Final Report

Evaluation of HUD's Rental Assistance Demonstration (RAD)

U.S. Department of Housing and Urban Development | Office of Policy Development and Research

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DISCLAIMER

The contents of this report are the views of the contractor and do not necessarily reflect the views or policies of the U.S. Department of Housing and Urban Development or the U.S. Government.

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Foreword

Congress authorized the Rental Assistance Demonstration (RAD) in 2012 to help address a large and growing backlog of capital needs in public housing projects.

This report responds to Congress' request to evaluate the impact of RAD "on the preservation and improvement of public housing, the amount of private sector leveraging as a result of such conversion, and the effect of such conversion on tenants." It shows that as of October 2018 over 100,000 units of public housing were converted to the Section 8 platform under RAD and over $12.6 billion was raised, with significant leverage, from numerous sources to improve the physical and financial condition of properties, which would have otherwise continued to decline. The report confirmed that the physical and financial condition of converted properties improved, and the majority of tenants reported that the physical condition of their units and their developments was better after conversion. More than 80 percent of interviewed tenants expressed satisfaction with their units and developments post-conversion.

Over the course of the evaluation, the program has grown. Congress raised the unit cap multiple times from the initial 60,000 units to, most recently, 455,000 units in May 2018. This report makes clear that RAD supports the preservation of affordable housing by improving the physical and financial conditions of public housing. Questions that required a longer observation period to answer, such as the long-term impacts on project financial viability, and tenant mobility and choice, will be the subjects of a future study planned to begin in late 2019.

Seth D. Appleton
Assistant Secretary for Policy Development and Research
U.S. Department of Housing and Urban Development

Executive Summary

Since 2014, Econometrica, Inc. and its subcontractors and consultants—the Urban Institute, EMG Corporation, Jaime Bordenave of The Communities Group, and John Weicher of the Hudson Institute—have engaged in a multistep effort to evaluate the Rental Assistance Demonstration (RAD) program. That program enables public housing authorities (PHAs) to apply to the U.S. Department of Housing and Urban Development (HUD) to convert their public housing to project-based Section 8 housing. Conversion allows PHAs to address their short-term capital needs and preserve the long-run viability of the housing, while protecting resident rights and enhancing opportunities for resident mobility.

Following RAD's application, review, and closing processes, converted properties replace their conventional public housing support (funded through Section 9 of the U.S. Housing Act of 1937) with an assisted housing subsidy (funded through Section 8 of the U.S. Housing Act of 1937). The Section 8 contract is project-based, long term, and subject to the requirement that it be renewed. In addition, at the choice of the PHA, the Section 8 contract can be either a Project-Based Voucher (PBV) contract, which is administered by HUD's Office of Public and Indian Housing (PIH), or a Project-Based Rental Assistance (PBRA) contract, which is administered by HUD's Office of Multifamily Housing. In either case, the ongoing Section 8 subsidy to the converted property is calculated based on the total amount of capital and operating subsidies that the public housing program was provided before conversion, adjusted by an annual Operating Cost Adjustment Factor (OCAF).[1] HUD provides no additional appropriated funds to converted projects for ongoing rental assistance under RAD.

By leveraging their projects' PBV or PBRA subsidies after conversion, PHAs can finance debt and access other external funds; those funds could include grants and private-sector equity investment, including investment through Low-Income Housing Tax Credits (LIHTCs) and other tax credits or incentives. PHAs can then use those funds, in conjunction with internal resources structured as grants or "soft loans," to recapitalize, rehabilitate, or replace projects. Some properties use RAD for repositioning onto a new regulatory platform, often funding replacement reserves for future rehabilitation costs. Other projects use RAD to pay for upfront construction expenses to rehabilitate existing buildings or, in the case of new construction, to demolish dilapidated structures and build new ones in their place. In some circumstances, the PHA can transfer the Section 8 contract to a different property; HUD calls that a "Transfer of Assistance."

This report is part of the evaluation of RAD as mandated in the authorizing statute, the Consolidated and Further Continuing Appropriations Act of 2012, as amended. Under contract with HUD's Office of Policy Development & Research, the evaluation team issued an *Interim Report on the Evaluation of the RAD Program* (*Interim Report,* hereafter) in September 2016. That report evaluated issues relevant to the early stages of RAD from application to closing, including—

[1] Capital and operating subsidies are the two streams of funding HUD provides to PHAs to assist with making capital improvements and subsidize the management operations of public housing units. Capital funding is allocated based on the age, size, and estimated capital needs of each property; operating funds are determined using formula-based expenses, reduced by the amount contributed by the tenants.

