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CONFIDENTIAL TREATMENT REQUESTED

December 19, 2022

VIA ELECTRONIC MAIL

The Honorable Elizabeth Warren
The Honorable Tina Smith
The Honorable Bernie Sanders
The Honorable Edward J. Markey
United States Senate
Washington, D.C. 20510

Re: Letter to RealPage, Inc., Dated November 22, 2022

Dear Sens. Warren, Smith, Sanders, and Markey:

On behalf of RealPage, Inc. ("RealPage"), I am writing in response to your letter dated November 22, 2022 (the "Letter"), requesting information concerning RealPage's revenue management software, YieldStar. RealPage appreciates the opportunity to explain how YieldStar works, the efficiencies it provides to apartment providers and residents, and its role within rental housing in the United States. RealPage's revenue management software products were the focus of a recent article in *ProPublica*, which was cited throughout your Letter. As explained in more detail below, that article and other recent news coverage of RealPage's revenue management software (largely based on the article) do not accurately describe how these products work, in particular with regard to the role that data about other properties plays in generating rent price recommendations for RealPage's customers and the effect that the use of these products has had on rents and apartment occupancy rates. We appreciate the cooperative discussions we have had with your staff to date and the extension of time to submit this response.

I. REALPAGE BACKGROUND

RealPage was founded in 1998 and is headquartered in Richardson, Texas. For nearly 25 years, RealPage has offered a broad portfolio of property management software products and services to help its customers—owners and managers of rental properties for conventional, affordable, military, student, single-family, senior and vacation housing, and homeowners associations—better operate their communities and improve performance, including by enhancing the rental experience for consumers. RealPage's products and services provide its customers with solutions for many aspects of property management and ownership, including marketing, leasing,

resident experience, site management, expense management, and vendor management. RealPage also uses data insights to help customers achieve their financial and sustainability goals. Customers use RealPage's products and services to reduce inefficiencies, proactively mitigate risk, improve the rental experience for residents and prospective residents, and increase resident satisfaction and retention. RealPage products also offer residents and prospective residents enhanced options for finding and leasing apartments that better fit their needs with respect to lease terms, move-in dates, and amenities. These products make the rental experience more convenient, while simultaneously providing residents and prospective residents with increased pricing transparency.

RealPage's focus on developing products and services that benefit both apartment providers and residents has been critical to the company's success. By way of example, RealPage's Resident Services offerings automate many time-consuming administrative and operational functions such as lease renewals, package tracking, and utility billing, affording local property staff substantially more time to attend to the specific needs of residents. Resident Services products also include an online resident portal that allows residents to manage rent payments, submit service requests, reserve amenities, and renew leases from their mobile devices. In addition, RealPage's Utility Management offering helps apartment providers unlock savings through more efficient electricity, gas, and water consumption, while RealPage's Submetering service—allocating utility costs to residents based on actual consumption—provides substantial savings to residents who prioritize energy conservation. The Renters Insurance service helps customers limit losses by maximizing coverage for residents, while RealPage's eRenterPlan provides residents accessible, affordable, and comprehensive insurance plans. RealPage also offers RealPage Rent Reporting, an optional subscription service that helps residents build their credit profiles by automatically reporting their monthly rent payments to the major credit reporting bureaus.

During the COVID-19 pandemic when in-person interaction was unadvisable or even impossible due to the health emergency and related lockdowns, RealPage's innovative products and services were critical to enabling apartment providers to continue serving their residents remotely and efficiently. By utilizing RealPage technology, apartment providers and residents alike were able to benefit from online software making possible the ability to (i) conduct remote apartment searches, online tours, and leasing transactions; (ii) make rent and utility payments without dropping off checks at the leasing office; (iii) monitor utility usage while living and working from home; and (iv) remotely obtain apartment maintenance and service through an online resident portal, and other similar resident-friendly conveniences that are now becoming standard expectations of many apartment residents. During the pandemic, RealPage also provided data to the U.S. Department of Housing and Urban Development about rent and rent collections to

assist the government in its administration of vital programs, including the Housing Choice Voucher Program.

Across all its products and services, RealPage's purpose is to inspire amazing experiences and deliver exceptional value. RealPage continually works to identify and develop innovative solutions to simplify and streamline the rental experience with products and services that promote efficiency, accountability, and consistent quality for apartment providers and residents alike. Recognizing that each RealPage customer has its own unique circumstances and goals when making decisions about how to organize, manage, and operate its properties, RealPage is committed to providing its customers with information to help them make better decisions. YieldStar, which is just one of the many products and services that RealPage offers, fits squarely within this mission.

