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WATER QUALITY FOR THE NEXT 40 YEARS

The CDC has stated that "Community wastewater management and adequate sewer systems play important roles in sanitation and disease prevention"

The State of Utah through its local communities constructed systems to transport and treat domestic, commercial and industrial wastewaters and to convey stormwaters, to protect residents.

In a 2007 survey, the British Medical Journal found that sanitary sewer systems were considered the most important medical milestone since 1840.

To protect and maintain these systems, ensuring their vital function is preserved, requires continuous effort and investment.



Since most taxpayers don't realize the advantages of an efficient collection and treatment system until they experience problems themselves, those responsible for their operation must balance user rates, which citizens do understand, with the constant renewal and replacement requirements the system needs. This report is designed to educate the public and those who make decisions balancing rates and infrastructure needs, to better understand the continuous magnitude of the costs that the future will bring.

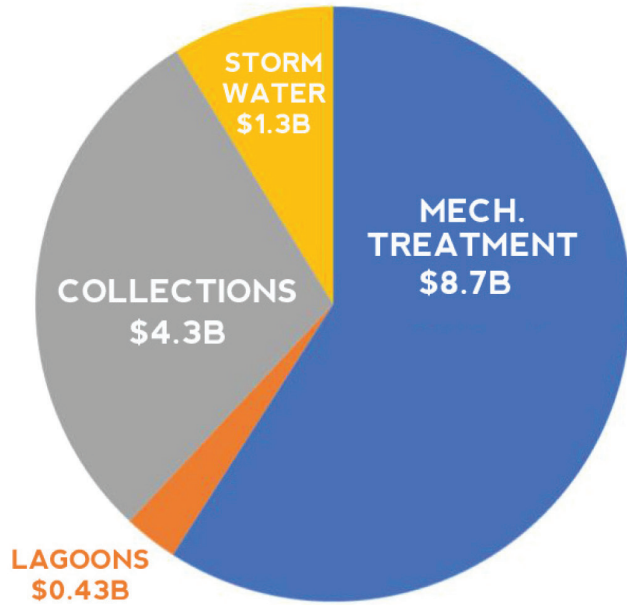
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As society learns more about our collective impact on the water environment, the required levels of treatment may also increase to remove pollutants that are new or newly identified as a threat to the public health.

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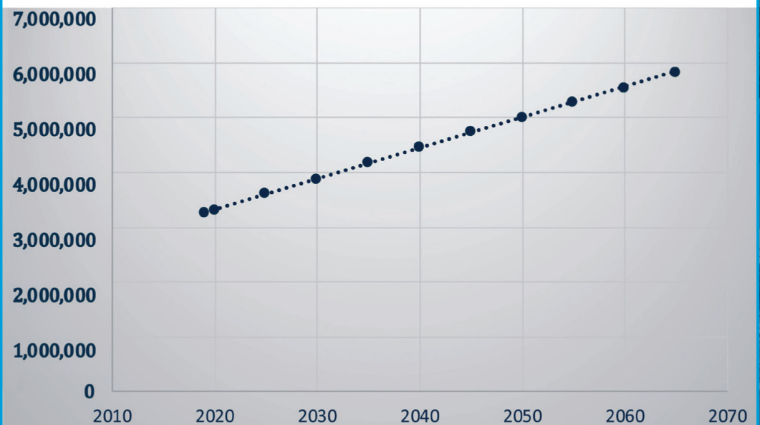
Reclaiming Utah's Water for the Future

40 YEAR WATER QUALITY FORECAST
\$15 BILLION



Renewal & replacement of Existing Facilities \$5.3 Billion
 New or Increased Regulatory Requirements \$1.3 Billion
 New Treatment to Serve Population Growth \$2.1 Billion
 40 Year Cost Demand \$8.7 Billion

UTAH POPULATION BY THE YEAR



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MECHANICAL WASTEWATER TREATMENT

Wastewater generated by 80% of Utah's citizens is conveyed to and then treated to remove harmful pollutants in publicly operated treatment works. These treatment plants were built between the 1950's and the 2010's. While they have been maintained and operated effectively, over the next 40 years all of these facilities will be either rebuilt or replaced to keep them operating at a level necessary to protect water quality. The present worth of these facilities is estimated to be \$4 Billion. Over the next 40 years in today's dollars, the estimated renewal and replacement cost will be over \$5.3 billion, with over \$1.4 billion being spent in the next five years. Future new regulatory requirements designed to protect the environment and the health of our waters, have an estimated cost of an additional \$1.3 billion. Finally, costs for servicing new growth through 2060 is estimated to be more than \$2.1 billion. The total 40-year forecast is \$8.7 Billion.