- Why some PHAs choose to participate in RAD and others do not, and the roles of lenders and developers in the program.
- The types of projects PHAs select for RAD and the various purposes for which PHAs use RAD.
- How PHAs finance the rehabilitation, replacement, and long-run preservation of their projects under RAD compared with non-RAD alternatives, including the amount of leverage PHAs generate.
- Factors affecting whether and in how timely a manner participating projects complete the final stages of closing or drop out of RAD.

Under the same contract, the evaluation team has carried out the second phase of its evaluation of RAD, culminating in this report, the focus of which was answering the following questions—

- Is RAD achieving its affordable housing preservation goals, including the discernible and immediate effects on the physical condition of projects, by addressing their short-term capital needs?
- How has RAD affected the financial viability of projects after conversion, including enabling projects to meet their long-term capital needs, and what would have happened in the absence of RAD?
- What have been the experiences of PHAs, tenants, and other stakeholders under RAD? Have tenants had to relocate? Are they satisfied with the changes in housing quality?
- Finally, considering the answers to the preceding research questions, what recommendations can be made for improving RAD?

Approach

The *Interim Report* covered projects under the RAD program at each stage of the application and review process up to closing (when all legal documents are executed). Closing is where the projects have converted from public housing to project-based Section 8 assisted housing. The evaluation approach included analysis of the population of RAD projects—supplemented by interviews with a sample of participating and non-participating PHAs, lenders, developers, and advisors—and in-depth analysis of the sources and uses statements and financial pro formas of selected projects to illustrate different financing scenarios under RAD.

The second phase of the RAD evaluation, as covered in the *Final Report*, shifts the focus to understanding the effect of the program after projects have converted to Section 8 and executed a PBV or PBRA Housing Assistance Payments (HAP) contract. It concentrates on determining whether RAD is achieving its overarching goal of preserving affordable housing by improving the physical condition of housing projects in the short term, while also putting those projects on a firm financial footing to meet their projected capital needs over the long term. In addition, it asks what RAD's effect on tenants has been, including whether the protections provided to existing tenants in RAD projects have been enough and whether tenants have benefited from the promised improvements in physical condition, financial viability, and project management.

Finally, it describes how PHAs have been affected by RAD in terms of their internal organization and staffing and their approach to managing converted projects.

During the first phase of the evaluation, researchers laid the foundation for the analytical approach used in the second phase. This phase began with the selection of a sample of 24 participating RAD projects (the treatment group) that had converted or were about to convert and a matched sample of 48 non-participating public housing projects (the control group).[2] Researchers interviewed the PHAs that owned these projects and collected data on the physical condition of the non-RAD properties using HUD's physical condition assessment (PCA) tool. Most of the sampled RAD properties had procured contractors for their own PCAs as part of their financing plan by that point.

In addition, researchers selected a separate sample of 19 RAD projects for assessing tenant effects. This second sample of RAD properties (the resident effect sample) enabled researchers to enroll residents in the study well in advance of conversion—that is, before any residents may have moved out of the property.[3] Of the 2,548 households residing in these 19 properties, 1,669 households were invited to participate, 522 enrolled in the study (a participation rate of 31 percent), and 318 completed a survey (a response rate of 61 percent). Of the completed survey responses, only 298 were analyzed due to the elimination of 20 responses from residents of one project that did not complete conversion.

In the second phase of the evaluation, researchers collected detailed data on the physical condition of the sample of 24 RAD and 48 non-RAD projects from the second round of PCAs. They also collected financial statements for these two groups of projects covering the period before the study (that is, before any of the projects had applied for RAD) and after the RAD projects completed conversion and any construction. The PCAs and financial statements provided the primary dataset for the analysis of RAD's effect on physical and financial condition. Researchers also interviewed participating PHAs along with stakeholders and HUD staff to garner information on their post-conversion experiences. Finally, researchers sent survey questions to the resident households enrolled in the study during the initial phase to gather information on tenant effects. The primary data collection for projects' physical condition, tenant experiences, and participants' views and opinions, along with the confirmation of information reported in project financial statements, constituted the most time- and resource-intensive aspects of this research design.

[2] The control group was selected from the universe of non-participating public housing projects to match the characteristics of the treatment group using a "genetic matching" algorithm, as explained in the *Interim Report* and in Stout, Ruiz, and Herlihy (2017). They were matched along 13 dimensions.

[3] There is some overlap between the two RAD samples of 24 and 19 projects, but for the most part they can be treated as separate samples. Each sample played a different role in the analysis. The sample of 24 RAD projects was used to analyze the effect of RAD on physical and financial condition, in contrast to non-RAD projects. That sample was selected from projects that had converted or were about to convert, to ensure that they could complete any planned rehabilitation or new construction during the period covered by this study. The sample of 19 RAD projects was used to survey tenants affected by RAD and could not include projects that had already converted at the time of sample selection. By design, there were no tenants surveyed for any non-RAD projects, so the sample of 19 RAD projects did not have a control group.

