

# Impact Bonds Report 2020





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**Debby Jenkins**  
Executive Vice President, Head of Multifamily

**I'm pleased to share our 2020 Impact Report and highlight significant accomplishments made during this past year that underscore our commitment to impact financing.**

In 2020, our definition of business impact evolved. Many historic events converged during this pandemic, influencing how we work and where we focus our energy. Today, real impact is more tangible. The meaning of sustainability is multidimensional. Equitable housing is just as important as efficient business. In response, we've developed a broader view of these issues, challenging ourselves in new ways.

Despite the extraordinary challenges we faced, we had a record-breaking year in loan and securitization volume with 71% of loans financing households that earn 80% of the area median income (AMI) or less. We provided forbearance where it was needed to help keep the market stable and introduced the new Social and Sustainability Bonds discussed in this report.

Though there were many competing demands for our attention, we remained focused on our core role of providing liquidity, stability and affordability in all market conditions. And true to our culture of continuous improvement, we took the full lifecycle of our financing to the next level. The Impact Bonds we introduced last year provide a 360-degree approach to our housing mission; our securities offer investments that impact not just energy and water, but also affordability for renters and the economic health of communities.

We're proud of all we've done to date, but we're not planning to rest on these successes — instead, we are just getting started. Seeing what we accomplished in a year like 2020 shows us that we can do so much more. We remain focused on making our business beneficial to all stakeholders and renters. To improve housing finance, we have to change it. And changing the big picture is the surest way to make a real impact.

Debby Jenkins

Seeing what we accomplished in a year like 2020 shows us that we can do so much more

## Freddie Mac Multifamily Impact Bonds Strategy

Freddie Mac's commitment to affordable, quality rental housing is central to everything we do, including our research, the products, programs, and services we offer, and much more. Our ongoing support — in all economic conditions and for markets that might otherwise be neglected or underserved — distinguishes us from private funding sources. Driven by a genuine desire to effect change, we confront persistent housing challenges through innovative thinking that helps expand access to housing in all areas of financing.

With that in mind, we have introduced Impact Bonds offerings, comprised of Green, Social and Sustainability Bonds, which target a specific impact area that relates to certain environmental or social challenges.



### Green

**Environmental impact in workforce housing**

**\$3.3 Billion**

of total issuance as of December 2020



### Social

**Looking deeper into our mission of supporting affordable housing, by targeting additional social impact causes**

**\$877 Million**

of total issuance as of December 2020

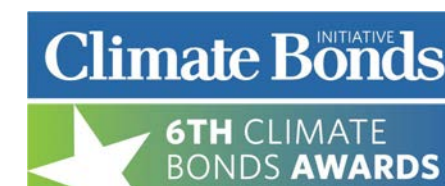


### Sustainability

**Supporting sustainable communities by financing affordable housing, may include certain environmental features**

**\$971 Million**

of total issuance as of December 2020



*"Freddie Mac recognizes the measurable impact of green financing tools to support the affordability and sustainability of housing for American families. We are pleased to be recognized by the Climate Bonds Initiative for our work to support green housing finance."*

Robert Koontz, Senior Vice President  
Multifamily Capital Markets

# Impact Summary From Green, Social and Sustainability Bonds Issuances

## ENVIRONMENTAL IMPACT



**Water improvements are projected to save 370 million gallons in water per year** – the equivalent of filling the Lincoln Memorial Reflecting Pool in Washington, D.C., 55 times or the annual water usage for over 4,000 households across America



**Energy reductions are projected to save 264 million kBtu per year** – enough energy to power roughly 7,200 homes



**Annual greenhouse gas (GHG) emissions are projected to decrease by nearly 21,400 metric tons** – the equivalent of removing 4,653 cars off the road for one year or carbon sequestered by 353,771 tree seedlings grown for 10 years<sup>1</sup>

## SOCIAL IMPACT

### Impact Bonds Proceeds Financed:



**26.8%**

properties with **14,118** or **26.8%** of the units backing the Impact Bonds being affordable to tenants earning at or below 50% AMI



**48.7%**

properties with **25,707** or **48.7%** of the units backing the Impact Bonds being affordable to tenants earning at or below 60% AMI



**83.6%**

properties with **44,107** or **83.6%** of the units backing the Impact Bonds being affordable to tenants earning at or below 80%



**51.8%**

**27,386** or **51.8%** of the units backing the Impact Bonds that are located in areas where 25% or more people above 25 years old have at least a bachelor's degree and **18,297** or **34.6%** of the units are located in areas where the population with at least a bachelor's degree is 1.5x higher than the national average



**42.0%**

**22,208** or **42.0%** of the units backing the Impact Bonds that are located in areas where life expectancy is at or above national average (78.8 years) and **15,146** or **28.7%** of the units are located in areas where life expectancy is at or above 80 years old

**Impact Report Supplemental Data** Please refer to the Impact Report [supplemental data file](#) posted on the [Freddie Mac Impact Bonds webpage](#) for loan-level information.

<sup>1</sup> Calculated using <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

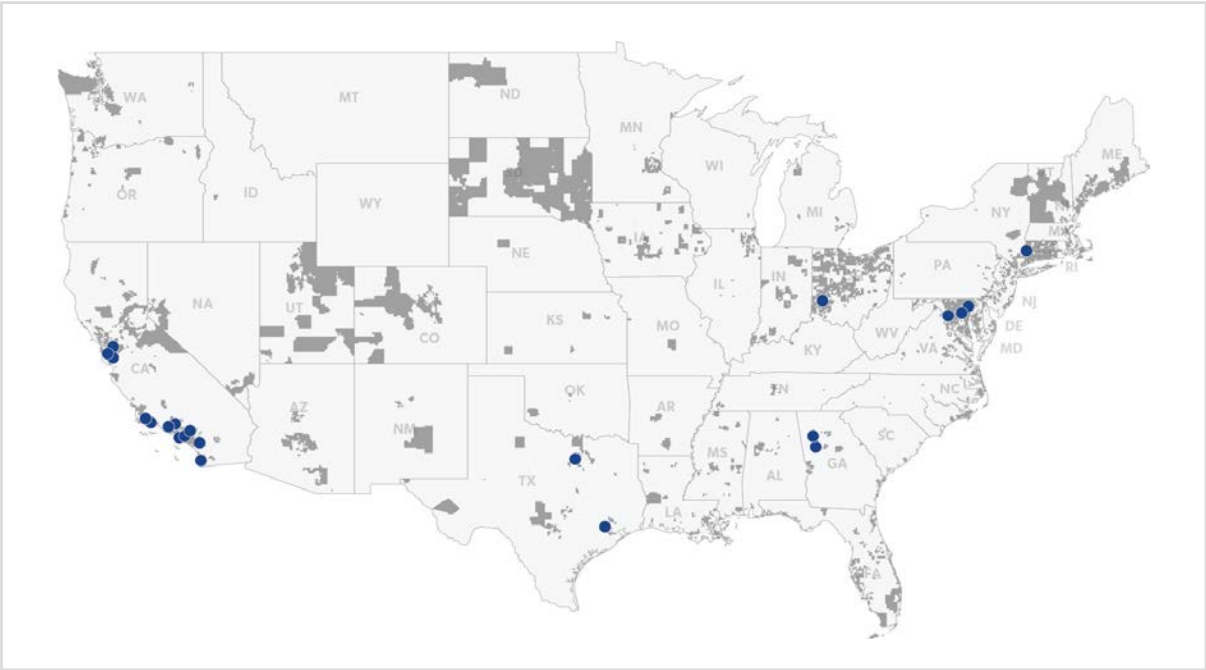
## Financing in High Opportunity Areas

Freddie Mac uses the definition of High Opportunity Areas as described in the Duty to Serve Regulation and the associated Duty to Serve Evaluation Guidance published by FHFA. Per Duty to Serve, a High Opportunity Area is designated in two ways: by a state's Qualified Allocation Plan or by the Department of Housing and Urban Development's (HUD) Difficult Development Area designation.

- Difficult Development Area (DDA): Certain areas designated by HUD as a DDA during any year covered by a Freddie Mac Underserved Markets Plan (Plan) or in the year prior to a Plan's effective date, with a poverty rate that falls below 10% (for Metropolitan Statistical Areas (MSAs)) or below 15% (for MSAs), are identified by FHFA as High Opportunity Areas. It is important to note that HUD's DDAs were developed using zip codes (for MSAs) and counties (outside of MSAs) as the geographic units. Because Duty to Serve's designation using DDAs is at the census tract level, there are some cases of geographic discrepancy.
- Qualified Allocation Plan (QAP): Certain census tracts from eligible Low-Income Housing Tax Credit (LIHTC) QAPs are identified by FHFA as High Opportunity Areas. These have a poverty rate that falls below 10% (for MSAs) or below 15% (for non MSAs).

A list of eligible LIHTC QAPs can be found [here](#). A list of census tracts can be found using Freddie Mac's [Freddie Mac's Mission Map](#) or on [FHFA's website](#).

## Impact Bonds proceeds have financed 22 properties with 3,925 units located in High Opportunity Areas.



Source: The Freddie Mac Multifamily "Mission Map" <https://missionmap.freddiemac.com/#/main>





# Industry Partnerships



NASDAQ launched the [Sustainable Bond Network](#) in December 2019. Freddie Mac Multifamily is a member of its advisory board and is dedicated to the success of the new initiative.



