FOCUS REPORT (SAMPLE SLIDES)

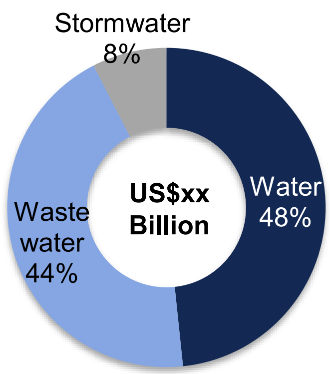
U.S. Municipal Water Infrastructure: *Utility Strategies & CAPEX Forecasts, 2018-2027*

April 2018

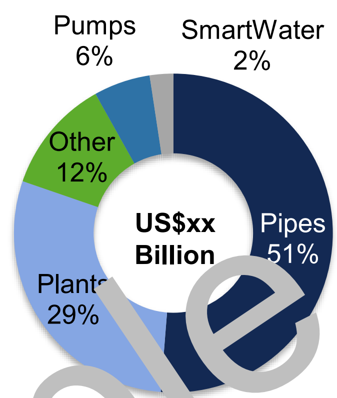
Sizing the Market – Municipal Water & Wastewater Outlook

Surpassing half a trillion dollars by 2027, the U.S. municipal water utility sector represents the single largest opportunity for water technology, equipment, engineering, and construction providers.

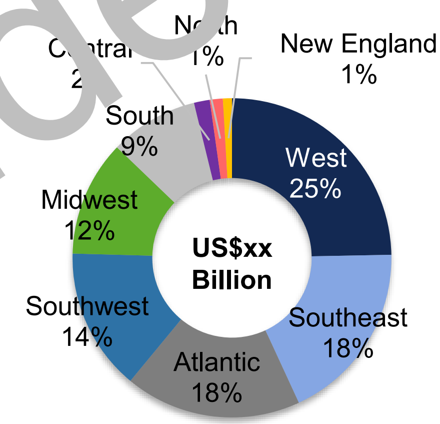
Forecasted CAPEX, 2018-2027



Total CAPEX Spend by Segment, 2018-2027



tal (APE by Region, 2018-2027



Analysis

- Wastewater and stormwater total combined US$275 bill[illegible],
- Wastewater and sto[illegible]water [illegible] water spend by US$1[illegible] [illegible]on du[illegible]g the forecast period.

- The distribution networks, made up of pipes and pumps, account for 57% of the total CAPEX, or US$303 billion.
- Smart water– metering hardware and data analytics–takes on an increasing role, backed by demand for more efficient spend and the scaling information, communication and technology solutions.

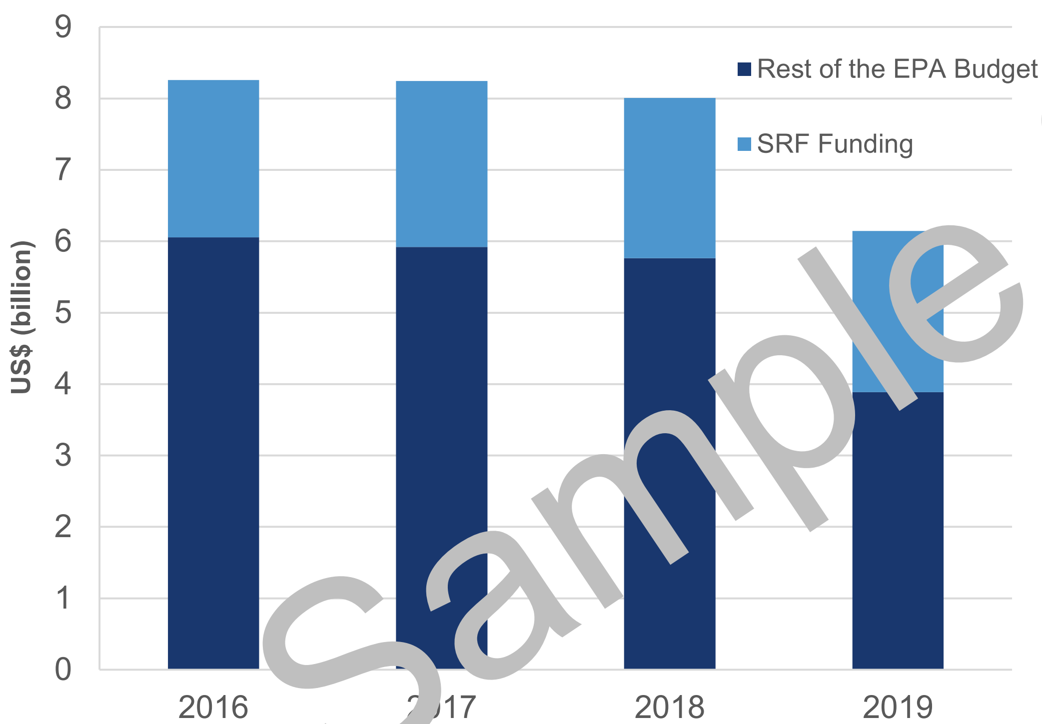
- High population states– California, Florida, New York, and Texas– drive CAPEX forecasts nationally, representing US$273 billion of the total.
- Challenges, including drought, combined stormwater overflows, and supply demand underlie varying opportunities by region.