Glossary of Terms and Acronyms

This report contains many technical and specialized terms and acronyms particular to the RAD program, HUD's other affordable housing programs, and aspects of multifamily rental housing finance and management. Many readers may not be familiar with some of these terms and acronyms. As appropriate, terms and acronyms are generally defined on first use and will be defined again throughout the report. In addition, to facilitate the ability of readers to follow along with their ongoing use, appendix E provides a glossary of terms and acronyms.

Limitations

Over the past 5 years, Congress expanded the size of the RAD program significantly. It is currently capped at 455,000 units. When this study began, the program was capped at only 60,000 units. As the program has expanded, it has changed in some ways. HUD's rules and guidelines for the program have evolved, and the mix of participating PHAs and the types of projects they choose to convert has shifted. The program will likely continue to evolve. The RAD properties examined for this study resemble the first cohort of RAD projects—the "early adopters." As such, they could differ from properties currently going through RAD conversion. Some of these possible differences, such as the scope of rehabilitation and type of RAD conversion (PBV or PBRA), should be considered when applying the lessons learned from this study. In addition, although the study collected and analyzed a large volume of data on a sample of projects, the sample size was limited and, for certain aspects of the analysis, data constraints further reduced the effective sample size.

Findings

This section summarizes the key findings of this study. These findings show that the initial implementation of the program accomplished its principal statutory goals of leveraging private and other sources of capital, preserving affordable housing by addressing projects' short-term capital needs and financial viability, and mitigating effects on tenants in terms of relocation.

Project Financing

HUD provided financing and other program data on the universe of 956 public housing projects that had closed and converted to project-based Section 8 under RAD through the end of October 2018.[4] These RAD projects raised $12.6 billion in funding for 103,268 affordable housing units, or an average of $121,747 per unit, which they spent on addressing short-term capital needs, funding initial deposits for reserves to help meet long-term capital needs, paying conversion costs, and for other allowable uses.[5] RAD conversions use a combination of the following funding sources (listed in order from greatest to smallest dollar contribution)—

[4] Four Moderate Rehabilitation (Mod Rehab) conversions are not included.
[5] These could include demolition, tenant relocation, acquisition, environmental remediation, or paying off existing debt.

- Investor equity financed by the private sector and subsidized primarily through the 4-percent or 9-percent LIHTC programs,[6] which provide a tax credit that private investors earn for providing funds to build or renovate low-income housing, and through other tax credit programs, like New Markets Tax Credits, historic preservation tax credits, and state tax credits.
- Seller take-back financing, which is typically part of an LIHTC transaction, where the PHA lends the value of the property transferred to the new ownership entity back to the new ownership entity.
- Mortgage debt financing at a fixed rate and for a fixed term through public or private lenders. This includes Federal Housing Administration (FHA)-insured mortgage loan financing and non-FHA risk-sharing programs offered through state agencies, Fannie Mae, or Freddie Mac.
- Other forms of debt, including soft loans or "cashflow" loans, usually provided by the PHA or state or local governments.
- Public Housing Capital Funds, Replacement Housing Factor (RHF) funds, Demolition Disposition Transitional Funding (DDTF),[7] and/or unobligated Capital Funds that are a part of a PHA's available public housing funding.
- Public Housing Operating Reserves (funds accumulated through the operation of public housing).
- Other PHA-controlled funds, including cash on hand and proceeds from prior real estate development activities such as the disposition of public housing properties or development fees.
- Deferred developer fees (the portion of the developer fee that is not payable before occupancy).
- Different forms of grant funding or soft loans, including the HOME Investment Partnership Program, Community Development Block Grant (CDBG), and Affordable Housing Program (AHP) grants through the Federal Home Loan Banks.

Table 1 lists the most commonly used funding sources for RAD conversions, sorted from most to least common. For each source, the exhibit shows the number and percent of conversions that used that source and the amount of money used in dollars, the amount used as a percent of the total, and the average amount of money used in dollars per project. Investor equity, which includes LIHTC equity, is the largest by amount—accounting for $4,858 million, or 38.6 percent of the total—and the second most common, used by 40.7 percent of conversions. The average amount of investor equity in a project, $12.5 million, is larger than for any other source. Seller note/take-back financing—at $2,410 million, or 19.2 percent of total RAD funding—is the

[6] The Tax Cuts and Jobs Act of 2017 will affect the demand for LIHTCs, but the extent of the effect is currently unclear and may be mitigated through additional legislation or modifications to state-level tax credit programs. The indirect effect on future RAD conversions is also unclear and assessing such effect is beyond the scope and timeframe of this evaluation.