ENERGY STAR® is a voluntary U.S. Environmental Protection Agency program that helps businesses and individuals save money and protect our climate through superior energy efficiency.

Freddie Mac has been an ENERGY STAR partner since 2014. Through our K-G series and Multi PCs®, our Green Bonds consolidate all utility data into the ENERGY STAR Portfolio Manager® system to track properties' ongoing energy and water performance.





# Green Bonds

## Green Bonds Program Overview

By carefully studying factors that contribute to current housing challenges, we identified the opportunity to improve and finance workforce rental housing that:

- a. benefits tenants and borrowers through lower monthly expenses; and
- b. simultaneously supports the environment through reduced energy and water consumption.

In 2016, we launched the Freddie Mac Multifamily Green Advantage® program, which finances property improvements to make multifamily housing more energy- and water-efficient. Since then, we have been a market leader in providing capital to improve workforce housing.

### ENVIRONMENTAL IMPACT



**Water improvements are projected to save 370 million gallons in water per year** — the equivalent of filling the Lincoln Memorial Reflecting Pool in Washington, D.C., 55 times or the annual water usage for over 4,000 households across America



**Energy reductions are projected to save 264 million kBtu per year** — enough energy to power roughly 7,200 homes



**Annual GHG emissions are projected to decrease by nearly 21,400 metric tons**, the equivalent of removing 4,653 cars off the road for a year or carbon sequestered by 353,771 tree seedlings grown for 10 years<sup>2</sup>

### SOCIAL IMPACT



**80.0% of units financed by Green Bonds are affordable** to families earning 80% AMI or less



Improvements are projected to **save tenants an average of \$261 per unit annually through lower utility costs**



**2,697 units** backing the Green Bonds are located in **High Opportunity Areas**

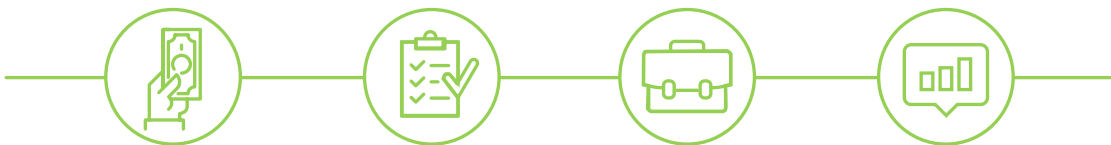
Please refer to Appendix III for a description of our impact reporting methodology.

<sup>2</sup> Calculated using <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

# The Four Pillars of the Green Bond Principles

## Green Bond Principles

The Freddie Mac Multifamily [Green Bonds Framework](#) is aligned with our four core components of the Green Bond Principles and focuses on our use of proceeds, the process for project evaluation and selection, the management of proceeds, and transparency through regular reporting.



## Green Bonds Issuance Snapshot

Freddie Mac Multifamily has issued \$3.25 billion of Green Bonds

Deal Type	Issuance Year	Volume (\$ millions)	# of Loans	# of Units	# of Units Affordable at 80% AMI or Less
K-G01	2019	\$483.7	19	4,698	3,245
K-G02	2019	\$544.1	17	5,183	4,243
Multi PCs 2019	2019	\$968.5	26	8,399	6,328
K-G03	2020	\$594.6	24	5,756	5,037
K-G04	2020	\$633.1	25	5,501	4,684
Multi PCs 2020	2020	\$27.4	3	474	433
Total		3,251.4	114	30,011	23,970

## CICERO



CICERO provided a [second opinion](#) on our Green Bonds Framework and awarded the framework the Light Green rating, which recognizes us for closely monitoring energy and water reduction, creating maps of drought and extreme weather impacts to the properties and their communities, and for publishing reports with insight on climate impacts to the properties in our portfolio.

Per CICERO, “These analyses are in line with preliminary climate resilience planning and considered a forward-thinking step not just for the building sector, but for the green bond market. CICERO Green applauds this progressive analysis and encourages Freddie Mac to continue monitoring and reporting it.”

# Environmental Impact of our Green Bonds



Based on the projected consumption savings of energy and water across our Green Bonds securitizations, we are making a meaningful impact on the environment.



**Projected Energy Consumption Savings of Green Bonds**

Green Bonds proceeds financed energy improvements projected to save **264 million** kBtu per year. This equates to enough energy to power roughly **7,200 homes**. Across each Green Advantage loan, this averages almost 8,000 kBtu per unit per year, which is enough energy to provide lighting for an average household for 2 years.



**Projected Water Consumption Savings of Green Bonds**

Green Bonds proceeds financed water improvements that are projected to save over **370 million** gallons of water per year, which is the equivalent of filling the Lincoln Memorial Reflecting Pool in Washington, D.C., 55 times or the annual water usage for over **4,000 households** across America. On average, each Green Advantage loan is projected to reduce the property water usage by **11,600 gallons** of water per unit per year, which is the equivalent water usage for **380 loads** of laundry per unit per year.

The reduction in water consumption will help reduce the strain on an aging water infrastructure that is projected to require billions of dollars for future maintenance and improvements. There is an additional opportunity for energy savings to be indirectly impacted, as 3% to 4% of national electricity consumption is used to provide drinking water and wastewater services each year. It will also save property owners and tenants money through reduced utility charges, particularly given that water costs tend to and have steadily increased year over year.<sup>3</sup>

# Targeted Benefits of Green Improvements

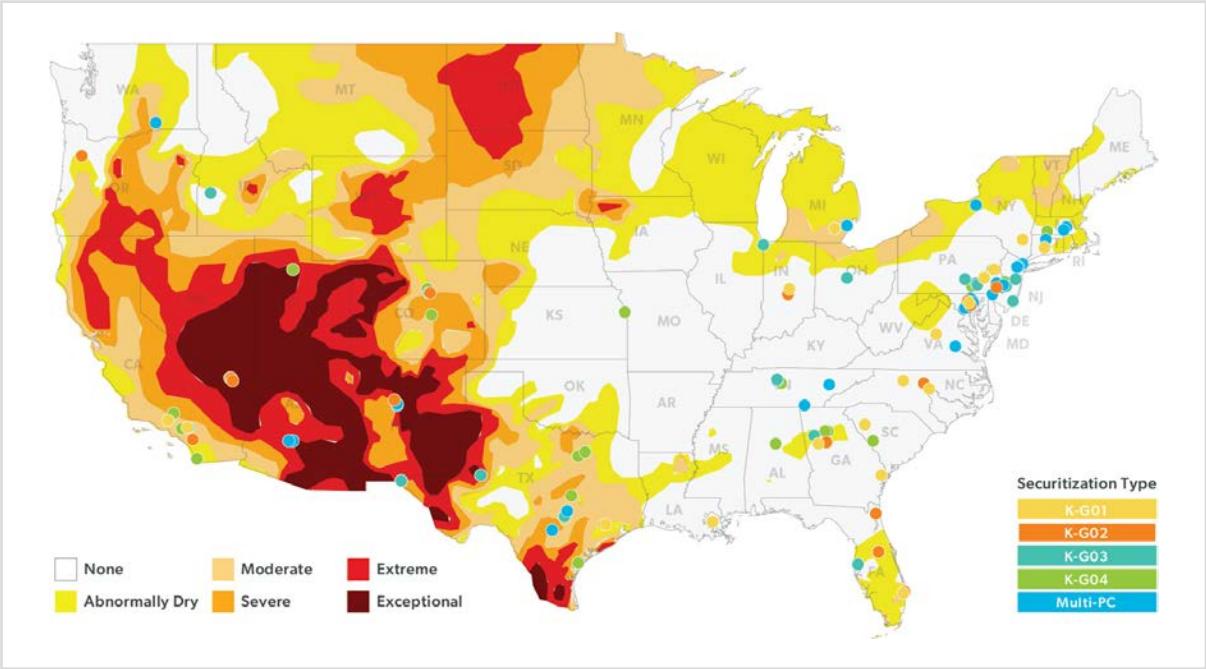
While energy- and water-efficient improvements reduce consumption regardless of where a property is located, the environmental impact from such improvements will be greater in certain markets. For example, the impact of water-saving improvements will be more pronounced for properties located in drought-prone areas. A reduction in a property’s carbon footprint due to energy-saving improvements will be greater when it is located in an area with higher carbon-intense energy supplies.

<sup>3</sup> For additional details, see <https://www.circleofblue.org/waterpricing/>

## Environmental Impact in Areas Experiencing Drought

Exhibit 1 examines the location of properties that were securitized either via a K-G Deal or as a Multi PC, relative to the intensity of areas experiencing drought as of February 23, 2021.