Source: Bluefield Research

EPA Faces Budget Cuts, but SRF Program Maintained

Despite the EPA facing significant budget cuts, the current administration has indicated its support for the State Revolving Fund (SRF) program and has proposed to maintain SRF funding.

Year over Year EPA and State Revolving Fund (SRF) Budget



Source: EPA, Bluefield Research

Analysis

Between 2016 and 2019 the combined drinking water and clean water SRF federal budgets have remained essentially constant as US$2.2 billion.

- State revolving funds provide approximately 17% of total public spending on water and wastewater infrastructure annually.
- Of federal dollars distributed to State Revolving Funds, most is going to treatment infrastructure projects– 43% of drinking water funds and 60% of clean water funds.

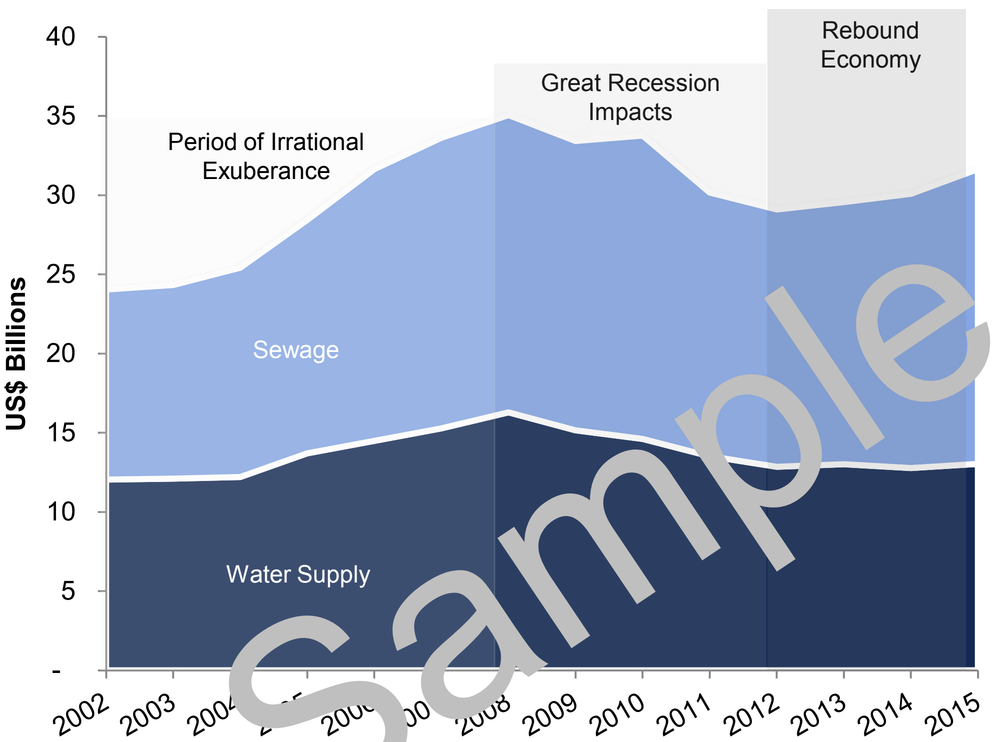
The state revolving fund programs allocate federal dollars to each state, which then provide loans and grants to local drinking water and clean water projects.

