



# MASS GREEN BONDS

FINAL INVESTOR IMPACT REPORT

2017 SERIES | DECEMBER 2020

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# INVESTING IN A GREENER, GREATER COMMONWEALTH



This report has been prepared by the Commonwealth of Massachusetts to provide summary information relative to the use of the proceeds of the Green Bonds, so-called, that were sold by the Commonwealth in June 2017. The report is not designed to provide any information about the credit of the Commonwealth. Investment decisions relating to the Commonwealth general obligation bonds and notes should be based only upon the most recently updated Commonwealth Information Statement and the Official Statement of the Commonwealth relating to such bonds or notes. This report does not constitute an offer to sell or the solicitation of an offer to buy any bonds or notes that may be described or mentioned in the report. Commonwealth bonds and notes are sold only by means of an Official Statement and through registered broker-deals.

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# A NOTE FROM THE TREASURER



In 2013, Massachusetts became the nation's first issuer of municipal green bonds. Since that time, the Green Bond market has expanded rapidly. According to the Climate Bond Initiative, over the next four years, issuance increased to \$12 billion in 2017, or 27% of the total U.S. green bond issuance for the year. Massachusetts is pleased to have helped lead the way in the U.S. public space, now having come to market with a total of \$800 million in green bonds between four unique series.

As this marketplace continues to mature, issuers must commit to transparent and accurate reporting for the Green Bond label to continue to instill investor confidence. In this report, you will find data related to the use of proceeds for the Commonwealth's 2017 Series B transaction – its fourth series of green bonds. Spending is completed on this issuance, with proceeds allocated among three categories which range from energy efficiency projects to habitat restoration initiatives.

We are honored to contribute to this innovative marketplace and stay committed to improving our communications and transparency. As always, we appreciate feedback, and we encourage you to let us know if there are any additional ways that we can meet your information needs. Thank you for your support of a greener, greater Commonwealth!

Sincerely,

A handwritten signature in blue ink, appearing to read 'Deborah B. Goldberg'.

Deborah B. Goldberg  
Treasurer & Receiver-General  
Commonwealth of Massachusetts

# SUMMARY INFO



## GOALS

The \$100 million 2017 Series B bonds represent the Commonwealth's fourth series of Green Bonds. The goal of the Commonwealth's Green Bond financings is to offer securities that meet the growing investor demand for highly-rated, fixed-income investments that are linked to capital projects that improve the environment. Many investors want to deploy their capital to improve the environment through public sector green infrastructure investments, including projects dedicated to energy efficiency, open space protection, environmental remediation, and habitat restoration and preservation. Developing the Green Bonds was an opportunity to attract new investors and to increase demand from existing bondholders, which would result in a more diverse investor base for the state.

## INVESTOR BENEFITS

Because Green Bonds are general obligations of the Commonwealth with the same security for repayment as the state's other general obligation bonds, ratings assigned to the Green Bonds (AA+, Aa1, AA) were the same as those assigned to other Massachusetts General Obligation bonds. Additionally, holders of the Green Bonds do not assume any specific project risk related to any of the funded green projects. Green bonds offer investors an opportunity to generate positive environmental outcomes along with financial returns.

# PROJECT CATEGORIES

All proceeds of the 2017 Series issue of Green Bonds have been spent, with spending being allocated among four categories as shown here. Greater detail on the spending within each category can be found in the following pages.

## OPEN SPACE PROTECTION AND ENVIRONMENTAL REMEDIATION

Projects which support open spaces, urban green spaces, trails and other park lands as well as environmental clean-up efforts at various sites, including state matching funds for federal “Superfund Site” restorations and other brownfield remediation and clean-up projects. Projects under this category may also include land protection programs.



## RIVER REVITALIZATION & PRESERVATION AND HABITAT RESTORATION

Projects which restore waters and riverine habitats. The projects may include rehabilitation of environments or ecologies which have suffered from human development or invasive species. This category may include natural habitat restoration and management, wetland restoration, flood control and urban reforestation projects.