**Exhibit 1: U.S. Drought Monitor Map and Green Bonds Property Locations**



Source: U.S. Drought Monitor provided by the National Integrated Drought Information System, <https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>



Forty-six properties, representing **\$1,233,686,264** or **38%** of the total Green Bonds proceeds, are in areas that were experiencing drought or were abnormally dry. The properties in these areas that installed water conservation improvements are projected to save **110.3 million** gallons of water annually. These are critical savings in drought-prone areas. While not all loans were originated in drought areas, the water consumption savings outside those areas will still provide positive impacts, particularly as many states are expected to have water shortages not related to drought.<sup>4</sup>

<sup>4</sup> Reference the Government Accountability Office (GAO) study, <https://www.gao.gov/assets/670/663344.pdf>, or more information at the following EPA webpage: <https://www.epa.gov/watersense/how-we-use-water>



# Social Impact of our Green Bonds

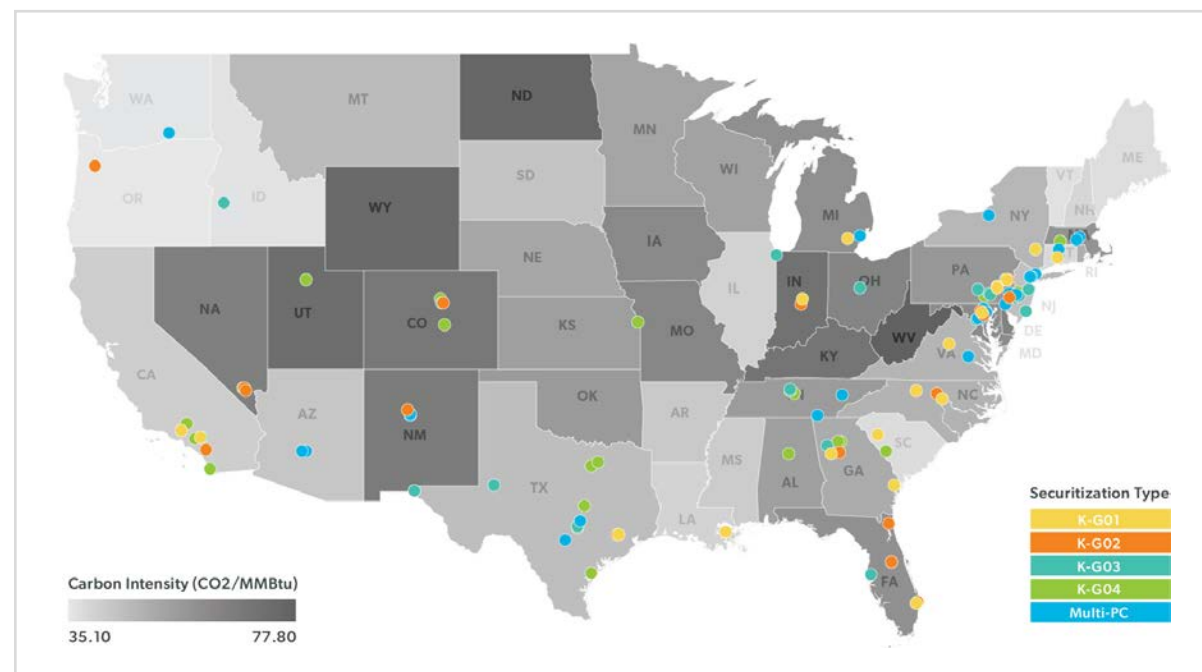
## Environmental Impact based on Carbon-Intensity of Energy Supply

Each state has a unique profile of the types of fuel sources used to produce energy. Carbon-producing fuel sources such as coal, petroleum and natural gas, vary in the amount of carbon produced and will directly impact a state's energy-related carbon dioxide (CO<sub>2</sub>) emissions.

Exhibit 2 shows the location of properties backing the Green Bonds relative to the carbon intensity of the energy supply within that state. States with a more carbon-intensive energy supply are shaded in dark gray, and states having a lower carbon-intensive energy supply are light gray.

### Exhibit 2: Green Bonds Property Location Relative to Carbon-Intensity of Energy Supply

We found that 42 properties, representing \$1 billion or 31% of the total Green Bonds proceeds, are in states with an energy supply carbon intensity that is above the national average of 53 kilograms of CO<sub>2</sub> per million btu (kg CO<sub>2</sub>/MMBtu). The properties in these areas that installed energy improvements are projected to save 4,046 metric tons of CO<sub>2</sub> annually. An additional 26 properties, representing \$839,430,000 or 25.8% of the total Green Bonds proceeds, are in states slightly below the national average. The properties in these areas that installed energy improvements are projected to save 2,760 metric tons of CO<sub>2</sub> annually.



Source: Freddie Mac tabulation of 2017 U.S. Energy Information Administration (EIA) Energy-Related Carbon Dioxide Emissions by State data, <https://www.eia.gov/environment/emissions/state/excel/table7.xlsx>



Regardless of the location of the properties backing the Green Bonds, the projected savings will have a meaningful impact. Across all Green Bonds, the implemented green improvements are projected to reduce annual GHG emissions by about **21,400 metric tons**. This is equivalent to the same amount of CO<sub>2</sub> as removing **4,653 cars** off the road for one year.

Our Green Bonds proceeds financed more energy- and water-efficient affordable properties that help tenants save in areas of high utility costs, in High Opportunity Areas and across different property types.



Green Bonds proceeds financed energy and water improvements that are projected to save tenants nearly **\$6.9 million**. This is equivalent to an average of **\$261** per unit per year in tenant savings.

When looking across all Green Bonds, savings for property owners are projected to be **\$86** per unit per year.

In-depth data analysis shows 26.3% of tenants are projected to save between \$100-\$200 per year, 37.4% of tenants saving between \$200-\$300 per year and 36.4% of tenants saving \$300 or more.

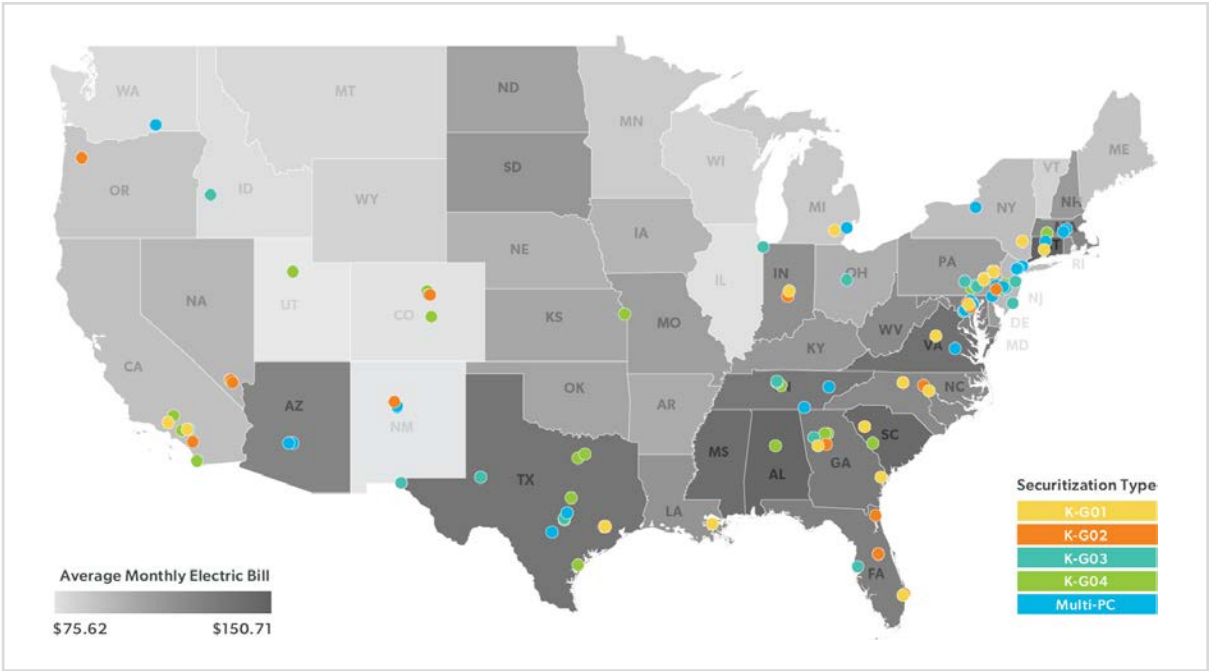
**Utilities Savings in Areas of High Electric Utility Costs**

Nearly one-third (31%) of all multifamily households nationwide report some type of energy insecurity<sup>5</sup>, such as forgoing or reducing necessities like food and medicine to pay an energy bill or keeping their home at an unhealthy or unsafe temperature. Savings from green improvements help families reduce their energy consumption cost and allocate funds for other necessities.

Exhibit 3 shows the average monthly electric utility bills by state, relative to the location of the properties backing the Green Bonds. States with the most expensive electric bill are dark red and those with the least expensive bill are light red. The national average electric utility bill is \$115. By comparison, the average electric utility bill for states with the most expensive electric bill is \$140 or 22% higher than the national average. We found that 51, or 45%, of properties backing Green Bonds are in states with the most expensive electric bills. While a reduction in energy consumption has the potential to benefit tenants in all Green Bonds properties, tenants living in properties located in states with the most expensive electric bills will likely see the largest relative electric bill savings compared with those in lower-cost electric utility states.

<sup>5</sup> We looked at the Residential Energy Consumption Survey and the reported energy insecure households from the number of apartments in buildings with five or more units: <https://www.eia.gov/consumption/residential/data/2015/hc/php/hc11.1.php>

**Exhibit 3: Green Bonds Property Location Relative to Average Monthly Electric Bill**



Source: Freddie Mac tabulation of 2019 U.S. Energy Information Administration (EIA) Residential Energy Consumption Survey (RECS) data, [https://www.eia.gov/electricity/sales\\_revenue\\_price/xls/table5\\_a.xlsx](https://www.eia.gov/electricity/sales_revenue_price/xls/table5_a.xlsx)

**Financing Workforce Housing**

Fundamentally, workforce housing is housing affordable to the ‘missing middle’ – those making modest incomes in markets across the country. Workforce housing properties tend to be older and have fewer amenities, however, they may also include newer properties intentionally built to be affordable to households with moderate incomes.

