

# DENVER WATER'S GREEN BOND REPORT

FISCAL YEAR 2020



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# DENVER WATER GREEN BOND REPORT

## Denver Water

The Board, commonly known as Denver Water, was established in 1918 by the people of the City and County of Denver, Colorado, as an independent, autonomous, non-political agency with duties and responsibilities specifically set forth in the charter. Since that time, the Board has supplied water to the citizens of Denver and contract distributors in the metropolitan area in accordance with charter directives.

Denver Water has a five-member governing body, the members of which are appointed by the Mayor of the City for overlapping fixed six-year term. The Board is charged with ensuring a continuous supply of water to the citizens of Denver and Denver Water's suburban customers. Commissioners are not subject to term limits.

In fiscal year 2020, Denver Water had an operating budget of \$221.1 million and a five-year, \$1.5 billion capital improvement program. It employed more than 1,000 people and served approximately 1.5 million people (¼ of Colorado's residents) within its 335-square-mile service area. Denver Water customers consumed an average of 191.9 million gallons of water per day through 3,100 miles of water mains.

# DENVER WATER GREEN BOND REPORT

## Environmental stewardship and sustainability

Denver Water collects, stores, treats and distributes water to meet the needs of approximately 1.5 million customers in the Denver metropolitan area. As a result, Denver Water's environmental footprint across Colorado is significant. Denver Water has taken a leadership role in understanding and promoting sustainability in the state and in water utility planning through continued environmental stewardship. Environmental stewardship is one of the key priorities of the Denver Water's Strategic Plan and is implemented through the Environmental Stewardship Statement. The Environmental Stewardship Statement includes adherence to best practices and performance standards in environmental sustainability, dedication to sustainable growth and operation of its assets, and leading by example to share experience and expertise. Denver Water's first Sustainability Guide was completed in 2017 and was revised in 2021 with a new set of goals, standards, and commitments. These revisions further expand the concept of sustainability at Denver Water by setting concrete goals, standards, and commitments in six major resource areas: energy and transportation; water; materials; land and ecosystem; people; and infrastructure and assets.

Examples of activities fostering Denver Water's commitment to sustainability include:

- Strengthening the health of Colorado's rivers and streams through the Colorado River Cooperative Agreement, which aims to ensure more water in the Fraser and Blue Rivers in dry years, funds multiple water improvement and stream restoration efforts, and improves or changes stream channels to strengthen aquatic habitats.
- Generating clean, renewable energy with seven hydroelectric plants in Denver Water's system. These plants generated more than 68 million kilowatt hours of energy in 2020 almost enough to power all of Denver Water's facilities, from pump stations to treatment plants.
- Protecting endangered species through participation in the Colorado River Recovery Program and the Platte River Recovery Implementation Program.
- Protecting watersheds through partnerships with the U.S. Forest Service to restore forest health on more than 38,000 acres of forest land, and by working with multiple federal agencies and other Front Range water providers to identify and prioritize at-risk watersheds.
- Using water efficiently through water conservation campaigns, as well as capturing reusable water and using it for water exchanges or in the recycling plant.
- Tracking Denver Water's greenhouse gas footprint since 2008 through participation in the Climate Registry.
- Reducing waste through materials recycling, composting, efficient lighting upgrades at Denver Water's facilities and investigating strategies to reduce vehicle idling and water lost to evaporation.
- Developing environmental management systems for treatment plants and the water quality laboratory in 2016.
- Integrating environmental considerations into daily operations and identifying and tracking progress toward sustainability goals including production of annual goal report card.

# DENVER WATER GREEN BOND REPORT

- Climate scientist on staff since 2008, hiring a sustainability manager in 2016, and an energy management specialist and sustainability program assistant in 2017.

Denver Water's efforts in the area of sustainability and environmental stewardship have been recognized through multiple awards:

- U.S. Green Building Council's LEED certification for Operations Complex, including Platinum certification for the Administration Building (2021).
- City and County of Denver's award Certifiably Green Business for the Administration Building (2020).
- Colorado Department of Public Health and Environment's Environmental Leadership Program's recognition for Gold Leader (2020).
- Carbon Footprint Registry's Award for Gold Status (2019).
- The Colorado Department of Public Health and Environment recognized Denver Water with silver-level status for voluntarily going beyond compliance with state and federal regulations and for being committed to continual environmental improvement (2019).
- The Climate Registry recognized Denver Water's Sustainability Plan with gold status (2019).
- City and County of Denver Office of Sustainability's "Love This Place" Award for Implementer of Sustainability (2018).
- Association of Metropolitan Water Agencies' Award for Sustainable Water Utility Management (2018)
- Blue Star Recycler's Star Partner Award (2017).
- Trout Unlimited River Stewardship Honoree for advances in water conservation and watershed stewardship and for working with conservation groups to improve conditions on the Colorado River through the "Learning by Doing" partnership (2016).
- Global Water Award for Water Performance Initiative of the Year (2015).
- Association of Municipal Water Agencies' Platinum Award for Utility Excellence (2015).
- EPA WaterSense Excellence Awards (2015 and 2014).