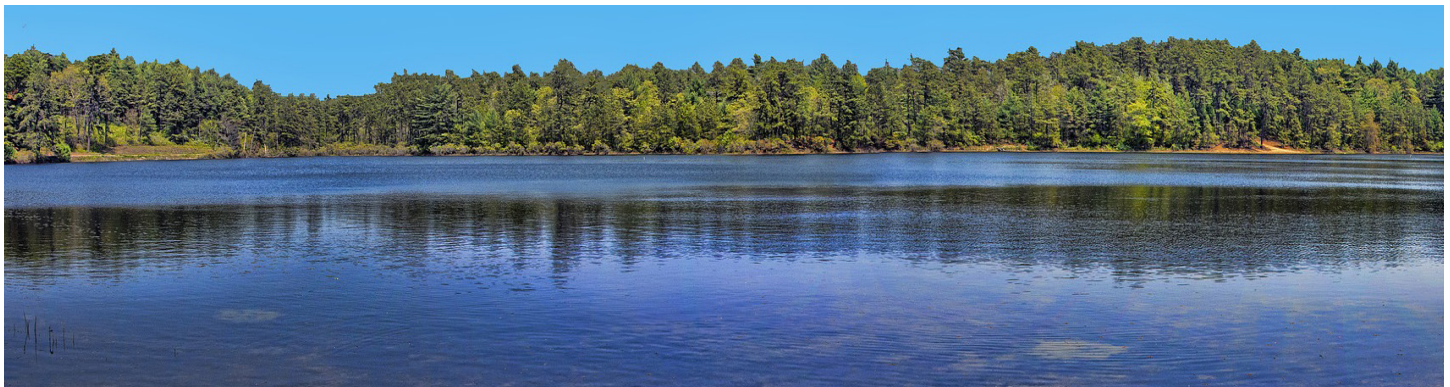
## ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS

Projects which are designed to reduce energy costs in existing public buildings or create new energy-saving “green” buildings. This category may include projects within the Accelerated Energy Program, an ongoing initiative to “green” state buildings. This program includes projects designed to reduce greenhouse gas emissions, energy use and water use across Commonwealth facilities, including state office buildings, higher education campuses, public safety facilities and other public buildings.



## STORMWATER

Projects that are designed to encourage recharge and the prevention of stormwater discharges from causing or contributing to the pollution of the surface waters and groundwaters of the Commonwealth. These projects may promote increased stormwater recharge, the treatment of more runoff from polluting land uses, low impact development (LID) techniques, pollution prevention, the removal of illicit discharges to stormwater management systems, or improved operation and maintenance of stormwater best management practices.



# FREQUENTLY ASKED QUESTIONS

## **Q. Are Commonwealth Green Bonds priced differently than traditional bonds?**

**A.** No, our Green Bonds are General Obligations of the Commonwealth and are not initially priced at a premium over Commonwealth General Obligation Bonds.

## **Q. Do you make a use of third-party opinions or other “Green certifications?”**

**A.** No, not at this time. The Commonwealth is in constant dialogue with investors and thought leaders in the Green space. Based on continued and consistent feedback, due to our repeat-issuer status and robust reporting regimen we have determined that third-party opinions are not necessary for our issuances. We will continue to monitor the market and make any necessary changes to our approach as needed.

## **Q. Where can I find your Green Reports?**

**A.** You may view this report and all prior reports by visiting the Mass Bond Holder website. The Commonwealth also posts all Green reports to the MSRB’s EMMA website, attached to their associated CUSIPs.

## **Q. Are Green Bond proceeds separated from traditional bond proceeds?**

**A.** Yes, all Green Bond proceeds are held in a segregated account and accounted for separately from traditional bond proceeds. Once Green Bond eligible spending has occurred from the General Fund, the Green Bond proceeds from the associated transactions are used to reimburse the General Fund for those specific expenditures.

## **Q. Do you supply environmental impact statistics in your report?**

**A.** We do not at this time. Because many projects are completed over the course of several years and may only be partially funded with green proceeds, attempting to tie impact to actual dollars spent is difficult. Quite a bit of impact information may be found for specific projects at the [www.mass.gov](http://www.mass.gov) website. Should you have specific or additional questions about a project, you can also contact us using the information provided on the back cover of this report.