[7] RHF and DDTF are used interchangeably in this report, since RHF is transitioning to DDTF and in the future will be collectively referred to as DDTF. Some RAD projects have used RHF funds, which are provided in two 5-year increments. More recent RAD projects will only be able to use DDTF from the outset, which are limited to 5 years.

second largest and the sixth most common, used by 28.8 percent of all conversions. The average amount of seller note/take-back financing in a project, $8.8 million, is the second largest after investor equity. Notably, 30.9 percent of projects have non-FHA mortgage loans, and 13.3 percent have FHA-insured mortgage loans. Together, they account for 11.2 percent and 7.1 percent of total project funding.

Table 1. RAD Funding Sources

RAD Funding Source	Number of Projects	Percentage of Projects (%)	Total Amount ($)	Percentage of Total Amount (%)	Average Amount per Project ($)
Total	**956**	**100.0***	**12,573 million**	**100.0**	**13.2 million**
Public Housing Operating Reserves	459	48.0	342 million	2.7	0.7 million
Investor Equity (including tax credits)	389	40.7	4,858 million	38.6	12.5 million
Public Housing Capital Funds	387	40.5	391 million	3.1	1.0 million
Commercial Non-FHA Loan	295	30.9	1,411 million	11.2	4.8 million
Deferred Developer Fee	284	29.7	240 million	1.9	0.8 million
Seller Note/Take-Back Financing	275	28.8	2,410 million	19.2	8.8 million
Public Housing RHF Funds	179	18.7	216 million	1.7	1.2 million
State or Local Funds	154	16.1	792 million	6.3	5.1 million
Sponsor or Partner Funds	152	15.9	99 million	0.8	0.7 million
PHA Non-Federal Funds	134	14.0	286 million	2.3	2.1 million
Commercial FHA-Insured Loan	127	13.3	888 million	7.1	7.0 million
Other[8]	372	38.9	639 million	5.1	1.7 million

FHA = Federal Housing Administration. PHA = public housing authorities. RHF = Replacement Housing Factor.
Note: *Projects can have multiple funding sources, so the Percentage of Projects column sums to more than 100 percent.
Source: Funding sources data provided by HUD for 956 RAD projects with closed Commitment to Enter into a Housing Assistance Payment (CHAP); through October 31, 2018

Financial Leverage

By design, RAD enables PHAs to use financial leverage to rehabilitate and preserve affordable housing units. Based on discussions with HUD, Econometrica considered different approaches to calculating leverage for RAD. A leverage ratio describes the amount of additional funding raised for each dollar of funding committed. For the purposes of this evaluation, different concepts of leverage were developed because various audiences are interested in understanding the leverage generated by different contributions. For example, HUD is interested in knowing the leverage

[8] Other includes 11 funding categories: general partner equity/reinvested capital, public housing Moving to Work (MTW; all sources), Home Investment Partnership Program (HOME), interim income (rehab assistance payments), accrued and unpaid interest, Federal Home Loan Bank AHP, CDBG, other federal funds, public housing program income, National Housing Trust Fund, and philanthropic/foundation funding. Although at least 1 of the 11 Other funding categories is used in 38.9 percent of closed RAD transactions; the most commonly used of those Other categories is general partner equity/reinvested capital, which was used in 10.9 percent of closed transactions. Public housing MTW accounts for 1.8 percent of total RAD funding; the remaining 9 Other categories each account for less than 1.0 percent.

ratio that describes the amount of non-public housing funds raised through RAD for each dollar of funding provided by public housing programs.

Econometrica worked with HUD to develop five leverage ratios, as Table 2 shows. These ratios represent the varied interests and perspectives of different stakeholders or audiences, including HUD, PHAs, congressional appropriators, investors, and oversight agencies. They were calculated for all 956 public housing conversions completed through October 2018 using funding sources classified by HUD.

Table 2. RAD Leverage Ratios

Leverage Type	Leverage Ratio	Description
Public Housing Appropriated Funds	$9.66 : $1	Compares $1 of all federally appropriated public housing funds, including operating reserves, Capital Funds, RHF funds, and DDTF, to all other funding sources.
Internal PHA Funds	$7.47 : $1	Compares $1 of all funds held by the PHA, including public housing appropriated funds and other funds in the PHA's control, to all other funding sources.
Federally Appropriated Funds	$8.34 : $1	Compares $1 of all federally appropriated or obligated funds, including public housing appropriations, CDBG, HOME, National Housing Trust Fund, and other federal appropriations, to non-federally appropriated sources.
Publicly Held Funds	$1.59 : $1	Compares $1 of all funds contributed by public entities, including internal PHA funds, federal appropriations, and take-back financing, to funds that are privately held, such as FHA-insured and other commercial mortgage debt and investor equity.
Publicly Subsidized Funds	$0.29 : $1	Compares $1 of all publicly subsidized sources of funds, including publicly held funds plus Rehab Assistance Payments and investor equity (raised via tax credits), to all unsubsidized sources, such as FHA-insured and other commercial mortgage debt.