II. REVENUE MANAGEMENT

RealPage began offering YieldStar, a revenue management software product, in 2005.[1] Before explaining how the YieldStar product works, it is important to note that revenue management is not unique to RealPage, or to rental property markets. Indeed, revenue management tools have been deployed for decades and are now ubiquitous in industries where effective management of inventory is critical, including the travel, hospitality, and grocery industries. Governmental authorities also rely on revenue management tools for use cases such as determining pricing for highway express lanes relative to normal toll lanes. Compare, for example, a department store to a hotel. If a department store fails to sell an article of clothing at a particular price point, it always has the ability to sell the same article of clothing at a later date for a lower price. By contrast, if a hotel fails to find the right price point for a vacant room prior to the night, it permanently loses the opportunity to earn a profit on that vacant room. The same principle holds true for airline seats and perishable food. While rental units involve consumers with longer transaction durations than a single flight or hotel stay, the same general principle applies. Revenue management tools help businesses in these industries and others use performance and analytics data to identify the optimal level at which to price inventory for sale at a particular point in time.

Revenue management technology was introduced in the multifamily housing industry in the early 2000s. Apartment providers use revenue management software as one input to determine the prices at which they offer apartments for rent based on supply (available units) and demand

[1] YieldStar is one of three revenue management products offered by RealPage. As the questions set forth in your Letter address YieldStar, the information included in this response focuses on this software unless otherwise indicated.

(prospective and current residents) at a particular property. Importantly, the purpose of revenue management tools is not to increase rent at each property at every opportunity, but to manage revenues such that they are aligned with the apartment provider's individual needs and asset strategy for that property.

Contrary to the assertions made in the recent *ProPublica* coverage about the use of revenue management software in rental housing and its effect on occupancy, the increased adoption of revenue management technology by apartment providers over the past decade has corresponded with a *decrease* in rental vacancy rates. In fact, since RealPage launched its first revenue management product, national vacancy rates have plummeted from over 10% in the early 2000s to just 6% as of the third quarter of 2022.[2] In both 2021 and 2022, the United States reached national vacancy rates of 5.6%, the lowest rates since 1984.[3] While it is difficult to differentiate the impact of revenue management tools like YieldStar from other market forces that affect occupancy rates, the fact that apartment providers now have commercial revenue management products available to them has not resulted in a national increase in vacancy rates. In fact, as discussed below, properties using YieldStar routinely achieve vacancy rates below the national average.

III. HOW YIELDSTAR WORKS

As mentioned above, RealPage began offering YieldStar, its first revenue management software product, in 2005. During the intervening years, RealPage has competed with other revenue management solutions available to apartment providers across the United States to aid its customers in the management of their properties. [redacted]

[2] Federal Reserve Bank of St. Louis, Rental Vacancy Rate in the United States, https://fred.stlouisfed.org/series/RRVRUSQ156N (last visited Dec. 19, 2022).

[3] *Id.*

[4] [redacted]

Consistent with other revenue management products on the market, YieldStar uses a proprietary algorithm to make recommendations to apartment providers about setting a price for rental units at their property that aligns with their individual strategic objectives. However, the YieldStar software is fundamentally built on the disruptive idea that a property's internal supply and demand dynamics are much more important than external factors, such as rents offered by other properties, when recommending appropriate rental prices for the subject property. As a result, YieldStar prioritizes a property's internal rent data (what renters agree to pay for units at that property) and internal availability data (unit and unit types that are or will be coming available for rent at that property) when recommending whether a rental price should be increased, decreased, or remain at the current level. The data types considered and the general manner in which the YieldStar algorithm operates are described below.

YieldStar generates recommendations for the prices for each unit type (that is, by floor plan, meaning 1-bedroom units, 2-bedroom units, etc.) at a customer's particular property. The customer then decides the price to offer—for example, by accepting the recommended price or approving an alternative price—and the software presents the approved prices in a matrix based

on various potential lease start dates and term lengths. At a high level, the YieldStar algorithm determines a recommendation in two basic steps.