# OPEN SPACE PROTECTION & ENVIRONMENTAL REMEDIATION

Projects which support open spaces, urban green spaces, trails and other park lands as well as environmental clean-up efforts at various sites, including state matching funds for federal "Superfund Site" restorations and other brownfield remediation and clean-up projects. Projects under this category may also include land protection programs.

## MAJOR SPENDING PROJECTS

<b>LAND PROTECTION - DEPARTMENT OF CONSERVATION AND RECREATION (DCR)</b>	\$12,768,800
Provided for acquisition of land to expand the state park system including land for habitat protection, recreation, water supply protection and other purposes.	
<b>SIGNATURE PARKS</b>	\$12,422,192
Funded the creation of new signature parks and distinctive green spaces for communities around the Commonwealth. The program has restored or built 34 parks with 80% of those parks existing in Environmental Justice communities. Environmental Justice communities are municipalities that have been determined (based on certain socioeconomic data) more likely to bear a larger environmental burden and to lack certain environmental resources.	
<b>SELF HELP GRANTS</b>	\$6,101,651
Helped provide grants to assist municipalities in acquiring land for conservation and passive recreation purposes. Lands acquired may include forests, wetlands, wildlife habitats, etc. Lands must also allow access by the public. As a result of this spending, programs have protected over 3,100 acres.	
<b>FARM VIABILITY PROGRAM</b>	\$4,524,850
Offered farmers environmental, technical and business planning assistance to expand, upgrade and modernize their existing operations. Capital for the implementation of the improvements recommended in the viability plan is available in exchange for an agricultural covenant on the farm property for a fixed term of five or ten years.	
<b>LANDSCAPE PARTNERSHIP GRANTS</b>	\$4,060,977
Aided in preserving large, unfragmented, high-value conservation landscapes including working forests and farms, expand state-municipal-private partnerships, increase leveraging of state dollars, enhance stewardship of conservation land, and provide public recreation opportunities. The program offers competitive grants to municipalities, non-profit organizations, and Executive Office of Energy and Environmental Affairs (EEA) agencies acting cooperatively to permanently protect a minimum of 500 acres of land.	
<b>ENVIRONMENTAL ANNUAL PROGRAM</b>	\$3,122,563
Provided on-going operations and management of environmental capital initiatives that sought to cost-effectively improve environmental performance.	
<b>WINTHROP SHORES RESTORATION – DESIGN CONSTRUCTION</b>	\$2,347,779
Provided for seawall repairs, upgrades to the Pearl Avenue entrance, and restoration of the northerly portion of the beach. Full-width reconstruction of Winthrop Shore Drive, including widened handicapped-accessible sidewalks; installation of visitor amenities such as benches, bicycle racks, and shower towers at primary beach entryways; repairs to seawall railings; and upgrades to the stormwater drainage system	



# OPEN SPACE PROTECTION & ENVIRONMENTAL REMEDIATION

## GREENING THE GATEWAY CITIES

Targets the Commonwealth's 26 Gateway Cities and is designed to utilize tree plantings as a way to reduce energy use in urban neighborhoods by lowering heating and cooling costs for residents and businesses.

\$1,033,000

**TOTAL:**

**\$46,381,812**



# RIVER REVITALIZATION & PRESERVATION AND HABITAT RESTORATION

Projects which restore waterways and riverine habitats. The projects may include rehabilitation of environments or ecologies which have suffered from human development or invasive species. This category may include natural habitat restoration and management, wetland restoration, flood control and urban reforestation projects.

## MAJOR SPENDING PROJECTS

### COASTAL RESILIENCE GRANT PROGRAM

\$4,669,694

Coastal communities face significant risks from coastal storms, flooding, erosion, and sea level rise — challenges that are exacerbated by climate change. To help address these issues, the Massachusetts Office of Coastal Zone Management (CZM) administers the Coastal Resilience Grant Program to provide financial and technical support for local efforts to increase awareness and understanding of climate impacts, identify and map vulnerabilities, conduct adaptation planning, redesign vulnerable public facilities and infrastructure, and implement non-structural (or green infrastructure) approaches that enhance natural resources and provide storm damage protection.