For our loan offerings and Impact Bonds, we define workforce housing as units with rents affordable to households making 80% or less of AMI in most markets, with some variation in cost-burdened markets. In many ways, residents of workforce housing are the backbone of every community where they work. These individuals may be aspiring homebuyers or renters who, as the missing middle, do not qualify for subsidized housing and at the same time cannot afford the market rates for housing in the very communities that benefit from their work.





Green Bonds proceeds financed properties with **2,755** or **9.2%** of the units backing the Impact Bonds being affordable to tenants earning at or below 50% AMI



Green Bonds proceeds financed properties with **8,295** or **27.6%** of the units backing the Impact Bonds being affordable to tenants earning at or below 60% AMI



Green Bonds proceeds financed properties with **23,970** or **79.9%** of the units backing the Impact Bonds being affordable to tenants earning at or below 80% AMI



Green Bonds proceeds financed **18,334** or **61.1%** of the units backing the Impact Bonds that are located in areas where 25% or more people above 25 years old have at least a bachelor's degree and **12,409** or **41.3%** of the units are located in areas where the population with at least a bachelor's degree is 1.5x higher than the national average



Green Bonds proceeds financed **15,309** or **51.0%** of the units backing the Impact Bonds that are located in areas where life expectancy is at or above national average (78.8 years) and **10,647** or **35.5%** of the units backing the Impact Bonds that are located in areas where life expectancy is at or above 80 years old

**Directing Capital Towards Historically Underserved Markets**

Affordable and mixed-income housing in one of the following areas can help direct capital to provide stable, quality housing and become a foundation for economic opportunity.

**Number of units financed by Green Bonds proceeds located in Duty to Serve Underserved Markets<sup>6</sup>**

Deal Type	Rural	High Needs Regions	Persistent Poverty Counties	Qualified Census Tracts	Ethnically-Concentrated Area of Poverty	Qualified Allocation Plan	Difficult Development Area (FHFA)	Opportunity Zones
K-G	306	0	824	5,042	768	420	1,653	1,478
Multi PCs	0	0	150	3,099	1,230	692	352	866
Total	306	0	974	8,141	1,998	1,112	2,005	2,344

<sup>6</sup> The market categories referenced in this table are defined in the Duty to Serve Underserved Markets Regulation (the [Duty to Serve Regulation](#), 12 CFR 1282.1) and the associated [Duty to Serve Evaluation Guidance](#) published by FHFA. A list of census tracts for each category can be found using Freddie Mac's [Mission Map](#) or on [FHFA's website](#). Please refer to [Freddie Mac Impact Dictionary](#) for more information.





# Social Bonds

## Social Bonds Program Overview

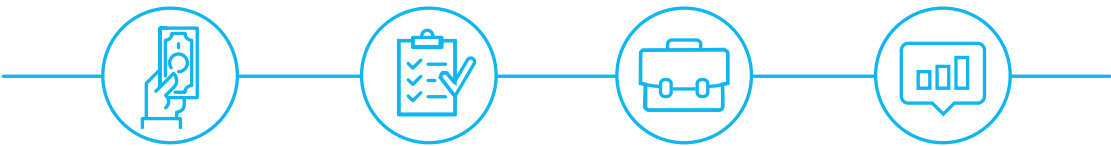
We confront persistent, affordable and workforce housing challenges through innovative thinking that helps expand access to housing by involving all areas of financing. To increase our impact and attract capital to support social impact initiatives, we introduced Social Bonds in 2020 to target opportunities that go deeper into our mission of supporting affordable housing.

Our Social Bonds proceeds are dedicated to either:

- I. Provide liquidity to:
  - Community Development Financial Institutions (CDFIs)
  - Housing Finance Agencies (HFAs)
  - Small Financial Institutions (SFIs) operating in underserved markets
- II. Finance loans for:
  - Properties for underserved populations (persons with disabilities, aging population, refugees and others)
  - Transitional housing
  - Housing for extremely low-income households (at or below 30% AMI)
  - Minorities, Women and Disabled Individuals-Owned Borrowers (MWD OB)
  - The Rental Assistance Demonstration (RAD) program

### The Four Pillars of the Social Bonds Principles

The Freddie Mac Multifamily [Social Bonds Framework](#) is aligned with our four core components of the Social Bond Principles and focuses on our use of proceeds, the process for project evaluation and selection, the management of proceeds, and transparency through regular reporting.



Freddie Mac engaged an independent third party, Sustainalytics, to evaluate our Social Bonds Framework. This opinion is published on the Freddie Mac Multifamily [website](#) and in applicable offering documents.

Sustainalytics is confident that Freddie Mac Multifamily is well positioned to issue Social Bonds and that the Freddie Mac Multifamily Social Bonds Framework is robust, transparent and in alignment with the core components of the Social Bonds Principles.



Social Bonds Issuance Snapshot

Freddie Mac Multifamily issued \$873.7 million of Social Bonds

Deal Type	Issuance Year	Volume (\$ millions)	# of Loans	# of Units	# of Units Affordable at 30% AMI or Less	# of Units Affordable at 60% AMI or Less
Q-014	2020	\$189.5	76	3,795	753	3,725
P-003	2020	\$106.6	61	4,585	767	3,886
M062- M066	2020	\$398.9	31	3,289	8	1,318
Multi PCs	2020	\$181.9	11	1,413	1,102	1,383
Total		\$876.9	179	13,082	6,630	10,312

Of the units financed with Social Bonds proceeds, **78.8% of units are affordable** to families earning 60% AMI or less.

Units Affordable

# of Units Affordable at 30% AMI or Less	# of Units Affordable at 50% AMI or Less	# of Units Affordable at 60% AMI or Less	# of Units Affordable at 80% AMI or Less
2,630	7,336	10,312	11,017

Underserved Population<sup>7</sup>

Underserved Population	# of Loans Supporting
Disabled	4
Seniors	46
Farmworkers	3
Homeless	3
Veterans	9
Transitional	21

<sup>7</sup> A single loan that supports multiple underserved populations may be counted in multiple categories

RAD Projects

The HUD RAD program was created to give public housing authorities a powerful tool to preserve and improve public housing properties and address the \$26 billion nationwide backlog of deferred maintenance. RAD also gives owners of three HUD “legacy” programs (Rent Supplement, Rental Assistance Payment and Section 8 Moderate Rehabilitation) the opportunity to enter into long-term contracts that facilitate the financing of improvements. For more information visit <https://www.hud.gov/RAD>.



**1,124** units financed by Social Bonds proceeds were with RAD. **821** of these units are located in **High Opportunity Areas**



Social Bonds proceeds financed **5,144** or **39.3%** of the units backing the Social Bonds that are located in areas where 25% or more people above 25 years old have at least a bachelor’s degree and **3,376** or **25.8%** of the units are located in areas where the population with at least a bachelor’s degree is 1.5x higher than the national average



Social Bonds proceeds financed **4,553** or **34.8%** of the units backing the Social Bonds that are located in areas where life expectancy is at or above the national average (78.8 years) and **2,842** or **21.7%** of the units are located in areas where life expectancy is at or above 80 years old

Directing Capital Toward Historically Underserved Markets

Affordable and mixed-income housing in one of the following areas can help direct capital to provide stable, quality housing and become a foundation for economic opportunity.

Number of units financed by Social Bonds proceeds located in Duty to Serve Underserved Markets<sup>8</sup>

Deal Type	Rural	High Needs Regions	Persistent Poverty Counties	Qualified Census Tracts	Racially- or Ethnically- Concentrated Area of Poverty	Qualified Allocation Plan	Difficult Development Area (FHFA)	Opportunity Zones
Q-014	197	0	212	1,922	805	219	468	1,682
P-003	434	168	440	1,717	188	38	250	1,177
M062- M066	303	78	0	1,809	996	0	0	1,310
Multi PCs	0	0	0	1,119	882	0	0	356
Total	934	246	652	6,567	2,871	257	718	4,525

<sup>8</sup> The market categories referenced in this table are defined in the Duty to Serve Underserved Markets Regulation (the [Duty to Serve Regulation](#), 12 CFR 1282.1) and the associated Duty to Serve Evaluation Guidance published by FHFA. A list of census tracts for each category can be found using Freddie Mac’s [Mission Map](#) or on [FHFA’s website](#). Please refer to [Freddie Mac Impact Dictionary](#) for more information.

# P003 Deal Spotlight

The Social Impact P003 Deal is backed by 61 mission-focused properties for low-income residents, many of whom are seniors or disabled individuals. The transaction provided \$106.6 million in liquidity to California Community Reinvestment Corporation, a community development financial institution (or its affiliates), to fund bonds backed by properties that address affordable housing challenges or properties serving underserved groups considered to be among the most vulnerable.

Jeff Brenner, CEO of IMPACT Community Capital LLC, noted that, “IMPACT appreciates the opportunity to partner with Freddie Mac to attract more capital to affordable housing. Having participated in Freddie Mac’s first Q Series and privately-placed participation certificate programs, Freddie Mac has, again, provided IMPACT an opportunity to provide needed capital to America’s communities and its investors valuable liquidity in today’s markets.”