CDBG = Community Development Block Grant. DDTF = Demolition Disposition Transitional Funding.
FHA = Federal Housing Administration. HOME = Home Investment Partnership Program.
PHA = public housing authorities. RHF = Replacement Housing Factor.
Source: Funding sources data provided by HUD for 956 RAD projects with closed Commitment to Enter into a Housing Assistance Payment (CHAP); through October 31, 2018.

The Public Housing Appropriated Funds ratio measures the ability of RAD to leverage additional funding beyond the amounts provided through HUD's public housing programs. That ratio shows that RAD conversions raised $9.66 in other funding sources (the numerator) for every dollar provided through HUD's public housing programs (the denominator).

The Internal PHA Funds ratio measures the ability of PHAs to leverage their own resources. Some PHAs have contributed proceeds from prior real estate development activities in addition to using funds they receive from public housing appropriations. This ratio shows that PHAs raised $7.47 in other funding sources (the numerator) for every dollar they invested from their own internal resources. (the denominator). Their own resources include funds from HUD's public housing programs and non-federal funds that PHAs earned.

The Federally Appropriated Funds ratio measures the amount of leverage generated per dollar of federal appropriations, which include appropriations for public housing, HOME, CDBG, and

other programs. This ratio shows that RAD conversions raised $8.34 in non-federal appropriations (the numerator) for every dollar of spending paid for from federal appropriations (the denominator).

The Publicly Held Funds ratio measures the amount of privately held funding provided relative to publicly held commitments. It shows that RAD conversions secured $1.59 in privately held funding (the numerator) for every dollar of publicly held funding invested in these projects (the denominator). Publicly held funding includes federal, state, and local government-disbursed funds and PHA funds. PHA funds include the PHA's accumulated equity in the properties, reflected in the $2.4 billion in seller note/take-back financing as reported in Table 1. Privately held funding includes FHA-insured and other commercial mortgage debt, investor equity, deferred developer fees, and other funds from private sources.

The Publicly Subsidized Funds ratio measures the amount of non-governmentally subsidized funds raised for every dollar of governmentally subsidized funds contributed. This ratio aligns with the framework used by the U.S. Government Accountability Office (GAO) in its recent report on RAD (GAO, 2018). This ratio shows that RAD transactions leveraged $0.29 in private unsubsidized funding (the numerator) for every dollar of publicly held or subsidized funding (the denominator). Publicly held or subsidized funding includes appropriated funds, PHA-held resources, and investor equity, which is subsidized via various elements of the tax code, including LIHTCs most prominently, other federal tax credits, state tax credits, and the treatment of depreciation and losses. Private unsubsidized funding includes FHA-insured and other commercial mortgage debt, deferred developer fees, and other private sources.[9]

Preserving Affordable Housing by Meeting Rehabilitation Needs

RAD was created to help preserve affordable housing. One way it does this is by financing upfront investment in converted housing. This investment should enable PHAs to address rehabilitation needs, which are deficiencies to property and equipment that need to be addressed upfront, within the first 12 months. This study analyzed a sample of RAD projects (the treatment group) to determine how much those projects invested in improving their physical condition and what effect that investment had on reducing their rehabilitation needs and other short-term capital needs. It contrasted this RAD project experience with the experience of a sample of non-RAD projects (the control group).[10] For both samples of projects, the analysis used PCAs to measure rehabilitation and other capital needs. It compared these PCAs before and after conversion (or over a comparable period for non-RAD projects) to measure the change in their capital needs.[11]

[9] FHA-insured loans are considered private unsubsidized funds because they have a zero or negative federal credit subsidy. See OMB, 2018.

[10] The original sample had 24 RAD projects and 48 non-RAD projects. The analysis reports on less than this number of projects due to data limitations: one RAD project did not complete conversion and is not analyzed at all, six more RAD projects did not have initial PCAs (three were new construction projects) and could not be used in some parts of the analysis, and two non-RAD projects were missing PCAs and were not included in the analysis.

[11] PCAs define capital needs as the cost of repairing defects or replacing worn-out equipment. They divide capital needs into rehabilitation needs (which should be addressed in the first 12 months); short-term capital needs (which should be addressed in the first 36 months); and long-term capital needs (which should be addressed over 20 years). Under RAD, a project should cover its rehabilitation and some portion of its short-term capital needs upfront through construction and its long-term needs by funding reserves for replacement.