### MUDDY RIVER STUDY

\$226,702

Restored the Muddy River in the areas of Brookline and Boston, including the Fens and Riverway sections. These funds match the federal funds committed by the Army Corps of Engineers to undertake the Emerald Necklace Muddy River Restoration Project and provide environmental preservation benefits to the Commonwealth.

**TOTAL:**

**\$4,896,396**



# ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS

The projects in this spending category are designed to reduce energy costs in existing public buildings or create new energy-saving “green” buildings. This category includes projects within the Accelerated Energy Program (AEP), an ongoing initiative to “green” state buildings. This program includes projects designed to reduce greenhouse gas emissions, energy use and water use across Commonwealth facilities, including state office buildings, higher education campuses, public safety facilities and other public buildings. While the overall goal for the AEP is an average reduction in energy usage of 25%, some projects result in higher reductions (40-50%) while some result in lower reductions (in the range of 15%).

## FEATURED SPENDING PROJECT

### STATE HOUSE COMPREHENSIVE ENERGY AND WATER UPGRADES

\$11,091,496

The overall scope of the project is to make the State House become more energy efficient and comfortable by upgrading the heating and cooling system, plumbing and lighting systems. The project has two phases. One will upgrade all the air handling units that provide ventilation to the large spaces in the State House. The second is the upgrade of the fan coil units that provide heating and cooling in the individual office spaces. The work for phase one will mostly take place during the day time, while the second phase will be done during the off hours when the office spaces will be empty. What the tenant will see once the changeover is complete will be new fan coil units, wall thermostats and sensors that will turn the lights and the fan coil units on automatically as a person enters the offices/space. This will provide energy savings and better comfort since the occupants do not have to operate anything manually.



# ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS

## PUBLIC SAFETY FACILITIES

### FRANKLIN SHERIFF'S DEPARTMENT ENERGY AND WATER DESIGN BUILD \$3,540,160

Helped provide energy and water upgrades to reduce consumption of electricity, natural gas, and domestic water. These include significant improvements to lavatory and shower fixtures, installation of a comprehensive water control system, mechanical and energy management systems, LED lighting upgrades, replacement of windows and doors, and upgrades to mechanical equipment.

### NORFOLK SHERIFF ENERGY COMPREHENSIVE DESIGN & BUILD \$3,340,940

Helped provide energy and water upgrades to reduce consumption of electricity, natural gas, and domestic water. These include significant improvements to lavatory and shower fixtures, installation of a comprehensive water control system, mechanical and energy management systems, LED lighting upgrades, replacement of windows and doors, and upgrades to mechanical equipment.

### MIDDLESEX HOUSE OF CORRECTIONS ENERGY AND WATER RETROFIT \$3,112,248

Initiated upgrades to reduce electricity, natural gas, and water consumption. Included installation of low-pressure central boilers, condensing domestic hot water heaters, automatic water controls, a ground mounted solar photovoltaic system, sewer metering, lighting upgrades, and variable refrigerant flow HVAC systems at Middlesex Sheriff's Office Billerica facilities.

### BRISTOL SHERIFF'S DEPARTMENT ENERGY AND WATER DESIGN BUILD \$2,632,621

Funded a comprehensive energy and water conservation project at Bristol Sheriff's Department. The energy conservation measures installed at the facility will decrease energy use and cost through lighting upgrades, direct digital controls, electronic water controls, motor replacement, insulation, cogeneration, and solar thermal systems.

### HOUSE OF CORRECTIONS COMPREHENSIVE ENERGY AND WATER UPGRADES \$1,409,742

Upgraded lighting, water conservation, steam trap replacement, chiller upgrade, combined heat and power system, photovoltaic modules and a new power plant and distribution system. This was a comprehensive energy and water conservation project at multiple locations.

### WIND ENERGY STUDY AT WORCESTER SHERIFF'S DEPARTMENT \$971,103

### PITTSFIELD HOUSE OF CORRECTIONS ENERGY AND WATER DESIGN BUILD \$462,012

## TOTAL PUBLIC SAFETY FACILITIES: \$15,468,826



# ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS

## HIGHER EDUCATION CAMPUSES

### MOUNT WACHUSETT COMMUNITY COLLEGE HALEY ACADEMIC CENTER

\$4,292,776

Helped renovate Mount Wachusett Community College (MWCC) by including a New Science Addition of 42,458 square feet to the existing Haley Academic Center. The program includes a new 2,312 gross square-foot greenhouse and approximately 16,651 gross square feet of renovations at the existing center. Project features include energy efficient hydronic space conditioning and dedicated outdoor air system, as well as energy efficient lighting and daylight harvesting. The project is being designed for LEED® Gold certification.