- Since the inception of the drinking water SRF program in 1996 and clean water SRF program in 1987, they have remained politically popular.
- SRF programs are designed to be self-sustaining as states collect loan repayments for use for future projects.
- Despite tapping federal dollars, the SRF programs give control to the states to address localized drinking water and wastewater issues.

Uptick in Construction Spending on Water & Sewage, 2002-2015

Construction spending on water supply & sewage, which represents as much as 70% of infrastructure CAPEX, has totaled an aggregate US$420 billion since 2002.

Public Construction Spending for Water Supplies and Sewage, 2002-2015



Source: US Census, Bluefield Research

Analysis

Water infrastructure construction trends signal rebound from great recession.

- After peaking in 2008 at US$35 billion, annual construction spend fell 17% to US$29 billion in 2013.
- Since 2013, spending has begun to increase, reaching US$31 billion in 2015. This upticks expected to continue going forward, mirroring overall infrastructure CAPEX growth.
- Construction spending on water supplies and sewage plays a significant role in the total CAPEX, as Bluefield has calculated its impact hitting as high as 70% of the total spend.

Uptick in wastewater spending indicates increased attention to environment impacts.

- Since 2002, Sewage has made up a slight majority of construction spending at 54% of the US$420 billion.
- Overall, construction spend on sewage trended upward, reaching 59% of total in 2015, further highlighting increased attention to wastewater.

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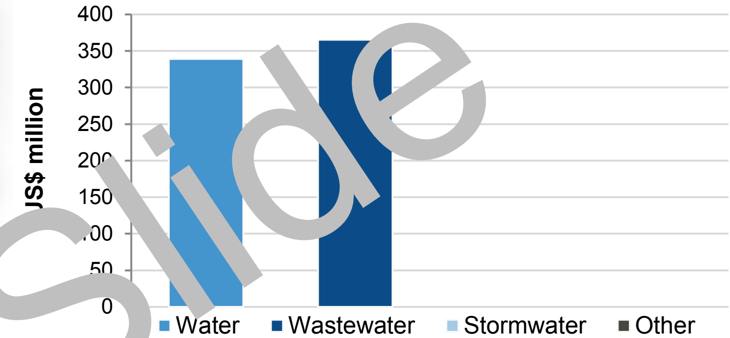
Water and Wastewater Utility (Sample Profile)

Utility Details

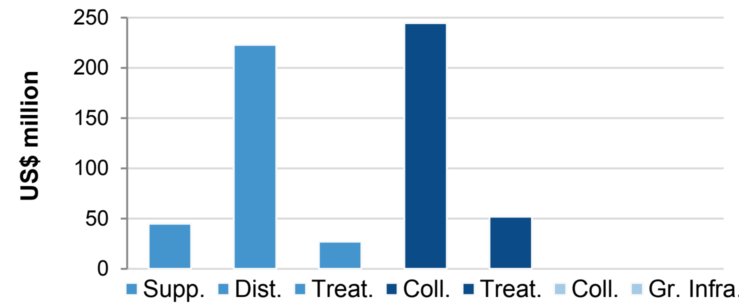
Location:	City, State
Population Served (Water / Wastewater / Stormwater):	240,000 / 250,000 / —
Service Area (Water / Wastewater / Stormwater):	130.4 sq. miles / 1700 sq. [illegible]es / [illegible]
Mains/Drains (Water / Wastewater / Stormwater):	842 miles / 757 [illegible]es / —
No. Treatment Plants (Water / Wastewater):	2 / [illegible]
No. Pump/Lift Stations (Water / Wastewater / Stormwater):	18[illegible]22 / —
No. Storage Facilities (Water / Wastewater / Stormwater):	[illegible] / — / 27
Annual Water Distribution:	36.5 billion gallons
Treatment Capacity (Water / Wastewater):	— / 188 mgd
Estimated Average Annual CIP Spend, 2018-2027:	US$70.4 million

* Note: All profile information and CIP estimates based on available published data.