In the first step, the algorithm considers, for a particular floor plan, the expected supply of available units of that floor plan at the subject property in the future [redacted]. The data used to assess this is the property's own internal lease data [redacted] Then, the algorithm assesses recent demand [redacted] relative to expected demand for that floor plan at that property. The forecasted demand is based on internal historical data [redacted] for the subject property. This builds the historical seasonality of the subject property and floor plan to project any supply/demand imbalances for that specific property that should be expected in the future. Based on this internal information about expected imbalances in supply and demand, YieldStar recommends whether the rent price for the particular floor plan should remain the same, increase, or decrease.

If in that first step YieldStar's algorithm determines that the current price is appropriate, then it will recommend that the current price for the floor plan be maintained. If, however, in that first step it is determined that a supply/demand imbalance for that specific property is expected and thus that a price adjustment should be considered—either upward or downward—the algorithm moves to the next step. In the second step, the software uses aggregated, anonymized data from multiple sources about publicly available asking rents or actual, historically achieved rents at similarly situated properties to help determine the price elasticity of demand, that is, how sensitive renter demand for the specific floor plan at the subject property will be to upward or downward adjustments in price. Based on this, the algorithm recommends the appropriate magnitude of any rent adjustment. This approach is critical to ensuring that rents remain competitive and that units at the property do not sit vacant. YieldStar's algorithm helps its customers effectively calibrate their response to inflationary pressures to mitigate the risk of pricing out renters and inadvertently depressing revenues. In a softening market, YieldStar will identify the slowing internal demand velocity and may recommend lower prices to maintain higher occupancy.

Recent media coverage of YieldStar based on the aforementioned *ProPublica* article has focused on the use of data about other properties, allegedly as part of the process of recommending rent prices. These reports badly distort and overstate the role that non-public data about other properties plays in YieldStar's algorithm, while also misunderstanding the level of visibility that YieldStar provides to its customers about such data. To illustrate this point more clearly, we describe in more granular detail below the building blocks that go into YieldStar's algorithm, the

outputs that apartment providers actually can see when they use the platform, and the role, if any, of data about other properties in each step of the process.

Asset Strategy. YieldStar customers begin their decision-making about rent setting by defining their individual asset strategy for the subject property. Asset strategies are unique to each customer and to each particular property and may depend, for example, on where the customer is in the lifecycle of ownership. For example, a YieldStar customer planning renovations at a property may need to accept a lower occupancy to allow renovations to proceed on vacant units, while an owner seeking to refinance a newer property may have little to no tolerance for vacancies beyond what is necessary for normal resident turnover activity. YieldStar allows customers to set their preferences so that the algorithm is calibrated to achieve those individualized objectives. Importantly, neither RealPage nor the YieldStar software ever shares one customer's asset strategy with any other RealPage customers. Similarly, YieldStar does not factor any customer's selected asset strategies into its calculation of recommended prices for other YieldStar customers.

Property-Specific Data. YieldStar's algorithm utilizes a significant amount of data related to the customer's specific property. Relevant inputs include the name, location, and asset type of the property, the number of bedrooms and bathrooms, square footage, building numbers, unit numbers, floor plan names, and make ready dates.

Most critically, the YieldStar algorithm incorporates historical and current data regarding the subject property's lease history. The historical data typically includes [redacted] This historical data is used to build the demand and price elasticity curves for each floor plan at that specific property. For example, [redacted] are used to project the level of demand the property can expect in the future. [redacted] are used to calculate the average number of vacant days for that particular floor plan, and the effective net rent reflects the rent that was actually agreed to by the resident and apartment provider, accounting for various factors like up-front or amortized signing incentives.

In addition to historical data, YieldStar incorporates a [redacted] feed of data from the customer's own property, [redacted] that establish the property's current supply and the rent that residents have agreed to pay.

YieldStar uses internal data provided by the customer about its own property to recommend whether price adjustments should be made to some or all of the floor plans in that property to help meet the customer's strategic goals. If, for example, a customer is failing to achieve leasing or renewal activity for a particular floor plan, then YieldStar may recommend that a downward price adjustment is warranted. Put another way, the primary driver of price adjustments is the customer's

internal data from the subject property showing whether the property is failing, meeting, or exceeding the customer's own unique objectives—not data about other properties that may be executing entirely different strategies.