# DENVER WATER GREEN BOND REPORT

## Green Bond issuance

Denver Water issued its inaugural Green Bonds (Water Revenue Bonds Series 2017A (Green Bond)) in the amount of \$160.67 million in May 2017. The purpose of labeling these as Green Bonds was to allow investors seeking to invest directly in bonds that finance environmentally beneficial projects to evaluate the environmental merits and benefits of the projects financed by the bonds. No independent certification was obtained with respect to the treatment of the bonds as Green Bonds.

Green portfolios, investors with documented environmental and social impact investing mandates that are prioritized as part of broader investment goals and objectives, were given priority. 15 separate dedicated green investors looked at the transaction, of which four placed \$18.03 million in orders — 12 percent of the total Series 2017A par amount.

Par amount:	\$142,665,000
Closing date:	May 23, 2017
Sale type:	Negotiated sale
Underwriting syndicate:	Merrill Lynch, Pierce, Fenner & Smith Incorporated Citigroup Global Markets, Inc.; Stifel, Nicolaus & Company, Incorporated
Financial Advisor:	George K. Baum & Company
Bond Counsel:	Becker Stowe Partners LLC
Disclosure Counsel:	Sherman & Howard LLC

# DENVER WATER GREEN BOND REPORT

## Green Bond projects

Proceeds from the Series 2017A Bonds were used to finance the redevelopment of Denver Water’s main operating and administrative complex (the “Operations Complex Redevelopment Project”, “OCR Project”). The 35 acre Operations Complex, which is located at 1600 W. 12th Ave. in Denver, is comprised of equipment shops, a fleet maintenance building, a warehouse building, a trades building and space for pipe and materials storage. The site is also home to Denver Water’s Administration Building that houses 600 employees. Water utility operations have been located on this site since 1881. Denver Water’s Operations Complex was redeveloped to improve the efficiency, functionality, security, and safety of all operations.

Sustainability is a key factor in the design of the Operations Complex. In July 2016, the project was registered with the U.S. Green Building Council and was submitted for certification upon completion. Denver Water expected that the project would accomplish some of the most progressive sustainability goals of any public water utility, including:

- LEED® certification for the meter shop, warehouse, trades shop, fleet maintenance building, administration building and wellness building.
- Significant energy efficiency in the administration building through appropriate envelope design, high efficiency heating, ventilation, air conditioning and lighting systems and controls.
- Energy efficient radiant heating and cooling in new facility floors provided by a central utility plant that utilizes existing water pipeline on site.
- "One Water" water reduction and use strategy to maximize the use of non-potable water from an on-site ecological wastewater treatment system, including captured rainwater through an augmentation plan, best management practices in storm water management, and the reuse of water to extinction when legally possible.
- Recycling of construction/demolition debris and use of recycled materials where possible.
- Sustainable education and engagement programs to inform users of the site about the green features and empower them to actively participate in sustainable operations.

### Green Bond Project Team:

Architect:	RNL Design Inc (now Stantec)
General contractor:	M. A. Mortenson Company
Owner representative:	Trammell Crow Company
Sustainability/LEED Certification Support:	Brendle Group, Stantec, Ambient Energy



# DENVER WATER GREEN BOND REPORT



In 2016, the OCR Project was registered with the U.S. Green Building Council. Denver Water sought different levels of LEED certifications for all of the new buildings constructed. LEED is a green building certification program offered by the U.S. Green Building Council. Projects submitted for LEED certification are reviewed by the Green Building Certification Institute, a third-party organization, and assigned points based on the project's implementations of strategies and solutions aimed at achieving high performance in sustainable site development, water efficiency, energy efficiency, materials selection and indoor environmental quality, and more. There was no assurance that any particular minimum LEED certification level would be achieved, and the failure to achieve any particular LEED certification level would not constitute a default under the bond resolution. Denver Water did not pursue a third-party certification for the 2017A Bonds, other than LEED certification for various projects financed in whole, or in part, from the proceeds of the Series 2017A Bonds.