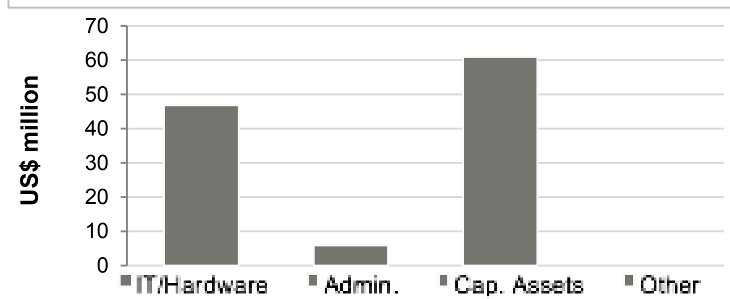
Projected Total Capital Improvement Program (CIP), 2018-2027



Projected Total Conveyance/Treatment CIP, 2018-2027



Projected Total Support CIP, 2018-2027



Data Appendix

Bluefield's ten-year outlook is supported by bottom-up data from a range of sources, including capital improvement plans, federal consent decrees, EPA administered state revolving funds, and state demographic details, and inputs from Bluefield's team of water experts.

bluefield	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii
Water	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wastewater/Stormwater	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wastewater	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL CAPEX	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water / Total Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Wastewater/Stormwater / Total Cape	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Other / Total Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10
Water Supply	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Distribution	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Treatment	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water IT/Hardware	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Administrative	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Water Other Assets												
Water Other												
TOTAL WATER	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Supply / Total W Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Distribution / Total W Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Treatment / Total W Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
IT/Hardware / Total W Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Administrative / Total W Capex	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Other Assets / Total W Capex	0%	0%	0%									
Other / Total W Capex	0%	0%	0%									
Wastewater Collection	$ -	$ -	$ -	$								
Wastewater Treatment	$ -	$ -	$ -	$								
Wastewater IT/Hardware	$ -	$ -	$ -	$								
Wastewater Administrative	$ -	$ -	$ -	$								
Wastewater Other Assets	$ -	$ -	$ -	$								
Wastewater Other	$ -	$ -	$ -	$								
TOTAL WASTEWATER	$ -	$ -	$ -	$								
	-	-	-									
Distribution / Total W Capex	0.00%	0.00%	0.00%									
Treatment / Total W Capex	0.00%	0.00%	0.00%									
IT/Hardware / Total W Capex	0.00%	0.00%	0.00%									
Administrative / Total W Capex												
Other Assets / Total W Capex												
Other / Total W Capex	0.00%	0.00%	0.00%									

DATA APPENDIX INCLUDED WITH THE REPORT:

- State-by-state forecast data and assumptions
- Regional water & wastewater inputs
- New vs. rehabilitated CAPEX forecasts
- Data output draws from capital improvement plan details for +100 largest utilities

Bluefield's Breakdown of The Ten-year Forecast

Included in the report are forecast breakouts of key market categories, segments and sub-segments that make up the core of utility capital expenditures and Bluefield Research's ten-year forecast.

Category

- Water
- Wastewater
- Stormwater
- Other

Segment

- Administrative
- Collection
- Distribution
- IT/Hardware
- Other
- Supply
- Treatment

Sub-segment

- Building Maintenance
- Customer Information Systems
- Drains/Culverts/Catch Basins
- Equipment
- Fleet
- Green Infrastructure
- Hydrants
- Land, Other
- Manholes/Enclosures
- Meters
- Pipes
- Pipes/Tunnels
- Plans/Studies
- Plants
- Professional Services
- Reservoirs/Dams
- SCADA
- Tanks/Towers
- Testing/Monitoring
- Valves
- Waterways
- Wells/Aquifers

Report Summary

More than 50% of U.S. **municipal** water & wastewater infrastructure is **nearing the end of its useful life,** and the traditional quick fixes by a highly fragmented group of 50,000 public water and 15.000 wastewater systems are giving way to a need for more extensive capital expenditures.