### FRAMINGHAM STATE UNIVERSITY - HEMENWAY HALL - ADDITION/RENOVATION

\$3,961,800

Helped build a four-story addition of Hemenway Hall. The basement and a screened mechanical room contains approximately 58,000 square feet that will house 16 teaching laboratories, including related prep and supply spaces, plus facility research spaces. It is joined to the existing facility by a four-story common space. Project features include infrastructure upgrades, involving a total replacement of existing mechanical, electrical, plumbing and fire protection systems, as well as window replacement, envelope repairs and seismic upgrades. The project is being designed for LEED® Silver certification.

### HOLYOKE COMMUNITY COLLEGE ENERGY CONSERVATION MEASURES

\$2,218,018

Project helped to reduce consumption of electricity and natural gas. Retrofitting of lighting fixtures and renovation of heating and air conditioning systems throughout campus, including installation of new digital controls and motion-controlled light sensors in offices and common areas.

### ENERGY/WATER PERFORMANCE CONTRACTS AT STATE AND COMMUNITY COLLEGES

\$1,384,307

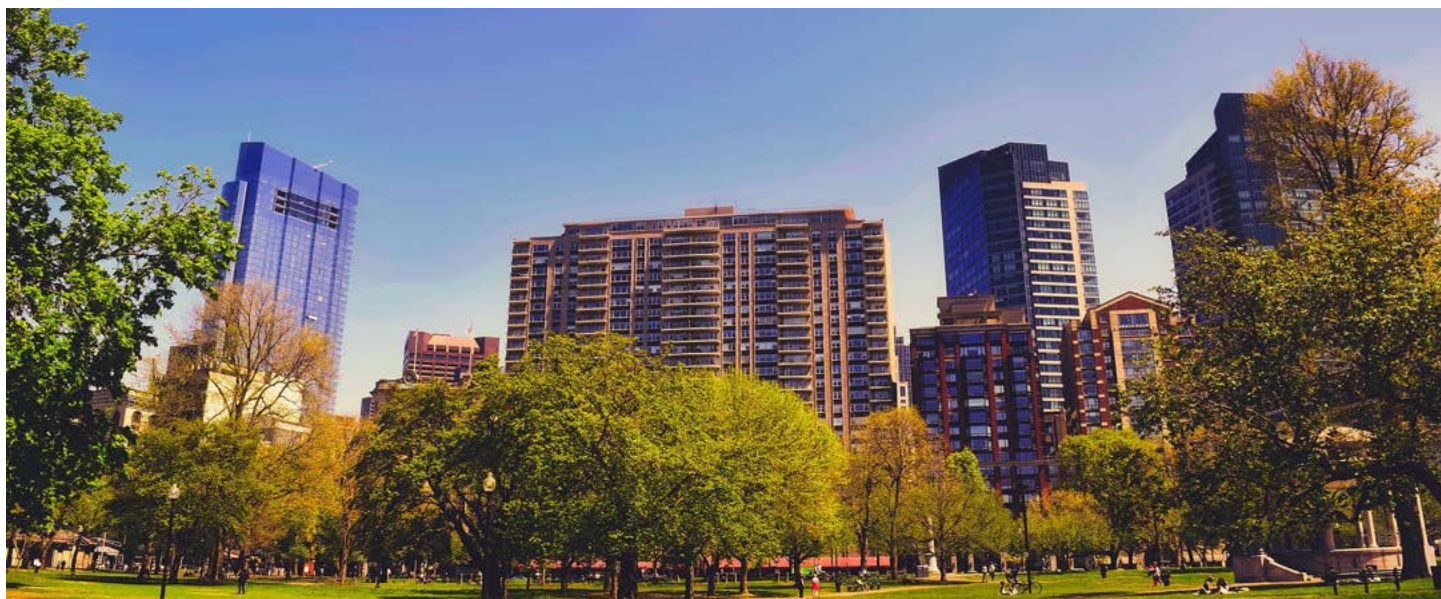
Funds various energy efficiency projects at State and Community Colleges, including HVAC upgrades, retro-commissioning, water conservation efforts and lighting upgrades. This spending included over \$1 million at Massasoit Community College Brockton and Canton campuses.