# DENVER WATER GREEN BOND REPORT

The total cost of the OCR Project amounted to \$204.5 million. Project expenditures for years 2015 and 2016 totaled \$36 million and were financed from the proceeds of the Series 2016A Revenue Bonds. Proceeds from 2017A Revenue Bonds, labeled as green bonds, of approximately \$160 million were designated for financing the majority of the remaining costs of the project for 2017 through 2020.



# DENVER WATER GREEN BOND REPORT

## Construction progress and completion

The first phase of construction began in 2016 with a focus on the operational facilities. In this phase, the general contractor completed construction of the Meter Shop, Warehouse, Fleet Services building and Trades Shop, as well as the landscaping around those buildings, the relocation of an underground conduit and the demolition of old buildings. The second phase, which started in the summer of 2017, focused on the Administration and Wellness buildings and a parking garage, as well as the renovation of the Three Stone Building and installation of solar panels on the Administration Building, parking garage, and visitor parking lot. The project closed in September 2020, the overall progress achieved over the last four years resulted in the redevelopment of 35 acres, construction of seven new structures, and renovation of two structures on campus. The project created an efficient, regenerative, and resilient campus, that is both responsible to ratepayers and the community while promoting wellbeing and a healthy workplace.



*Entrance and  
Lobby*

# DENVER WATER GREEN BOND REPORT



*Denver Water  
Operational Complex*

*Denver Water Administration  
Building, Collaborative Area*





# DENVER WATER GREEN BOND REPORT

The total cost of the OCR project amounted to \$204.5 million compared to the project budget of \$204.8 million.



*Denver Water  
Administration Building,  
Irresistible Staircase*

*Denver Water  
Administration Building,  
Three Stones Building, and  
Parking Garage*



# DENVER WATER GREEN BOND REPORT



*Denver Water  
Administration Complex  
Cafe*

*Wellness Building Fitness Room*



# DENVER WATER GREEN BOND REPORT

## Proceeds allocation to OCR Project

The net proceeds of Green Bonds were credited to a separate subaccount (2017A Capital Project Account) to facilitate tracking of unspent proceeds. The funds in the 2017 Green Bonds subaccount are temporarily invested in “permitted investments,” as defined in Denver Water’s Master Bond Resolution and the supplemental bond resolution authorizing the issuance of the 2017 Green Bonds. The following table provides the net proceeds and reimbursement of eligible expenditures through Dec. 31, 2020. To date, Denver Water allocated 100% percent of total proceeds of the Series 2017A Bonds to eligible expenses.

ALLOCATION TYPE	AMOUNT (IN MILLIONS)	% OF TOTAL
2017A Revenue Bond proceeds	\$160.67	100%
Underwriters' discount	(\$0.33)	-0.2%
Issuance expenses	(\$0.34)	-0.2%
Capital expenses	(\$160.00)	-99.6%
<b>Unallocated bond proceeds</b>	<b>\$0.00</b>	<b>0.0%</b>



# DENVER WATER GREEN BOND REPORT

## LEED certification

LEED® green building program certification involved four steps:

1. Project registration by completing key forms and submitting payment
2. Split submittal process: design phase credits submittal and construction phase credits submittal
3. Review of the LEED application by Green Business Certification Inc.
4. Certification decision

Denver Water registered the OCR Project with the U.S. Green Building Council on July 2, 2016.

The final construction review and certification of the OCR project was received on January 21, 2021. The following table outlines the initial certification goal for each building and the final LEED certification received.

Building	Initial Certification Goal	LEED Certification Received
Administration/Garage	Platinum	Platinum
Wellness	Gold	Gold
Three Stones	Certified	Silver
Trades Shop	Gold	Gold
Meter Shop	Gold	Gold
Warehouse	Gold	Gold
Water Distribution	Certified	Silver
Fleet Maintenance	Gold	Gold

Projects pursuing LEED certification earn points for various green building strategies across several categories based on the number of points achieved, a project earns one of four LEED rating levels: Certified, Silver, Gold or Platinum (“LEED Rating System | U.S. Green Building Council”).

<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Certified</b>
80+ points earned	60-79 points earned	50-59 points earned	40-49 points earned

In addition to LEED Certification, many of the WELL Building Standard’s optimizations were included in the design for the health and wellness of occupants.