## Units Affordable

- 16.7%** P003 proceeds financed properties with **767** or **16.7%** of the units backing P003 affordable to tenants earning at or below 30% AMI
- 63.7%** P003 proceeds financed properties with **2,919** or **63.7%** of the units backing P003 affordable to tenants earning at or below 50% AMI
- 84.8%** P003 proceeds financed properties with **3,886** or **84.8%** of the units backing P003 affordable to tenants earning at or below 60% AMI
- 97.7%** P003 proceeds financed properties with **4,480** or **97.7%** of the units backing P003 affordable to tenants earning at or below 80% AMI

## Underserved Population

Underserved Population	# of Loans Supporting
Disabled	4
Seniors	21
Farmworkers	1
Homeless	1
Transitional	2

## RAD Projects

**120** P003 proceeds financed **120** units with **RAD**

# Properties Highlights

## High Point Family — 414 West Louisiana Avenue in Dallas, Texas



High Point Family is the second phase of the redevelopment of barracks style housing originally built in 1948. Replacing these outdated units and expanding the development size allows tenants with incomes as low as 30% of the AMI to afford homes in a rapidly developing part of Dallas. This development, built in conjunction with Central Dallas CDC, has a project-based Section 8 contract covering 34 units. These units are set aside for tenants making between 30% and 50% of AMI. Central Dallas CDC provides access to medical and legal clinics, a food pantry, children’s education programs and workforce development programs.

## Madison Crossing II — 2301 East Irlo Bronson Memorial Highway in Kissimmee, Florida



Madison Crossing II meets the critical need for affordable housing for seniors in Kissimmee, Florida. At the time of completion, its sister project Madison Crossing I had a waitlist of over 100 tenants. Additionally, the property has set aside five units for seniors with a diagnosable substance abuse disorder, serious mental illness, developmental disability, or chronic physical illness or disability. The property achieved a green building certification through ICC 700 National Green Building Standard.

## Tupelo Vue Apartments — 525 Avenue G NW in Winter Haven, Florida



Tupelo Vue Apartments provides apartments and social services for low- and moderate-income families with 32 units set aside for farmworkers. The property provides after-school enrichment, literacy and employment assistance workshops for tenants. In addition, the property was constructed with several “Green” features in mind, including low-flow plumbing fixtures and a water reclamation system to augment the properties irrigation system.



# Q14 Deal Spotlight

The Social Impact Q14 Deal is backed by 66 mission-focused properties for low-income residents, many of whom are seniors or individuals in need of transitional housing. The transaction provided \$189.5 million in liquidity to California Community Reinvestment Corporation, a community development financial institution (or its affiliates), to fund bonds backed by properties that address affordable housing challenges or properties serving underserved groups considered to be among the most vulnerable.

## Units Affordable

**19.8%** Q14 proceeds financed properties with **753** or **19.8%** of the units backing Q14 affordable to tenants earning at or below 30% AMI

**75.7%** Q14 proceeds financed properties with **2,871** or **75.7%** of the units backing Q14 affordable to tenants earning at or below 50% AMI

**98.2%** Q14 proceeds financed properties with **3,725** or **98.2%** of the units backing Q14 affordable to tenants earning at or below 60% AMI

**98.2%** Q14 proceeds financed properties with **3,726** or **98.2%** of the units backing Q14 affordable to tenants earning at or below 80% AMI

## Underserved Population

Underserved Population	# of Loans Supporting
Seniors	20
Farmworkers	2
Veterans	8
Transitional	17

## RAD Projects

**104** Q14 proceeds financed **104** units with **RAD**

# Properties Highlights

## Villa Salinas — Various Addresses in Castroville, California



Located 8 miles northwest of the City of Salinas in the town Castroville, Villa Salinas provides permanent affordable housing for local farmworkers and their families earning between 30% and 80% AMI. Villa Salinas, which was developed by the Monterey County Housing Authority Development Corporation, received subordinate financing from the United States Department of Agriculture (USDA)

that was paired with USDA rental assistance. The Housing Authority of the County, the parent of the sponsor, maintains a waiting list of more than 12,000 households. Monterey County is heavily invested in agriculture, with Salinas known as “the nation’s salad bowl” and Castroville as the “artichoke center of the world.”

## Golden Inn and Village — 890 North Refugio Road in Santa Ynez, California



Located among vineyards 40 miles northwest of Santa Barbara, Golden Inn and Village provides multi-generational affordable housing to families and seniors in a 7.3 acre campus-like setting that promotes outdoor recreational use and social interaction. Both the family and senior components have Section 8 HAP contracts on all units. The 26-unit family property includes one-, two- and

three-bedroom apartments. The senior development has an on-site activities director that coordinates ongoing senior activities and services that are provided free of charge by members of the community through The Rona Barrett Foundation fundraising and volunteer efforts.

## Zephyr — 4370 & 4380 Alvarado Canyon Road in San Diego, California



Zephyr is an adaptive reuse of a former Motel 6 that now offers 84 units of supportive, Section 8 housing to homeless veterans earning 40% AMI or less. The property employs the Housing First approach, which seeks to end homelessness by targeting the most vulnerable of the homeless population and placing them into permanent housing that’s coupled

with case management and wrap-around services. The property will use San Diego County’s coordinated entry system for homeless individuals, which is a centralized system for matching homeless individuals’ needs with housing opportunities. This system includes coordination through the Veterans Administration and will benefit the property by providing more efficient lease-up and a more appropriately placed tenant base.

# M062-M066 Deal Spotlight

The Social Impact M062-M066 Deals are backed by 27 mission-focused properties for low-income residents, many of whom are disabled, seniors with disabilities or homeless veterans. The transactions provided \$399 million in liquidity to Arc70 to fund bonds backed by properties that address affordable housing challenges or properties serving underserved groups considered to be among the most vulnerable.

“These Social Impact M062-M066 Deals provide financing necessary for critically needed and safe affordable housing, which is the core focus of Arc70,” said Arc70 co-founder, Denny Hou. Adrian Garcia, co-founder of Arc70, added, “This transaction demonstrates how our strong long-term partnership with Freddie Mac can work with the capital markets to meet diverse housing needs in underserved communities at scale.”

The proceeds from the underlying bonds were used to back 27 rental properties for low-income, veteran and disabled senior residents.

## Units Affordable

**0.2%** M062-066 proceeds financed properties with **8** or **0.2%** of the units backing M062-066 affordable to tenants earning at or below 30% AMI

**4.6%** M062-066 proceeds financed properties with **177** or **4.6%** of the units backing M062-066 affordable to tenants earning at or below 50% AMI

**40.1%** M062-066 proceeds financed properties with **1,318** or **40.1%** of the units backing M062-066 affordable to tenants earning at or below 60% AMI

**42.9%** M062-066 proceeds financed properties with **1,410** or **42.9%** of the units backing M062-066 affordable to tenants earning at or below 80% AMI

## Underserved Population

Underserved Population	# of Loans Supporting
Seniors	3
Homeless	2
Veterans	1

# Properties Highlights

## The Grove at Parkside — 600 Kenilworth Terrace NE in Washington, D.C.



In the nation’s capital, a new 186-unit community for low- and extremely low-income residents was recently delivered. It’s a long-term solution: for the next 30 years, every unit will house residents with incomes at or below 60% AMI.

## The Abigail Apartments — 1650 NW 13th Avenue in Portland, Oregon



On the West Coast in growing Portland, Oregon, the new mixed-used property The Abigail Apartments provides affordable homes for low- and very low-income residents, along with a smaller percentage of market-rate units. Some of these residents have incomes at 30% AMI or lower. The borrower has committed to keep the current tenant income restrictions for 60 years.

## Step Up On Second — 1328 Second Street in Santa Monica, California



You may not think of affordable housing when you think of Santa Monica, California. Yet in the heart of this beach community, newly renovated apartments will house those who are homeless and affected by serious mental issues, including veterans.

At this nonprofit Step Up On Second, residents are assisted by mental health professionals and a caseworker who develops individual care

programs. Caseworkers also partner with tenants on goals like getting a high school degree, enrolling in job training or working on-site. Upgrades are being made throughout the building in compliance with the Americans with Disabilities Act. The need for affordable housing in Santa Monica is great: in 2017, the city received more than 19,000 applications in one day for their Section 8 housing and has an 18-month waitlist.



# Sustainability Bonds

## Sustainability Bonds Program Overview

Sustainability Bonds are intended to attract capital to support economic mobility for residents and economic growth for communities.

The availability of affordable and workforce housing is fundamental to sustainable communities. A safe and decent place to live provides the foundation for creating economic opportunity for residents and communities alike.