WASTEWATER COLLECTION SYSTEMS

Wastewater collections systems, or the pipes we never see, efficiently transport the water we flush down the drain in our homes to a wastewater treatment plant or lagoon system. Effective piping systems are essential to contain polluted waters while being transported and should be maintained such that they are watertight – not allowing water to seep in or out of the pipes. Such systems last a long time, but not forever. A 70-year lifecycle was used in the assessment of when these sewer lines need to be replaced. Furthermore, as population growth occurs, sewer trunk lines may need enlargement to handle additional flows. There are approximately 12,200 miles of sanitary sewers in Utah with an average age of about 35 years. Over the next 40 years about 60% of these lines will need to be relined or replaced. The cost of this exceeds \$4.3 billion.



Renewal & Replacement of Existing Pipelines	\$2.9 Billion
Trunkline Expansion to Support Population Growth	\$1.4 Billion
40 Year Cost Demand	\$4.3 Billion

WASTEWATER LAGOON SYSTEMS

Sewer lagoon systems form the backbone of wastewater treatment for rural Utah. Small communities are able to operate lagoons effectively with only minor attention. Although lagoon systems are simple, they still require maintenance to remain operational and functional. There are 74 lagoon systems in Utah. Major renewal and replacement of lagoon systems requires grant money and low interest loans for them to be affordable. Over the next 40 years, about \$250 million dollars will be needed to keep them operational. In addition, regulatory changes may increase that amount by an additional \$182 million. These changes may mean an annual average loan or grant need of over \$10 million.

Renewal & replacement of Existing Facilities	\$250 Million
New or Increased Regulatory Requirements	\$182 Million
40 Year Cost Demand	\$432 Million



STORMWATER COLLECTION SYSTEMS

Up to Now the Stormwater Focus has been Flood Control including 4,700 miles of pipe.

Stormwater management systems have provided health and safety for residents in flood control. Urban areas have high percentages of impervious surface generating high storm water flows mixed with surface pollutants. Currently the focus of stormwater is beginning to address improvements to water quality and the reduction of runoff volume. These efforts are called green infrastructure and low impact development (LID). Since requirements for green infrastructure and LID are new, they are not included in costs reported here, but will be later as we see them installed in storm water systems. The facility in the photo under this paragraph is an example of LID, providing infiltration of stormwater under a paved parking area.

Renewal & Replacement of Existing Facilities	\$0.9 Billion
New or Increased Regulatory Requirements	\$0.4 Billion
40 Year Cost Demand	\$1.3 Billion

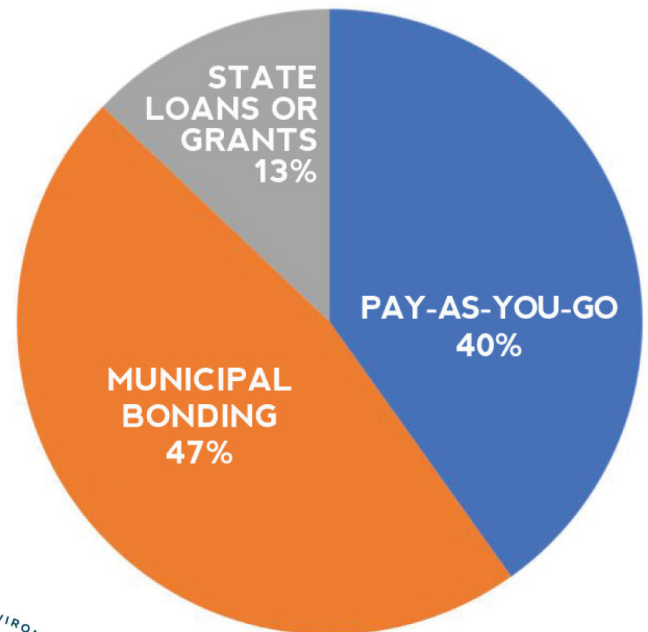
HOW DO WE PAY FOR WATER QUALITY?

The next 40 years requires almost \$15 billion to maintain water quality in the State of Utah. There are three possible methods to pay for the needed improvements:

- Pay-as-you-go Through Rates
- Municipal Bond Market
- State WQB Loans and Grants

Most large municipalities and local districts will pay for their needs with a combination of rates and municipal bonds, whereas small towns and districts will have affordability problems and require state supported, low-interest loans and grants. Regulatory changes may require more state funding in order for rates to remain affordable. The graph represents the best estimate of possible funding sources that will be used to pay for the needed renewal and replacement costs, as well as the possible regulatory changes.

PAYING FOR WATER QUALITY



Pay-As-You-Go	\$5.9 Billion
Municipal Bonding	\$6.9 Billion
State Loans or Grants	\$1.9 Billion



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