# DENVER WATER GREEN BOND REPORT

## Environmental sustainability objectives for OCR Project

Denver Water partnered with Trammel Crow as owner's representative, Stantec (formerly RNL) as lead architect and Mortensen as general contractor to design and redevelop its Operations Complex. Standard design principles were augmented by Denver Water's Continuous Improvement Program, which is based on Lean principles. That effort resulted in buildings which were designed to maximize workflow, efficiency and daylight while optimizing size and cost. The Administration Building was relocated from the center of the Operations Complex to the northern edge, improving access by customers and business partners, creating a stronger connection to the local community. The team was challenged to construct the project in a way that allowed operations to continue throughout demolition and construction. Over four years and two construction phases, eleven buildings were demolished, six new buildings and a parking structure were constructed, and two existing buildings were remolded.

The following optimizations were included in the design creating an operationally efficient campus that showcases Denver Water's commitment to promote sustainability and environmental stewardship.

### METER SHOP

The Meter Shop is where employees test and calibrate water meters. This building met the LEED Gold certification for new construction and includes the following features:

- This building is expected to save nearly 40 percent in annual energy costs and more than 30 percent in annual potable water compared to an equivalent code-compliant building.
- Nearly 90 percent of regularly used workspaces in this building can be day lit year-round.
- The operations in the Meter Shop enable Denver Water to continually improve and innovate processes while exemplifying leadership of water conservation.

### TRADES SHOP

The Trades Shop houses construction, electrical, environmental compliance, plumbing, metals and welding teams. This building met the LEED Gold certification for new construction and includes the following features:

- This building is expected to save more than 30 percent in annual energy costs and more than 30 percent in annual potable water compared to an equivalent code-compliant building.
- Nearly 80 percent of regularly used workspaces in this building can be day lit year-round.
- This building houses a critical component in the project's energy efficiency — the central utility plant — which powers all buildings on the complex using a 54-inch main line with heat exchanger.
- Denver Water is committed to the responsible management and sustainable growth and operation of all our assets, both natural and built. The operations in the Trades Shop enable Denver Water to maintain our facilities in ways that are sustainable and protect the environment.

# DENVER WATER GREEN BOND REPORT

## WAREHOUSE

This building met the LEED Gold certification for new construction and includes the following features:

- This building is expected to save nearly 45 percent in annual energy costs and more than 30 percent in annual potable water compared to an equivalent code-compliant building.
- Nearly 90 percent of regularly used workspaces in this building can be day lit year-round.
- This building, like other on the complex, is heated by radiant flooring, the most energy efficient heating approach in high-volume buildings. This provides a temperature-controlled environment for employees while contributing to the OCR's energy efficiency goals.
- The operations in the Warehouse enable Denver Water to remain steadfast in our commitment to responsible materials and waste management.

## FLEET SERVICES

This building met the LEED Gold certification for new construction and includes the following features:

- This building is expected to save more than 30 percent in annual potable water compared to an equivalent code-compliant building.
- Nearly 80 percent of regularly used workspaces in this building can be day lit year-round.
- With a priority on providing a healthy, safe workplace skylights balance daylight and winter sun for efficient lighting.
- The operations in the Fleet Services enable Denver Water to meet our greenhouse gas emissions targets and maintain a healthy and safe work environment.

## WELLNESS BUILDING

This building met the LEED Silver certification for new construction and includes the following features:

- This building is expected to save 30 percent in annual energy costs and more than 35 percent in annual potable water compared to an equivalent code-compliant building.
- Over 75 percent of regularly used workspaces in this building can be day lit year-round.
- Both an onsite clinic and fitness opportunities are housed in this facility. Onsite nursing staff and wellness programs and equipment are available to employees.

## WATER DISTRIBUTION

This building met the LEED Silver certification for new construction and includes the following features:

- This building is expected to save 20 percent in annual potable water compared to an equivalent code-compliant building.
- Significant portion of the building's electricity coming from renewable sources.
- Over 75 percent of regularly used workspaces in this building can be day lit year-round. .

# DENVER WATER GREEN BOND REPORT

## THREE STONES

This building met the LEED Silver certification for major renovations and includes the following features:

- This building is expected to save 20 percent in annual potable water compared to an equivalent code-compliant building.
- Substantially increasing the energy efficiency of building, optimizing energy performance through renovation measures and materials.
- Substantially increasing indoor environment quality using low-emitting materials and thermal comfort design.