Data About Other Properties. Often YieldStar recommends no price adjustment at all. However, if a price adjustment is recommended to balance supply and expected demand for the customer's floor plan to meet the customer's strategic objectives, YieldStar will consider external data about rents for equivalent floor plans at a previously established set of other properties in the area. This produces a range (high end and low end) of rents that have been historically charged (or have been recently asked) for the particular floor plan being priced. All rents are anonymized and averaged, with outlier rents eliminated from consideration.

With respect to generating a range of rents, YieldStar relies on a variety of data sources for rents at other properties, including public sources, such as rents listed on apartment provider websites. While rents for other properties that are used to generate a range are gathered largely from publicly available information, YieldStar supplements these rents with data, where available, on achieved effective rents based on executed leases. It is also important to note, however, that executed rent data is not always available for the set of properties in a given customer's immediate area and even where it is, as detailed below, it is anonymized and aggregated so that a customer does not have visibility through YieldStar into the pricing of other specific properties. In fact, all of the rents in the range provided by YieldStar to its customer are anonymized and aggregated—the customer receives no property-specific information.

Further, as part of this analysis, RealPage does not consider unit availability, vacancy rates, or upcoming supply of any floor plan at any of the other properties in any of its revenue

management products, including YieldStar. It also does not consider the recommended pricing provided by YieldStar at any other property. The only data about other properties that is used to generate the blended market range are the rents either publicly advertised or, in some instances, actually and previously executed.

Recommendations. YieldStar utilizes the described inputs (largely data specific to the customer's property and only supplemented by aggregated data about other properties if there is a recommendation to lower or increase rents) to generate a pricing recommendation for each floor plan at the customer's subject property. The user interface that conveys YieldStar's pricing recommendation focuses on internal supply and demand balance. The customer's users decide how to use the recommendation, including whether to accept the recommendation, and respond through the user interface. Applying their own discretion, users can either manually accept the recommendations or they can schedule the system to automatically accept recommendations within various desired parameters that they themselves select. If they choose to reject the recommendation, then the user can choose to maintain the current pricing or override the rate and manually input their preferred price.

YieldStar customers may toggle to a separate screen to learn where their floor plan rents fit within the identified range. The screen does not identify which other properties' rents were included, nor does it separately break out the advertised (publicly available) or achieved rent prices of the other properties. There is no way for a customer to deconstruct the aggregated information presented to obtain visibility into the rents charged by another property.

In conclusion, contrary to allegations in recent media coverage, YieldStar does not—under any circumstances—disclose non-public data to its customers about other properties, nor may a customer infer information about other properties from the data provided by YieldStar.

IV. YIELDSTAR'S ROLE IN THE RENTAL MARKET

In addition to inaccurately portraying the scope, use, application, and visibility of data about properties other than the customer's specific property in RealPage revenue management software, the *ProPublica* article and related media coverage have also introduced a number of other misconceptions concerning how YieldStar works and its impact on rental markets. We address some of these inaccuracies and misconceptions below.

YieldStar customers are not obligated to accept the software's pricing recommendations. YieldStar customers are under no obligation—contractually or otherwise—to follow the pricing recommendations generated by YieldStar software. Customers are free to follow, modify, or ignore the recommendations as they see fit. It is ultimately up to each customer to execute the pricing

strategy that it determines is appropriate for its property, and YieldStar rent price recommendations are intended only as decision support for the customer's ultimate individual pricing decisions.

YieldStar offers apartment providers and prospective residents more options to reach an agreement, aids compliance with Fair Housing laws, and affords prospective residents confidence that they have access to the best pricing available to everyone. RealPage recommends that YieldStar customers use pricing that is transparent to prospective residents rather than potentially engaging in price discrimination that may result in providing different individuals with different pricing for the same apartment unit. This helps protect both apartment providers and prospective residents, and encourages compliance with Fair Housing rules, which exist to ensure that everyone (regardless of demographics) has access to the same rental rates for the same unit on the same day. Obviously, it is up to each customer to decide for itself whether to adopt this recommendation.

Revenue management products like YieldStar helped pioneer the availability of "matrix pricing," which offers renters increased options and heightened flexibility to select a preferred lease term and associated rate that meets their individual needs. Before matrix pricing was available, many renters were locked into rigid start and move-out dates and fixed 12-month lease terms, because it was difficult for apartment providers to assess what complex alternative terms would mean for the property's overall occupancy rates, costs, and revenues. Renters needing more flexible lease terms would therefore be stuck paying for extra (unneeded) months or face fees and other charges for ending the lease early. Matrix pricing allows much more flexibility, like a unique move-in date and non-standard rental term, and the corresponding rent price will be calculated taking those factors into account. This flexibility benefits prospective residents and protects apartment providers, who can avoid vacancy risk when a renter moves out early. Matrix pricing also helps prospective residents quickly identify the lowest possible rent.