Over the next decade, from 2018 to 2027, municipal utilities have set the stage for over **US$40 billion** in annual capital improvements to address deteriorating piping networks, combined sewer overflows, and rising population demands on treatment plants and distribution networks.

The scope of these utility infrastructure improvements varies significantly by region. Utilities in the east are focused on system rehabilitation and storm water overflows, while new water supplies and drought management activities are more prevalent in the south and west. The market is ripe for new, more efficient infrastructure solutions and improved asset management.

This report is essential for companies requiring data-backed analysis and insights into trends, opportunities, and market forecasts for infrastructure investment across the U.S municipal utility landscape.

WHO SHOULD BUY THIS REPORT

- **Water technology firms** seeking insights into business development and market opportunities
- **Supply chain companies** in need of critical analysis on CAPEX trends and forecasts by utility, state, and region.
- **EPC firms** looking to stress-test their strategies and validate strategic decisions through an un-biased, independent perspective
- **Infrastructure Investors** looking for guidance to support M&A and investment decisions.
- **Financial organizations** requiring transparent analysis of the U.S. municipal utility regulatory environment and key drivers for growth.
- **Utilities** looking to benchmark investment strategies

This report draws from Bluefield Research's annual insight service and team of water experts

INSIGHT SERVICE

INSIGHT REPORTS **INSIGHT SERVICES** **CONSULTING**

CLIENT FOCUS: designed for vendors, operators and investors addressing the U.S. municipal sector as a business, supporting:

- Business development and strategy executives at manufacturers and integrators of water and wastewater treatment systems.
- EPC and water project developers seeking new supply relationships or strategic or vertical partnerships.
- Critical infrastructure investors evaluating and seeking addressable opportunities to own & operate municipal networks.

RESEARCH COVERAGE: a 12-month cycle of data and analysis research provided in multiple formats, covering:

- Capital improvement plans (CAPEX & OPEX) trends, shaping utility budgets & forecasts.
- Wastewater reuse outlooks– indirect & direct– by state and application.
- Private participation in water, including IOUs, PPPs, and alternative financing models.

METRICS: primary research and analysis is supported by proprietary market, project and company databases:

- Utility & water systems
- Wastewater reuse projects & pipeline
- Capital improvement plans
- Quarterly IOU M&A deal-flow
- Utility water & wastewater rates
- EPA consent decrees
- Smart Water contracts

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CONTACT BLUEFIELD

NORTH AMERICA
192 South St. // Suite 550
Boston, MA 02111
United States
T +1 617 910 2540

EUROPE
Carrer de Sant Joan de la Salle 42
Edifici Technova, 2.12
08022 Barcelona, Spain
T +34 93 681 4325

waterexperts@bluefieldresearch.com
www.bluefieldresearch.com

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Global companies across the value chain are developing strategies to capitalize on greenfield opportunities in water − new build, new business models, and private investment. Bluefield Research supports a growing roster of companies across key technology segments and industry verticals addressing risks and opportunities in the new water landscape.

Companies are turning to Bluefield for in-depth, actionable intelligence into the water sector and the sector's impacts on key industries. The insights draw on primary research from the water, energy, power, mining, agriculture, financial sectors and their respective supply chains.

Bluefield works with key decision-makers at utilities, project development companies, independent water and power providers, EPC companies, technology suppliers, manufacturers, and investment firms, giving them tools to define and execute strategies.

Contact Bluefield Research

NORTH AMERICA
192 South Street // Suite 550
Boston, MA 02111
T +1 617 910 2540

EUROPE
Carrer de Sant Joan de la Salle 42
Edifici Technova, 2.12
08022 Barcelona, Spain
T +34 93 681 4325

waterexperts@bluefieldresearch.com
www.bluefieldresearch.com