Sustainability Bonds proceeds will be used to finance multifamily properties that:

- provide affordable housing to low- to moderate-income families;
- have features and/or are located in areas that further economic opportunity for residents; and
- may include certain environmental impact features

In addition, the Sustainability Bonds are consistent with the following United Nations Sustainable Development Goals:

- Goal 1: No Poverty;
- Goal 7: Affordable and Clean Energy;
- Goal 10: Reduced Inequalities; and
- Goal 11: Sustainable Cities and Communities

### SOCIAL IMPACT

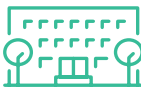


**72.7% of units financed by Sustainability Bonds are affordable** to families earning 60% AMI or less



**407 units backing the Sustainability Bonds** are located in **High Opportunity Areas**

### SUSTAINABILITY IMPACT



Sustainability Bonds proceeds financed **3 mixed income properties**, or **5.9% of all properties** backing the Sustainability Bonds, with units affordable to tenants earning at or below 50% AMI and above 80% AMI

### ENVIRONMENTAL IMPACT



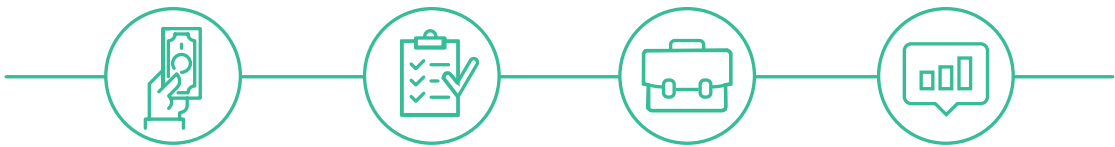
**Existing energy- and water-efficiency improvements** are projected to reduce energy consumption by 13% and water consumption by 9%

Units Affordable financed by Sustainability Bonds

# of Units Affordable at 50% AMI or Less	# of Units Affordable at 60% AMI or Less	# of Units Affordable at 80% AMI or Less
4,026	7,100	9,120

The Four Pillars of the Sustainability Bonds Principles

The Freddie Mac Multifamily Sustainability Bonds Framework is aligned with our four core components of the Green Bond Principles (2018) and Social Bond Principles (2020) Guidelines and focuses on our use of proceeds, the process for project evaluation and selection, the management of proceeds, and transparency through regular reporting.



Sustainability Bonds Issuance Snapshot

Freddie Mac Multifamily issued \$971.5 million of Sustainability Bonds

Deal Type	Issuance Year	Volume (\$ millions)	# of Loans	# of Units	# of Units Affordable at 60% AMI or Less	# of Units Affordable at 80% AMI or Less
K-SG01	2020	\$579.1	28	5,881	4,095	5,247
ML-07	2020	\$392.4	23	3,879	3,005	3,873
Total		\$971.5	51	9,760	7,100	9,120

Sustainalytics



Freddie Mac engaged an independent third party, Sustainalytics, to evaluate our Sustainability Bonds Framework. This opinion is published on the Freddie Mac Multifamily website and is available in the applicable offering documents.

Sustainalytics is confident that Freddie Mac Multifamily is well positioned to issue Sustainability Bonds and that the Freddie Mac Multifamily Sustainability Bonds Framework is robust, transparent and in alignment with the four core components of the Green Bond Principles (2018) and Social Bond Principles (2020) Guidelines.

Social Impact of our Sustainability Bonds



Financing Mixed-Income Properties

Mixed-income housing can help to deconcentrate poverty and/or provide access to neighborhoods of opportunity for low- and moderate-income residents. This type of housing creates economic diversity and expands the availability of quality, affordable housing throughout an area.

Our Sustainability Bonds financed three mixed-income properties (5.9% of all properties in our Sustainability Bonds), with 66.7% of these properties in Areas of Concentrated Poverty (ACPs), which are regions that are characterized by persistently high poverty levels, low economic opportunity and high housing costs relative to income. Mixed-income housing in ACPs help limit turnover and vacancy at the property level, resulting in more stable income than would be experienced by an unrestricted, market-rate property. The creation and preservation of mixed-income housing in ACPs is essential to furthering residential economic diversity, which can lead to greater economic and social mobility for residents, as described in our research series on underserved markets.<sup>9</sup>

Property Highlight

Harvest Glen Apartments — 200 South Linden Avenue in Rialto, California



This mixed-income property is in an ACP within our K-SG01 Deal that exemplifies the importance of this type of development. This garden-style apartment complex is located in Rialto, California in the county of San Bernardino and consists of 347 units. A minimum of 20% of units at the property are rent and income restricted, reserved for tenants earning no more than 80% of AMI due to a Land Use

Restrictive Agreement (LURA) instated by San Bernardino County. Additionally, 50% of those units (10% of all units total) are reserved for very low-income tenants at or below 50% AMI.

This property is receiving a tax abatement granted by the state of California in perpetuity, with annual renewal, so long as the LURA remains in place. Recent rehab of this property includes installing energy- and water-efficiency improvements such as HVAC unit replacements and low-flow plumbing fixtures, unit upgrades, walkways, building erosion repair and common area upgrades.

Sustainability Bonds proceeds financed **3** mixed income properties, or **5.9%** of all properties backing the Sustainability Bonds, with units affordable to tenants earning at or below 50% AMI and above 80% AMI

<sup>9</sup> [https://mf.freddiemac.com/docs/Affordable\\_Housing\\_in\\_Areas\\_of\\_Concentrated\\_Poverty.pdf](https://mf.freddiemac.com/docs/Affordable_Housing_in_Areas_of_Concentrated_Poverty.pdf)  
[https://mf.freddiemac.com/docs/acp\\_case\\_study.pdf](https://mf.freddiemac.com/docs/acp_case_study.pdf)  
[https://mf.freddiemac.com/docs/mixed\\_income\\_pipeline\\_acps.pdf](https://mf.freddiemac.com/docs/mixed_income_pipeline_acps.pdf)

Financing Housing in Areas with High Opportunity Characteristics

High Opportunity Areas are located all over the country and are home to roughly 18% of the population, or around 56 million people.<sup>10</sup> These areas, which can provide economic opportunity and economic mobility for residents, are often high-cost areas as they are highly sought after for the benefits they offer. The population and housing demand in these areas increases faster than supply or local policies can accommodate. In our research on High Opportunity Areas<sup>11</sup>, we found five primary indicators of opportunity: access to education, economic growth/jobs, income levels, access to health care and access to transportation. Addressing these factors can foster greater economic mobility and help people achieve positive life outcomes, regardless of their socioeconomic background.

Access to opportunity is not just limited to high-opportunity areas. Properties backing our Sustainability Bonds have access to public transportation and are in census tracts that have above-average life expectancy<sup>12</sup>, high educational attainment and/or strong income levels for their market.



Sustainability Bonds financed **407** units located in High Opportunity Areas



Sustainability Bonds proceeds financed **3,908** or **40.0%** of the units backing the Sustainability Bonds that are located in areas where 25% or more people above 25 years old have at least a bachelor’s degree and **2,512** or **25.7%** of the units are located in areas where the population with at least a bachelor’s degree is 1.5x higher than the national average



Sustainability Bonds proceeds financed **2,346** or **24.0%** of the units backing the Sustainability Bonds that are located in areas where life expectancy is at or above the national average (78.8 years) and **1,657** or **17.0%** of the units are located in areas where life expectancy is at or above 80 years old

<sup>10</sup> [https://mf.freddiemac.com/docs/Affordable\\_Housing\\_in\\_High\\_Opportunity\\_Areas.pdf](https://mf.freddiemac.com/docs/Affordable_Housing_in_High_Opportunity_Areas.pdf)  
<sup>11</sup> [https://mf.freddiemac.com/docs/Opportunity\\_Incentives\\_in\\_LIHTC\\_Qualified\\_Allocation\\_Plans.pdf](https://mf.freddiemac.com/docs/Opportunity_Incentives_in_LIHTC_Qualified_Allocation_Plans.pdf)  
<sup>12</sup> [https://cdc.gov/nchs/data/series/sr\\_02/sr02\\_181.pdf](https://cdc.gov/nchs/data/series/sr_02/sr02_181.pdf)



Directing Capital Toward Historically Underserved Markets

Affordable and mixed-income housing in one of the following areas can help direct capital to provide stable, quality housing and become a foundation for economic opportunity.

Number of units financed by Sustainability Bonds proceeds located in Duty to Serve Underserved Markets<sup>13</sup>

Deal Type	Rural	High Needs Regions	Persistent Poverty Counties	Qualified Census Tracts	Racially or Ethnically-Concentrated Area of Poverty	Qualified Allocation Plan	Difficult Development Area (FHFA)	Opportunity Zones
K-SG01	152	0	889	2,801	784	226	154	1,498
ML-07	62	0	0	2,569	596	0	27	679
Total	214	0	889	5,370	1,380	226	181	2,177

<sup>13</sup> The market categories referenced in this table are defined in the Duty to Serve Underserved Markets Regulation (the [Duty to Serve Regulation](#), 12 CFR 1282.1) and the associated Duty to Serve Evaluation Guidance published by FHFA. A list of census tracts for each category can be found using Freddie Mac's [Mission Map](#) or on [FHFA's website](#). Please refer to [Freddie Mac Impact Dictionary](#) for more information.

# Environmental Impact of our Sustainability Bonds



The Sustainability Bonds are issued for multifamily properties that meet required social impact criteria and may include certain environmental impact features. This combination contributes to the overall sustainability of these properties.

The environmental features include properties: 1) meeting a high level of required energy and/or water efficiency building standards; 2) receiving a nationally recognized Green Building Certification; 3) having existing energy and/or water efficiency improvements; or 4) that are Transit-Oriented Developments, i.e., located within half a mile of public transportation.

Of the 51 properties backing the Sustainability Bonds securitizations, 38 had an environmental impact feature and five had more than one feature.