The results demonstrate that RAD enables converted projects to finance construction to address rehabilitation needs and, in some cases, to address other short-term capital needs. Moreover, in the absence of RAD, these projects likely would have experienced a significant increase in their rehabilitation and other short-term capital needs. This part of the analysis does not apply to the new construction projects in our RAD sample due to the lack of relevant data on their rehabilitation needs prior to conversion.

The findings support the views of PHAs that stated they were successful at following through on their construction programs. More than one-half of the PHAs that were interviewed and used RAD for rehabilitation or new construction said they experienced some type of construction delay or other delays in completing their projects. Delays can increase project costs, creating pressure to reduce scope. Most of these PHAs said that, despite construction delays, they were still able to complete construction as planned or with only small changes. They were also able to address their projects' critical needs by correcting accessibility deficiencies and structural defects and mitigating asbestos and lead-based paint contamination.

Table 3 summarizes the analysis of financing, construction costs, and rehabilitation needs for the RAD sample, subdivided by the level of rehabilitation into nonconstruction, shallow rehab, and moderate-to-deep rehab.[12] As this table shows, nonconstruction conversions had average financing of $35,366 per unit and close to zero construction costs ($114 per unit). Shallow rehab projects had less financing per unit ($23,066) but greater construction costs per unit ($10,025). Moderate-to-deep rehab projects had more than eight times the amount of financing per unit ($190,538) and more than six times the amount of construction spending per unit ($61,888) than shallow rehab projects. They had more than five times the amount of financing and more than 540 times the amount of construction spending than nonconstruction projects.

Despite differences in financing and construction costs, all rehab projects were able to cover their rehabilitation needs, fulfilling an objective of the RAD program. As expected, shallow rehab projects had a lower rehab coverage ratio (109 percent) than moderate-to-deep rehab projects (305 percent). Shallow rehab projects spent enough on construction to respond to rehabilitation needs and had a little left over for additional improvements. In contrast, moderate-to-deep rehab projects on average spent more than three times the amount needed on construction to just cover rehabilitation needs. Some projects spent much more than that.

Even nonconstruction conversions had more than adequate resources to cover rehab needs. The low rehab coverage ratio for nonconstruction conversions (26 percent) may be largely a matter of choice because those projects appear to have ample financing per unit ($35,366) to increase the low construction costs of $114 per unit to a level sufficient to meet the low rehabilitation needs of $434 per unit.

[12] HUD defines "nonconstruction" conversions (also called "nonfinancial" or "paper" conversions) as RAD conversions that have little or no planned construction. Typically, they use no mortgage debt or investor equity project financing. For this analysis, "shallow rehab" projects have a rehab coverage ratio (that is, the ratio of construction costs to pre-conversion rehabilitation needs) of less than 115 percent, and "moderate-to-deep rehab" projects have a rehab coverage ratio of 115 percent or greater.

Table 3. Financing, Construction Costs, and Rehabilitation Needs Per Unit, and Rehab Coverage Ratio: RAD Sample of Converted Properties with Initial PCAs

RAD Project Type	N (Projects)	Amount of Financing ($) A	Construction Costs ($) B	Percent of Financing (%) B/A	Rehabilitation Needs ($) C	Rehab Coverage Ratio (%) B/C
Nonconstruction Conversions	3	35,366	114	0	434	26
All Rehabilitation	14	82,877	28,547	34	13,171	217
Shallow Rehab	9	23,066	10,025	43	9,202	109
Moderate-to-Deep Rehab	5	190,538	61,888	32	20,316	305
RAD Total	**17**	**74,493**	**23,530**	**32**	**10,924**	**215**

PCA = physical condition assessment

Notes: Per-unit calculations use the number of units in the initial PCA. HUD supplied financing and construction cost data. One project did not complete conversion. Because rehabilitation needs are taken from the initial PCA, rehabilitation coverage could not be analyzed for two rehabilitation conversions and one nonconstruction conversion that did not have initial PCAs. New construction projects also did not have complete PCAs so their initial rehabilitation needs could not be analyzed, and they are not included in this table.

Preserving Affordable Housing by Improving Physical Condition

Analysis of the sample of RAD and non-RAD projects shows that RAD conversions were able to improve their physical condition, whereas non-RAD properties experienced a decline in their physical condition. This analysis used PCAs to estimate the change in short-term capital needs (including rehabilitation needs) per unit as the measure of the change in physical condition.[13] If the change is negative (short-term capital needs have decreased), then physical condition has improved. If the change is positive (short-term capital needs have increased), then physical condition has deteriorated.[14] Only properties with "before" and "after" PCAs were included in this part of the analysis. For analyzing the effect of RAD on new construction projects and critical needs, the lack of PCA data before conversion required a different approach.