## ADMINISTRATION BUILDING

This building met the LEED Platinum certification for new construction and includes the following features:

- This building is expected to save 36 percent in annual energy costs and more than 35 percent in annual potable water compared to an equivalent code-compliant building.
- Over 90 percent of regularly used workspaces in this building can be day lit year-round.
- Like other facilities on the Operations Campus, this facility provides centralized waste bins for municipal waste. Including compost, recycling, and landfill options at the same site encourage proper sorting and divert waste from the landfill.
- The parking garage provides preferred parking for electric vehicle charging.
- “One Water” system will minimize use of potable water and maximize use of non-potable water. This onsite ecological treatment system will collect and treat wastewater from the building through natural wetlands and reuse it for toilet flushing and irrigation.

Other notable features of the Administration building include:

- 100% LED lighting with daylight harvesting
- Radiant heating and cooling from a Central Utility Plant that uses water from a large water pipeline for pre-heating and pre-cooling (similar to geothermal)
- Net zero energy for the Administration Building (offset with 1.3 MW of onsite solar)
- Rainwater capture for irrigation
- Passive treatment of stormwater through rain gardens and detention ponds
- Automatic window blinds for heat and glare control
- Controlled outlets in non-operations buildings that turn off computer monitors and other unneeded equipment when the space is not occupied
- Robust building envelopes that include triple-pane glass and extra insulation

The Operations Complex also includes several wellness features for employees and visitors, including:

- Wellness track and centrally located sidewalk to encourage walking

# DENVER WATER GREEN BOND REPORT

- Onsite fitness center and health clinic
- Treadmills to promote movement while working
- Open breakrooms and collaborative spaces, many with exterior views
- Copy machines and large printers in dedicated rooms with separate ventilation
- Grand staircase in the Administration Building with magnificent views to entice use
- Exterior artwork that celebrates water
- Improved access to light rail and bus service

In 2012, an assessment of existing facilities showed that nearly all buildings on the Operations Complex had significant structural, electrical, mechanical and safety issues. At that time, Denver Water's Board directed staff to develop a plan for an operationally efficient campus that would be sustainable, customer-friendly, promote employee health and wellness and showcase the future of sustainable, urban water use. Through the Green Bond issuance, the Green Bond Project Team and the vision of Denver Water and its Board, the OCR project successfully met and exceeded the objectives put in motion in 2012. The operations complex has created a public presence of how Denver Water's operations are inextricably linked to the environment.

# DENVER WATER GREEN BOND REPORT



*Denver Water Administration Complex, Central Utility Plant. The Central Utility Plant (“CUP”) is in the Trades Shop building and is the primary mechanical system for the campus, providing heated and chilled water to the mechanical systems for each building. Each building also can operate independently of the CUP, if needed.*

*Denver Water Administration Complex, natural wetlands for nutrient cycling, filtrations, UV, and disinfection treatment.*





# DENVER WATER GREEN BOND REPORT

*Denver Water Administration Complex, office space in operations buildings. Denver Water is using Haworth furniture in all office spaces. Haworth achieved Zero-Waste-to-Landfill status for their North American and Asian-Pacific production plants in 2009, and globally in 2012. All of the Haworth Product for Denver Water was made in the U.S.A., with the majority in Holland, Michigan.*



*Denver Water Administration Complex, meter test bench. Meter test benches use potable water for meter testing that is recovered and reused, saving thousands of gallons of potable water per day*

# DENVER WATER GREEN BOND REPORT



*Denver Water Administration Complex, radiant tubing in the concrete floors uses water from the CUP to heat and cool buildings as the primary HVAC system. The building contains over 70 miles of radiant heating and cooling tubing.*

*Denver Water Administration Complex, skylights and LED lighting in the Fleet Services building.*





# DENVER WATER GREEN BOND REPORT

*The multi-stage treatment unit (MSTU tank) on the west side of the Administration Building is one component of the Wastewater Recycling System as part of the overall One Water strategy of the complex redevelopment. Due to COVID and a large portion of employees working remotely, the Wastewater Recycling System will begin operation in Q3/Q4 of 2021. Denver Water looks forward to measuring and optimizing the first official system of its kind in Colorado.*



*Net-zero energy goal for the Administration Building, offset with 1.3 megawatts of onsite solar. In 2020, the complex's solar array generated nearly 1.2 GWh in less than one year of operation, equivalent to 660 metric tons of carbon dioxide emission.*

# DENVER WATER GREEN BOND REPORT

*Raised flooring and radiant heating in the Administration Building.*



*LED lighting in the Wellness Building*

# DENVER WATER GREEN BOND REPORT

## Contact Information

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