### WORCESTER STATE UNIVERSITY ENERGY DESIGN BUILD PROJECT

\$219,267

## TOTAL HIGHER EDUCATION CAMPUSES:

**\$12,076,168**



# ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS

## OTHER PUBLIC BUILDINGS

### DEPARTMENT OF PUBLIC HEALTH STATE LABORATORY INSTITUTE

State Laboratory Institute at Jamaica Plain. Boiler energy efficiency project.

\$6,594,461

### ACCELERATED ENERGY PROGRAM (AEP) AT STATE FACILITIES

Funded various contracts with utilities to advance energy efficiency at State Facilities under the Clean Energy Investment Program (CEIP). These projects reduce energy and water usage with debt service paid for through the attendant savings. Funded energy projects at Department of Conservation and Recreation (DCR), Health and Human Services, and Department of Transportation (DOT) facilities. This category also includes various energy projects within the Accelerated Energy Program (AEP), including non CEIP.

\$4,860,490

### WESTBOROUGH DIVISION OF YOUTH SERVICES CENTER ENERGY DESIGN BUILD

Project provided to design, procure, install and commission various energy conservation measures including exterior and interior lighting, lighting controls, destratification fans, demand controls for kitchen hood ventilation, water conservation measures, domestic hot water upgrades and windows.

\$4,244,468

### STATEWIDE COURTS ENERGY PROJECTS

Funds various energy efficiency projects within the Commonwealth courts system, including HVAC upgrades, retro-commissioning, water conservation efforts, and lighting upgrades.

\$4,214,195

### DIVISION OF FISHERIES AND WILDLIFE (DFW) CRONIN BUILDING

Assisted with construction of a 45,000-gross square-foot field headquarters building, including office, labs, meeting, and classroom areas located on the site of the existing DFW headquarters. The facility is expected to achieve zero net energy through solar photovoltaics and innovative mechanical systems as well as building envelope quality and reduction of all energy loads through building management.

\$264,308

## TOTAL OTHER PUBLIC BUILDINGS:

**\$20,177,922**

## TOTAL ENERGY EFFICIENCY & CONSERVATION PROJECTS IN STATE BUILDINGS:

**\$58,814,412**



# STORMWATER

Projects in the stormwater spending category are designed to encourage recharge and the prevention of stormwater discharges from causing or contributing to the pollution of the surface waters and ground waters of the Commonwealth. These projects may promote increased stormwater recharge, the treatment of more runoff from polluting land uses, low impact development (LID) techniques, pollution prevention, the removal of illicit discharges to stormwater management systems, or improved operation and maintenance of stormwater best management practices.

## WHAT IS STORMWATER RUNOFF?

Stormwater runoff is a result from precipitation events (rain, snowmelt) that flows over land and impervious surfaces like pavement or rooftops. This runoff can pick up common pollutants like trash, chemicals, nutrients and oils harmful to our lakes, rivers, streams and coastal waters. Additionally, stormwater runoff can carry materials from accidental spills on hard surfaces like streets, parking lots and driveways, threatening drinking water stored in surface reservoirs. Nutrients such as nitrogen and phosphorus which are found in animal wastes, fertilizers and faulty septic systems are a significant source of pollution to nearby waterbodies. Excess nutrients degrade water quality – a process referred to as eutrophication.



## MAJOR SPENDING PROJECTS

### STORMWATER MANAGEMENT SYSTEM

\$6,188,953

The Department of Conservation and Recreation (DCR) is committed to maintaining the important recreational, historical and water resources available to the people of Massachusetts at DCR parks, reservations, forests, beaches, rinks, pools and parkways. DCR understands the importance of stormwater management to all of these facilities and the threat of pollution from storm water and erosion. Our spending has contributed towards the maintenance and repair of DCR's stormwater management operations.



**2017 SERIES | DECEMBER 2020**

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