |
| **Priority** | High |
| **Lead Agency** | Perry Water Works |
| **Status** | Not started |

## Plan Maintenance

Hazard Mitigation Plans should be living documents and updated regularly to reflect changes in hazard events, priorities, and mitigation actions. These updates are encouraged to occur after every major disaster event, alongside community planning documents (e.g., annual budgets and Capital Improvement Plans), during the fall before the HMA grant cycle begins, and/or prior to other funding opportunity cycles begin, including CDBG, Water Sustainability Fund, Revolving State Fund, or other identified funding mechanisms.

The water utility's planning team is responsible for reviewing and updating this planning profile as changes can occur before or after a major event. The plan will be reviewed bi-annually and as needed.