Table 4 shows the change in the average short-term capital needs per unit (as a measure of physical condition) between the initial and the followup PCAs (that is, before and after conversion for our sample of RAD properties and over a similar period for our sample of non-RAD properties). This analysis shows that average short-term capital needs per unit for RAD conversions decreased significantly, from $12,981 to $4,608—a reduction of $8,373, or 65 percent. In contrast, average short-term capital needs per unit for non-RAD properties increased significantly, from $3,740 to $8,710—a rise of $4,970, or 133 percent.

[13] Short-term capital needs represent the investigator's assessment of the project's physical condition—its current deficiencies and repair needs—at the time the PCA is prepared.

[14] See the Addressing Prior Capital Needs section in the Physical Condition chapter for additional analysis of how well the sample of RAD conversions addressed prior short-term capital needs compared with the control group of non-RAD projects. That section compares prior short-term capital needs with the unscheduled capital needs that were not addressed.

Table 4. Change in Average Short-Term Capital Needs Per Unit: RAD and Non-RAD Sample Properties

RAD Project Type	N (Projects)	Initial PCA Short-Term Capital Needs ($) (A)	Followup PCA Short-Term Capital Needs ($) (B)	Change in Short-Term Capital Needs ($) (B-A)	Percent Change (%)
RAD					
Nonconstruction Conversions	3	3,133	3,164	31	1
All Rehabilitation	14	15,036	4,917	– 10,119	– 67
Shallow Rehab	9	11,392	5,292	– 6,100	– 54
Moderate-to-Deep Rehab	5	21,596	4,242	– 17,354	– 80
RAD Total	**17**	**12,981**	**4,608**	**– 8,373**	**– 65**
Non-RAD	**46**	**3,740**	**8,710**	**4,970**	**133**

PCA = physical condition assessment.
Notes: Totals may include rounding. Includes only properties that had both initial and followup PCAs.

The table also shows that these findings vary based on the scope of rehabilitation under RAD. In general, the greater the scope of rehabilitation, the greater the improvement in physical condition. Nonconstruction conversions had almost no change in physical condition. Their short-term capital needs per unit were about the same before conversion ($3,133) as after conversion ($3,164), differing by only $31, or 1 percent. For these projects, conversion under RAD enabled them to maintain their physical condition, which was already better than RAD conversions with rehab. RAD rehabilitation properties improved their physical condition by reducing short-term capital needs per unit from $15,036 to $4,917—a reduction of $10,119, or 67 percent. The improvement was greater for moderate-to-deep rehab than for shallow rehab. The former properties improved their physical condition by reducing short-term capital needs per unit from $21,596 to $4,242—a reduction of $17,354, or 80 percent. The latter properties improved their physical condition by reducing their short-term capital needs per unit from $11,392 to $5,292—a reduction of $6,100, or 54 percent.

The reduction in short-term capital needs for the RAD sample affected most of the features of the properties, including kitchens, bathrooms, heating and cooling systems, unit interiors, building exteriors, and other components.[15] In other words, RAD improved the physical condition of properties in almost all respects and did so in ways likely to be perceived as improvements in the quality of housing by residents. Table 5 provides a detailed picture of how the physical condition of RAD projects changed for the 14 building components used in the PCA. The table illustrates where RAD properties had deficiencies in their physical condition before and after conversion and before and after the completion of any planned rehabilitation. It also displays the calculated change in those deficiencies. As before, an increase in short-term capital needs indicates

[15] The PCA reports capital needs for more than 90 building and site components. Our analysis summarized these into 14 component categories. For instance, the component category of kitchen includes cabinets, countertops, ranges, dishwashers, refrigerators, and other components that make up a kitchen. See the addendum to the Physical Condition chapter for a description of those 14 of the building component categories.

deterioration in the physical condition for that component; a decrease in short-term capital needs indicates improvement in the physical condition for that component.

Table 5. Change in Short-Term Capital Needs Per Unit by Building Component: RAD Sample Properties

Category of Capital Need	Initial PCA Short-Term Capital Needs ($)	Followup PCA Short-Term Capital Needs ($)	Change in Short-Term Capital Needs ($)	Percent Change (%)
Other	1,529	76	(1,453)	– 95
In-Unit	212	14	(198)	– 93
Building Exterior	3,394	344	(3,050)	– 90
Parking/Driveways	369	88	(280)	– 76
Heating and Cooling	1,336	371	(965)	– 72
Building Interior (Excluding In-Unit)	2,140	629	(1,511)	– 71
Bath	342	118	(224)	– 65
Safety Equipment	107	38	(69)	– 64
Kitchen	1,096	409	(687)	– 63
Site	772	359	(414)	– 54
Water System	919	1,145	226	25
Elevator	120	153	33	28
Common Area	164	220	56	34
Mechanical and Electrical	481	643	162	34
Total	**12,981**	**4,608**	**(8,373)**	**– 65**

PCA = physical condition assessment.
Notes: Totals may include rounding. Includes 17 RAD properties with initial and followup PCAs. No new construction projects are included.

