

Facilities Plan  
Deike Estates Improvement and Service District  
Water System Improvement Project  
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## **Executive Summary**

The water collection, storage and distribution system of Deike Estates Improvement and Service District (the District) was built in the 1980s. The water system is in need of modernization and improved efficiency to continue to provide adequate drinking water to property owners of the District.

The District recently completed both a Dive Inspection and a Structural Inspection of its water storage tank to identify necessary improvements for continued operation of the water system. Through inspection, it was identified that the water storage tank needs to be repainted on both the interior and the exterior of the tank to prevent further corrosion, if it's to remain in service. Structural components of the water tower are in need of repair to address safety concerns, stability and the longevity of the tower. Piping from the pump house up to the water tank was identified to present a risk, as it was originally configured as concentric piping, and there is no way to evaluate or repair the internal pipe. Furthermore, the chlorination system is aged and still running manually, galvanized pipes and corroded valves pose a risk of service disruption and contamination, and the main water meter is not accurately reading water usage. As of late, energy bills have increased due to an inconsistent well pump. Maintenance and operations of this ageing system are becoming more challenging and costly for the District.

The big picture goal of this project is to upgrade and improve the water collection, storage and treatment systems so that the District can continue providing affordable, clean drinking water to property owners of the District for years to come. To accomplish this goal, the District will need to upgrade and improve basic materials and components of the systems infrastructure. The District strives to provide an adequate amount of clean drinking water to its customers, who themselves have customers to serve.

The District is located in unincorporated Laramie County, just outside the boundaries of the City of Cheyenne. The District has inquired about annexation to the City of Cheyenne. However, since the District does not immediately border the City, it's not qualified for annexation. Additionally, Laramie County owns property to the south of the District, on the other side of Interstate 80. The District has reached out regarding connecting to their water and sewer systems, and this option would require boring under I-80 to connect. This type of project would be extremely costly for the District. Alternatively, the Union Pacific Railway is situated along the north side of the District, posing its own set of challenges for the District to consider connections to the north.

The District provides water and wastewater services to seven businesses that rely on its services for their everyday operations. Taking no action would eventually contaminate the drinking water that is available to these local businesses and for some, may force them to close their doors. The District has considered repainting the interior and exterior of the existing water tower tank and completing the necessary structural repairs to the tower's base. The District has ultimately decided to install two new 12,000-gallon storage tanks in its place. The current tank holds 50,000 gallons of water and the current water needs of the District are only 24,000 gallons. The new storage tanks will sit on ground level, inside an existing building within the District. This placement will make the tanks easier to access, inspect and maintain.

Facilities Plan  
Deike Estates Improvement and Service District

This project consists of three main components to upgrade the systems' infrastructure:

- (1) Replacement of all piping from the well to the new water storage tanks and the replacement of all piping that moves water through the treatment process. All existing valves, galvanized pipes, and cast-iron fittings would be replaced with copper or PVC products. The District also plans to replace and upgrade the chlorination system, install a programmable logic controller, variable frequency drives, and a new water meter for enhanced data reliability, and improved leak detection.
- (2) Replacement of the well pump and drilling of a secondary well to provide a backup water source.
- (3) Installation of two new 12,000-gallons water storage tanks to replace the existing water tower tank.

A basic project design has been completed by the engineer to aid financial projections and help determine necessary space and material requirements. A complete project design will need to be prepared as the first step of the project once funds are available.

### Financial Estimates

Project Component	Estimated Cost
<b>Engineering</b>	
Water Treatment Plant Design Phase 1	\$25,000
Electrical/ Controls	\$7,500
Civil	\$5,600
Mechanical	\$2,500
Water Treatment Plant Design Phase 2	\$8,000
<b>Utility Power</b>	\$5,000
<b>Water Quality Sampling</b>	\$2,000
<b>Construction</b>	
General Contractor and Project Management	\$35,000
Labor	\$35,000
<b>Well Pump</b>	\$20,000
<b>Water Treatment Plant Equipment, Piping, Appurtenances</b>	
2" Water Meter	\$0
5 Micron Filter	\$1,000
Filter Housing	\$2,100
Chlorination	\$3,000
5-Gallon Sodium Hypchlorite (2)	\$3,000
Containment Pad (2)	\$250
Static Mixer	\$1,200
12,000 Gallon Tank (2)	\$45,600
Level Monitors	\$1,250
250gpm Fire Pump	\$5,000
Distribution Pumps (With Pressure Tanks)	\$38,300
Pressure Gauges	\$200
Building Piping	\$2,500

Facilities Plan  
 Deike Estates Improvement and Service District

Fittings	\$10,000
Valves	\$6,000
<b>Monitoring and Controls</b>	
RTU, Equipment, Software Fee	\$7,000
Installation	\$4,000
<b>Distribution Tie-In System Construction</b>	
General Contractor/ Project Management	\$10,000
Equipment and Labor	\$122,000
Permit	\$2,500
Pipe & Materials (Polywrap, Locate Wire, Etc.)	\$20,000
Bedding	\$5,000
Mobe, Dewatering, Erosion Control, Etc.	\$2,500
<b>New Well: Drilling, Completion &amp; Permits</b>	\$70,000
<b>Project Administration Costs</b>	\$30,000
<b>Shipping (3%)</b>	\$7,347
<b>Taxes (8%)</b>	\$19,592
<b>Markups (15%)</b>	\$80,700
<b>Total</b>	<b>\$645,639</b>