Environmental Impact Indicator	# of Properties Supporting
Building Standards for Energy Efficiency	4
Green Building Certifications	1
Existing Energy/Water Efficiency Improvements	5
Transit Oriented Development	33

Building Standards for Energy Efficiency

Properties identified as meeting this environmental impact criteria were built to a higher energy standard than properties built to the baseline building standards. Our framework focused on recognizing standards that were generally 15% more efficient when compared with the baseline energy standard. While we are not able to project the savings achieved at these properties, studies have shown that higher energy standards have the potential to significantly impact the environmental savings of a property as well as energy cost savings.<sup>14</sup>

Property Highlight

Alta Vista Village Apartments — 4647 North 39th Avenue in Phoenix, Arizona



Alta Vista Village in the ML-07 Deal was built to a high energy standard and received a Home Energy Rating System (HERS) rating below 85. This means the property was at least 15% more energy efficient than the baseline energy code. To meet this higher standard, the property installed high efficiency HVAC systems, water heaters, interior and exterior LED lighting, smart/programmable thermostats, refrigerators, dishwashers as well as low-flow

showerheads, bathroom and kitchen aerators and toilets. The installation of these efficiency improvements provides meaningful environmental benefits through a reduction in both energy and water consumption

<sup>14</sup> The Department of Energy evaluated the potential savings impacts of energy efficient building codes and estimates cumulative savings for residential and commercial buildings from 2010-2040 in the amount of \$126 billion in energy cost savings and 841 million metric tons of CO2 emissions avoided. For more details see <https://www.energycodes.gov/about/results>.

at the property. These benefits also extend to both the owner and the tenants who can save on their utility expenses because of the higher efficiency and reduced consumption.

Green Building Certifications

Our framework lists acceptable Green Building Certifications recognized within the industry.<sup>15</sup> Green Building Certifications take a holistic view of sustainability. In addition to focusing on efficient use of energy and water, industry-accepted certifications also focus on the impacts of the design, development and operations of the site, with a focus on impacts to the tenants as well as the community. By design, these certifications are focused on improving the sustainability of any property pursuing the certification.

Property Highlight

Village On Shields — 3436 South Shields Street in Fort Collins, Colorado



Village on Shields in the ML-07 Deal obtained the Enterprise Green Communities certification, which required the implementation of a mix of required mandatory and optional design and construction provisions across eight sustainability categories. These categories include a focus on integrative design for health and resilience, location and neighborhood

integration, impacts of the site improvements, water conservation, energy efficiency, materials management, safe and healthy living environments and operations, maintenance, and resident engagement plans to continue the sustainability of the building. The property’s affordability and the measures implemented at the property to achieve certification contribute to making this property more environmentally efficient and foster a more sustainable community.

Existing Energy/Water Efficiency Improvements

Our framework recognizes properties at which energy and/or water efficiency improvements have already been made. These properties must meet a minimum amount of expected energy and/or water savings based on the implemented improvements.<sup>16</sup> On average, properties are expected to save roughly 13.6% in whole-building energy usage along with 9% in whole-building water usage based on the types of energy- and water-efficiency improvements implemented. These improvements are particularly important given the average year built for properties receiving the improvements is 1982.

The most common improvements implemented at properties include interior and exterior LED lighting, ENERGY STAR certified refrigerators, dishwashers and HVAC systems, and low-flow water fixtures.

<sup>15</sup> See the Sustainalytics Second Opinion of our Sustainability Bonds Framework for an in depth review of the industry recognized Green Building Certifications: <https://mf.freddiemac.com/docs/sustainalytics-2nd-opinion-sustainability-bonds.pdf>

<sup>16</sup> See Methodology for additional details on Existing Energy/Water Efficiency Improvements

Transit-Oriented Development

Transportation-related GHG emissions accounted for about 28.2% of the total U.S. GHG emissions, making it the largest source of U.S. GHG emissions.<sup>17</sup> Developing properties that encourage alternate transportation can help to reduce transportation-related emissions through decreased vehicle-miles traveled, reduced fuel consumption and increased usage of lower impact transit systems. Freddie Mac has defined transit-oriented development as properties located within a half mile of public transportation.<sup>18</sup>

There are meaningful potential environmental benefits from transit-oriented developments with some transited-oriented developments estimated to have a 35% lower carbon footprint than conventional developments.<sup>19</sup> Additionally, by nature of being near transit, these properties improve the ability of tenants to access more opportunities such as access to jobs, education, other goods and services.



<sup>17</sup> See the EPA, Sources of Greenhouse Gas Emissions, Transportation at: <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>  
<sup>18</sup> See Methodology for additional details on Transit-Oriented Development in Appendix III  
<sup>19</sup> Cervero, Robert and Sullivan, Cathleen. Toward Green TODs, August 2010. <https://escholarship.org/uc/item/20q8993s>

Appendix I: Freddie Mac Overview

Freddie Mac’s mission is to provide liquidity, stability and affordability to the U.S. housing market. Supporting affordable housing and access to credit is integral to what we do. In 2016, we added to that core business a strong focus on energy- and water-efficiency through our Green Advantage program. Our program is revolutionizing the financing of energy and water efficiency retrofits in the U.S. rental housing market.

Freddie Mac

Freddie Mac is a government-sponsored enterprise chartered by Congress in 1970 to support housing through the secondary market (we do not originate loans or lend money directly to mortgage borrowers). We support housing primarily by purchasing mortgage loans that originate with lenders. In most instances, we package these loans into mortgage-backed securities, which carry our guarantee. These securities are then sold in the global capital markets. We also invest in mortgage loans and mortgage-related securities.

Since 2008, Freddie Mac has been operating in conservatorship, with FHFA as conservator. FHFA is also our regulator. We are working with FHFA, our customers and the industry to build a better housing finance system for the nation.

In 2020, Freddie Mac launched our Sustainability strategy to enhance our impact and transparency on the most material Environmental, Social and Governance (ESG) issues to our mission and business success. Our strategy is centered on 4 pillars:

- Purpose – *Leader in Housing*** – Deliver solutions to promote a greater supply of affordable housing for more people in sustainable communities
- Planet – *Climate*** – Reduce climate-related risks and costs in housing to enhance affordability and resilience
- People – *Talent & Diversity*** – Strengthen relationships with employees and partners to meet market needs and drive change
- Practices – *Operate Sustainably*** – Provide stability to the housing market through effective risk management and a robust operating platform

This approach is intended to protect and create long-term value for our stakeholders and benefit underserved communities from coast to coast. As our Sustainability strategy evolves, we pledge continued collaboration with our internal and external partners to drive greater impact.

Freddie Mac Multifamily

The Multifamily division of Freddie Mac helps to address affordable rental housing needs by purchasing mortgages secured by apartment buildings with five or more units. We enable the purchase, refinancing and rehabilitation of older multifamily buildings and the permanent financing of recently built multifamily buildings. We buy mortgages secured by these buildings from the Freddie Mac Optigo® network, which has over 150 branches nationwide. Since 1993, we have provided over \$763 billion in financing for approximately 96,000 multifamily properties, representing nearly 11.4 million apartment units. As of December 31, 2020, our total book of business comprised \$312 billion of multifamily guarantees, \$34 billion of unsecuritized loans, more than \$4 billion of multifamily mortgage-related securities, and \$3 billion of other investments, plus \$39 billion of additional market support (primarily unguaranteed securities).

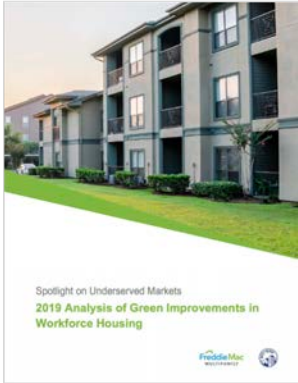
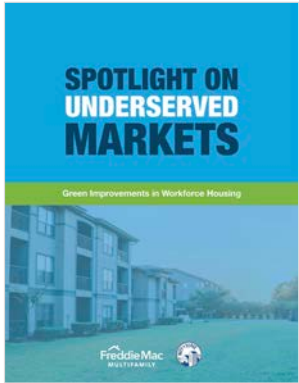


# Appendix II: Our Research and Duty to Serve



Freddie Mac’s [Duty to Serve Plan](#) outlines our goal to help increase rental and homeownership opportunities in historically underserved markets and provide access to safe and affordable housing throughout the nation. As part of this initiative, Freddie Mac Multifamily has published a series of reports that assess and address underserved markets, High Opportunity Areas and the impact of our Green Advantage program. You can view the full series on our website at <https://mf.freddiemac.com/research/duty-to-serve>.

In 2018, we began releasing annual reports that track property improvements made through our Green Advantage program. Click on these reports to learn more.



## Multifamily Podcasts



Steve Guggenmos, vice president of Research & Modeling, and Corey Aber, senior director of Mission, Policy and Strategy, discuss a wide range of topics on the [multifamily podcast series](#), including the affordability crisis, housing preservation, investment opportunities and market trends. Subject matter expert guests from Harvard’s Joint Center, Brookings, the Turner Center and Novogradac provide their unique insights into the multifamily housing market. The series includes over 45 episodes that dive deep into the challenges and innovations to supporting underserved markets. Several highlights are below.

- [Community Impact](#) with Carlton Eley from the Miami Valley Regional Planning Commission
- [Social Impact Investing](#) with Bobby Turner from Turner Impact Capital
- [Affordability Challenges](#) with Carol Galante from the Turner Center for Housing Innovation
- [Housing Development](#) with Mike Kingsella from Up for Growth
- [Community Development](#) with Ron Moelis from L+M Development Partners

# Appendix III: Impact Bonds Reporting Methodology

## Green Bonds

Freddie Mac is committed to reporting the impacts associated with properties financed using our Green Advantage options: Green Up® and Green Up Plus®. In this report, we provide projected environmental and social impacts based on estimates developed prior to the implementation of the green improvements (ex ante projections). The estimates are based on data collected for each property backing the Green Bonds.