YieldStar is not designed to maximize rents; its purpose is to manage overall revenues at a property. The *ProPublica* article's effort to portray YieldStar's purpose as solely focused on increasing rent is belied by the model itself; a fundamental tenet of YieldStar's dynamic pricing model is that it makes recommendations in all directions: higher, lower, or at the current rent price. If, for example, the model detects softening in the subject property's demand relative to the available supply, YieldStar will often recommend *reducing rents* to minimize vacancies and preserve property-wide revenues. The data also does not support the assertion that YieldStar uniformly pushes rents higher. [redacted]

[redacted]

Outperforming the market does not mean higher rent growth. Some have conflated a 3% outperformance of the market by YieldStar users in terms of *revenues* with a 3% increase in *rental rates*. Here, it is critical to draw a distinction between a property's "revenue optimization," which YieldStar supports, and "rent maximization," which YieldStar does not. Rent maximization—which is not the goal of revenue management software—entails setting the rent of an individual apartment unit at the highest possible price at which that particular unit will rent. Revenue optimization, by contrast, entails setting optimal rents for each floor plan to minimize vacancy and maximize revenues given market conditions. YieldStar's focus on revenue optimization, as opposed to rent maximization, is critical to its customers' success.

Outperformance can even occur during an economic downturn when rental rates and revenues are declining. YieldStar is designed to enable its customers to outperform the market in such conditions by preserving overall revenues better than the average apartment provider. By cutting rents faster due to early indicators of softness in demand, customers may be able to fill their available units and keep occupancy higher through the downturn, generating more cash flow and therefore better revenue performance. Crucially, "outperforming the market" in this context may still mean revenues (and rents) are declining; however, they would be declining at a lower rate than the market writ large.

YieldStar does not use any personal or demographic data to generate rent recommendations. YieldStar does not use or consider in its algorithm any personal or demographic data concerning prospective or current residents. When YieldStar generates a pricing recommendation, it does not know who is seeking to rent the apartment, nor does it know the demographics of residents at other properties that might be considered in generating the recommendation. YieldStar was purposely designed in this way to reduce bias in rental markets, and to assist apartment providers in meeting their obligations under the Fair Housing Act and similar state and local fair housing laws.

YieldStar never recommends withholding units from inventory. Unless an apartment provider affirmatively removes a unit from its available inventory (e.g., due to damages or to enable renovations), YieldStar will recommend a price for each unit at the property. More

[redacted]

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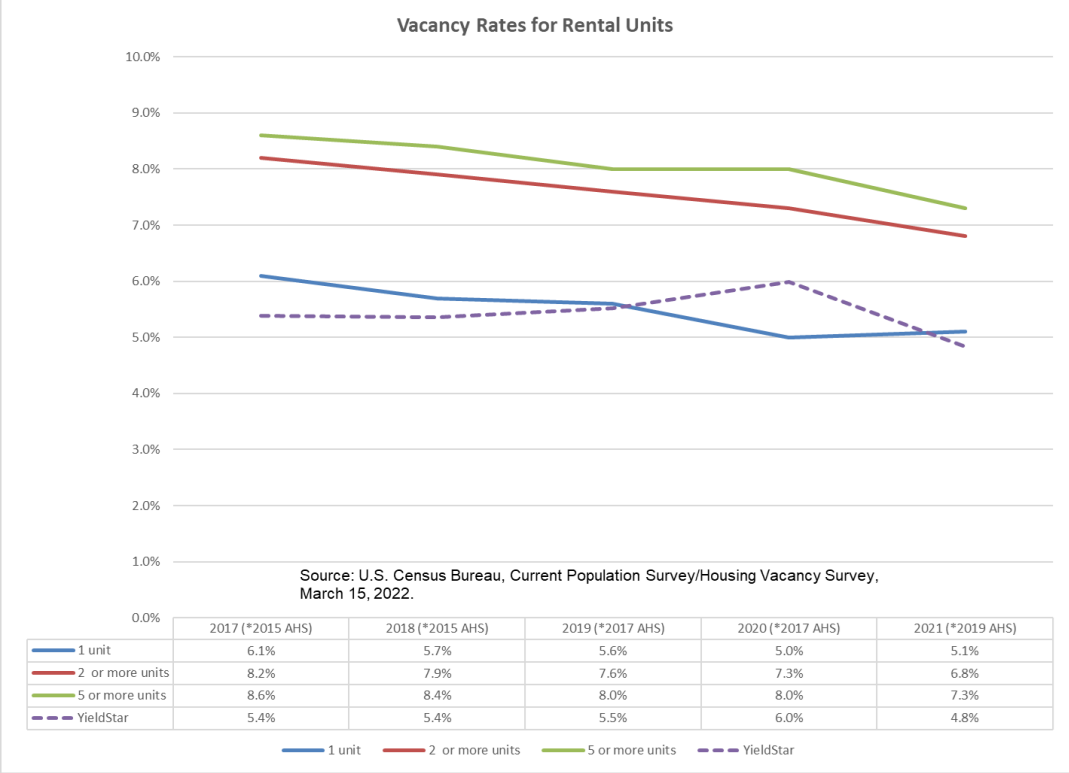
importantly, the supposition by some that YieldStar pushes its customers towards excessive vacancy rates is wrong and belied by the data. For the last five years, YieldStar properties averaged 2.1% *lower* vacancy rates than properties that have two or more units according to data reported by the U.S. Census Bureau. Those vacancy rates for YieldStar properties were *lower* than the national averages for four out of the five years when compared to "1 unit" and for each of the five years for the other two benchmarks.