While Freddie Mac Multifamily Green Advantage has provided over \$62 billion in financing through loans purchased since program inception in late 2016 through the end of 2020, the population included in this report is specific to Green Bonds issued in 2019 and 2020 backed by Green Up and Green Up Plus loans. For more information on our programwide impacts, refer to the 2020 Analysis of Green Improvements in Workforce Housing report.

## Program Parameters

The Green Advantage program parameters have evolved each year to meet the requirements set by FHFA for green loan treatment related to the multifamily lending cap. The chart below provides details of the program requirement by year. The type of data used in this impact report typically allows for aggregation across all Green Bonds issued but the shifts in program parameters limit the asset-to-asset level comparisons.

Green Up and Green Up Plus Requirements	2016-2017	2018	2019-2020
Consumption Savings Threshold	15% owner-paid, tenant-paid or whole property energy OR water reduction	25% whole property energy OR water reduction	30% whole property reduction from a MINIMUM 15% energy and 15% energy AND/OR water

## Efficiency Improvement Data from Green Reports

Data analysis was performed by compiling basic property-level information with data from the Green Assessment® or Green Assessment Plus® (both, Green Reports) received when a borrower pursues a Green Up or Green Up Plus loan. Basic property-level information is provided by Optigo lenders during loan origination and includes data such as state, county, year built and number of units.

## Green Reports

The Green Assessment is a report meeting the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Level I standard with certain additional requirements including the analysis of water performance at the property, the reporting of Portfolio Manager metrics and documentation of existing property conditions. It also includes cost and savings calculations provided through simplified modeling and the use of industry-recognized formulas and standards. The Green Assessment Plus meets all these requirements but also aligns with the ASHRAE Level II protocol, which increases the level of due diligence and analysis required.

The Green Reports are prepared by consultants selected by Optigo lenders and must meet Freddie Mac’s qualification requirements (Green Consultants), including having an understanding of the ASHRAE standards and an industry-recognized certification demonstrating proficiency in energy and water audits.

Green Consultants collect a 12-month period of historical utility consumption data for the whole property (common and individual tenant areas) from the property owner and evaluate the building conditions and the performance of equipment, fixtures and systems on the energy and water consumption at the property through rigorous property inspections. If any of the whole-property data is unavailable, they must collect all common area and at least 10% of tenant consumption data. Most commonly, the tenant-paid consumption is unavailable, and, in these instances, Green Consultants will make every effort to obtain the data from local utilities, typically requesting aggregated data. If utility providers do not provide the requested data or do not provide it within the required timeline, Freddie Mac will allow Green Consultants to estimate the missing consumption data based on their experience with other buildings of similar use, size, occupancy, construction and location.

Green Consultants input the historical utility consumption data into ENERGY STAR Portfolio Manager (Portfolio Manager), a free online tool maintained by the EPA. Portfolio Manager produces the ENERGY STAR score, Energy Use Intensity, Water Score and Water Use Intensity of the property. Freddie Mac is given access to this data in Portfolio Manager.

Based on the evaluation of the current property conditions and the historical utility consumption data, Green Consultants create a baseline for property performance and make recommended energy and water conservation measures (EWCM). Borrowers choose which EWCM to implement to achieve increased energy and water efficiency at their property. Green Consultants document all results in the Form 1106 and deliver completed Green Reports to Optigo lenders who transmit them to Freddie Mac during the loan due diligence process. We collect the data contained within the Form 1106 through an automated process and use it for our analysis.

**Environmental and Social Impacts**

The expected environmental and various social impacts are based on Green Consultant estimates developed prior to the implementation of the EWCM. These estimates include:

- Projected annual consumption savings figures for both energy and water
- Projected annual tenant cost savings in U.S. dollars (\$)
- Projected annual owner cost savings in U.S. dollars (\$)
- Projected cost of equipment and labor to install improvements in U.S. dollars (\$)

GHG emissions projections are calculated within the Form 1106 following the Portfolio Manager methodology.<sup>20</sup> Green Consultants break out the energy consumption savings by the fuel type used at the property (e.g., electricity, natural gas, etc.), which is then converted to a standard common unit, kBtu, using conversion factors published by Portfolio Manager.<sup>21</sup> This allows consumption from all fuel types to be aggregated into one site energy consumption savings figure. Using this site energy consumption value, emissions factors are applied to produce the GHG emissions projections for the property.

<sup>20</sup> <https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-greenhouse-gas-emissions>

<sup>21</sup> <https://www.energystar.gov/buildings/tools-and-resources/portfolio-manager-technical-reference-thermal-conversion-factors>

**Sustainability Bonds**

**Existing Energy/Water Efficiency Improvements**

Under Freddie Mac’s Green Retrofits option under Green Advantage, properties must have had energy and/or water efficiency improvements made to them within the then-current calendar year and the preceding two calendar years of a borrower having certified to Freddie Mac of the improvements completion. The improvements must meet a specified efficiency standard and/or key criteria for that improvement type; typically, the fixture must be ENERGY STAR certified or WaterSense labeled. For ENERGY STAR products, these have been independently certified as energy efficient based on EPA criteria.<sup>22</sup> Similarly, WaterSense products have been independently certified to use 20% less water and perform as well or better than regular models.<sup>23</sup>

Using the inputs provided by the borrower, an expected savings factor is applied based on the number of reported units or buildings receiving the reported retrofits. This calculation produces an expected energy and/or water consumption savings figure for the property that must meet a minimum target of 10% or more whole property energy and/or water consumption savings.<sup>24</sup> These expected savings figures are based on average energy and water consumption savings data we have collected from the Green Reports received for the Green Up/Green Up Plus loans.

**Transit-Oriented Development**

We measure walking distance in miles from each property to the nearest transit stop using the Bureau of Transportation Statistics National Transit Map.<sup>25</sup> Transit stops include stops on bus stops in urban areas, train lines and subway lines, with additional considerations made for properties located in less dense or more rural areas.

**Impact Bonds**

**Life Expectancy**

Life expectancy is often used as a measure of how healthy an individual or a community is. In our report, we obtained life expectancy at the census tract level for each property backing Green Bonds and ran that data against the national life expectancy average of 78.8 as of 2019.<sup>26</sup> According to the Centers for Disease and Control Prevention and the National Center for Health Statistics, “The methodology used to calculate the U.S. census tract abridged life tables consisted of several stages. First, through a collaboration between the National Vital Statistics System registration areas and the National Center for Health Statistics, death records of U.S. residents (excluding residents of Maine and Wisconsin) for deaths occurring in 2010 through 2015 were geocoded using decedents’ residential addresses to identify and code census tracts. Second, population estimates were produced based on the 2010 decennial census and the 2011–2015 American Community Survey 5-year survey. Third, a methodology that combined standard demographic techniques and statistical modeling was developed to address challenges posed by small population sizes and small and missing age-specific death counts. Last, standard, abridged life table methods were adjusted to account for error introduced by population estimates based on sample data.”

<sup>22</sup> ENERGY STAR product details available at: [https://www.energystar.gov/about/origins\\_mission/energy\\_star\\_overview/about\\_energy\\_star\\_products](https://www.energystar.gov/about/origins_mission/energy_star_overview/about_energy_star_products)

<sup>23</sup> WaterSense label details available at: <https://www.epa.gov/watersense/watersense-label>

<sup>24</sup> For more details on the savings analysis of our portfolio of Green Up/Green Up Plus loans, see <https://mf.freddiemac.com/docs/2020-green-improvements-workforce-housing.pdf>

<sup>25</sup> See the following link: <https://www.bts.gov/national-transit-map/national-transit-map-data-maps-and-apps>

<sup>26</sup> Calculations are based on available life expectancy data in accordance with the U.S. Census Tract and the Centers for Disease Control and Prevention. <https://www.cdc.gov/nchs/products/databriefs/db395.htm>



**Educational Attainment**

Access to education is an indicator of opportunity as previously defined through our research. The American Community Survey (ACS)<sup>27</sup>, part of the U.S. Census Bureau, was used in order to determine the educational attainment of the population within areas in which properties backing Green Bonds are located. The measures used by ACS are at the U.S. Census tract level. Our focus for this report was on the percentage of people per area with a bachelor’s degree as a measure of educational attainment.

**Data Review**

The data used in this impact report was checked for missing data elements and reasonable cost and savings estimates. The Green Report data is also reviewed at underwriting to check for accurate property information and to check that figures in the Green Reports meet program requirements. Where possible, anomalies or errors were corrected; where correction was not possible, where data was not provided or where data was not available, an N/A is listed in the associated property-level data available in the [Multifamily Securities Investor Access](#) tool. However, we are not responsible for and do not guarantee the accuracy or validity of any data from the Green Reports provided to Freddie Mac Multifamily and used in developing the property-level dataset. The dataset or the reported Existing Energy/Water Efficiency Improvements should not be viewed as projections, forecasts, predictions or opinions with respect to value. The dataset is intended for general information and should not be used for financial reporting, accounting reporting or investment decisions. The dataset should not be construed as an effort to sell or the solicitation of any offer to buy any security in any jurisdiction where such offer of solicitation would be illegal.

<sup>27</sup> <https://www.census.gov/programs-surveys/acs/about.html>

**Contact Us**

For additional information, please contact the Freddie Mac Multifamily Investor Relations team at [MF\\_CM\\_InvestorRelations@freddiemac.com](mailto:MF_CM_InvestorRelations@freddiemac.com).

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