	2017 (*2015 AHS)	2018 (*2015 AHS)	2019 (*2017 AHS)	2020 (*2017 AHS)	2021 (*2019 AHS)
1 unit	6.1%	5.7%	5.6%	5.0%	5.1%
2 or more units	8.2%	7.9%	7.6%	7.3%	6.8%
5 or more units	8.6%	8.4%	8.0%	8.0%	7.3%
YieldStar	5.4%	5.4%	5.5%	6.0%	4.8%

YieldStar does not recommend prices for the vast majority of rentals in the United States. Fewer than [redacted] customers in the United States currently use YieldStar at their properties. Nationally, YieldStar's share of total rental units is less than [redacted] and, even including all three of its revenue management products, RealPage's share is less than [redacted].

[redacted]

[redacted] Similarly, the MSAs where YieldStar has the highest penetration have not seen inflated vacancy rates. For example, in 2021, the average vacancy rate for customers in YieldStar's Top 25 MSAs averaged just [redacted]—significantly lower than the national average rental vacancy rate of 6.1% during the same period.[9]

V. CONCLUSION

On behalf of RealPage, we appreciate the opportunity to respond to your request and provide information about YieldStar and the role of revenue management software in U.S. rental housing. While RealPage shares the concern you set forth in your Letter about the lack of affordable housing that has existed in the U.S. for decades, it is the severe shortage in supply that has triggered rising housing costs—not the use of revenue management software, which is commonly used in many industries to help manage inventory. As the information set forth above demonstrates, YieldStar is not designed to maximize rents, but to manage overall revenues at a property, given the supply and demand for apartments and market conditions. Despite efforts to portray YieldStar as encouraging vacancies in rental housing, YieldStar never recommends withholding units from inventory and its average vacancy rate in its top 25 MSAs in 2021 was less than the national average.

With respect to this response, production of this information is not intended to constitute a waiver of the attorney-client, attorney work product, or any other applicable rights or privileges in this or any other forum. RealPage expressly reserves its rights in this regard. Information and data provided today may contain confidential, sensitive, or proprietary information. Accordingly, RealPage respectfully requests that such information be kept confidential by you and your staff. Notwithstanding our request that such information be kept confidential, we would ask that your staff provide us with reasonable notice and an opportunity to be heard before you disclose any such information or data to any third parties.

6 [redacted]

7 [redacted]

8 [redacted]

9 *See* United States Census Bureau, Quarterly Residential Vacancies and Homeownership, Third Quarter 2022 (Nov. 2, 2022), https://www.census.gov/housing/hvs/files/currenthvspress.pdf.

We hope the information presented in this response helps to clarify how YieldStar works and the benefits of revenue management. RealPage is committed to continuing its support for efforts to address the shortage in low-income and affordable housing. Please do not hesitate to contact me if you have further questions.

Sincerely,

Karen Elizabeth Christian