For these RAD properties before conversion, the greatest deficiencies were in the exterior of the building—the roof, outside doors and windows, and cladding, or covering and coating on a structure or material —($3,394 in short-term capital needs per unit), followed by the building interior, excluding residential units ($2,140), and "other" costs ($1,529), heating and cooling ($1,336), and kitchen ($1,096). Other costs included an assortment of support items, such as leasing offices and recycling bins. Deficiencies in many of these components would have been noticeable (heating and cooling, for example), visible (unit interiors and kitchens, for example) to tenants, and some would have affected energy consumption and operating costs (roofs and windows, for example).

The followup PCA estimated the short-term capital needs for these components after conversion under RAD and calculates whether it increased (physical condition worsened) or decreased (physical condition improved). As Table 5 showed, almost all components (10 of 14) benefited from a significant reduction in capital needs after conversion, with an average reduction of 65 percent. In other words, the physical condition of the buildings converted under RAD improved almost across the board and in areas likely to directly benefit tenants. The four components that had an increase in short-term capital needs per unit—mechanical and electrical, common area,

elevator, and water system—either had low capital needs to begin with or they function behind the scenes, so tenants are less likely to notice them.

The analysis compared the short-term capital needs of new construction projects after conversion with the short-term capital needs of other RAD conversions and non-RAD projects. As expected, new construction conversions, which replace prior public housing with newly built housing, are in the best physical condition of all projects. As Table 6 shows, their short-term capital needs per unit of $229 are the lowest and are at only 6 percent of the average of $3,951 for all RAD conversions. Among RAD conversions, shallow rehab has the highest level of short-term capital needs per unit—$5,292, or 134 percent of all RAD conversions. Non-RAD projects have the greatest short-term capital needs per unit—$8,710, or 220 percent of the average for RAD conversions.

Table 6. Average Short-Term Capital Needs Per Unit After RAD Conversion: RAD and Non-RAD Sample of Properties

	N (Projects)	Short-Term Capital Needs per Unit ($)	Ratio of Short-Term Capital Needs per Unit to Average for RAD Total (%)
RAD			
Nonconstruction	3	3,164	80
Shallow Rehab	9	5,292	134
Moderate-to-Deep Rehab	5	4,242	107
New Construction	3	229	6
Total RAD	**20**	**3,951**	**100**
Non-RAD	**46**	**8,710**	**220**

PCA = physical condition assessment.
Note: Includes projects that had followup PCAs.

Critical needs are an important aspect of a project's capital needs. They address health, life, and safety deficiencies, such as required modifications to comply with federal accessibility standards (for example, the Fair Housing Act, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990), dangerous electrical wiring, and faulty fire sprinkler systems. As Table 7 shows, non-RAD properties had an average of $693 in critical needs per unit, which was 433 percent of the $160 in average critical needs per unit for RAD properties after conversion. Critical needs per unit for RAD projects were the lowest for new construction ($31, or 19 percent of the RAD average) and moderate-to-deep rehab conversions ($10, or 6 percent of the RAD average). They were the highest for nonconstruction conversions ($246, or 154 percent of the RAD average) and shallow rehab ($256, or 160 percent of the RAD average). Taken in context with earlier analyses of the effect of RAD, these results suggest that RAD enables properties to address their critical needs, and its effect on critical needs appears to be greater to the extent that RAD supports more construction overall.

Table 7. Average Critical Needs Per Unit After RAD Conversion: RAD and Non-RAD Sample of Properties

	N (Projects)	Critical Needs Per Unit ($)	Ratio of Critical Needs Per Unit to Total RAD (%)
RAD			
Nonconstruction	3	246	154
Shallow Rehab	9	256	160
Moderate-to-Deep Rehab	5	10	6
New Construction	3	31	19
Total RAD	**20**	**160**	**100**
Non-RAD	**46**	**693**	**433**

PCA = physical condition assessment.
Note: Includes 20 RAD and 46 non-RAD projects that had followup PCAs.

Preserving Affordable Housing by Funding Long-Term Capital Needs

In addition to preserving affordable housing by addressing short-term capital needs, RAD also helps preserve affordable housing by funding long-term capital needs. This is accomplished by converting projects from a public housing funding model (short-term operating subsidies and historically declining Capital Funds under central PHA management) to a project-based Section 8 funding model (long-term subsidies and expected rising rents under decentralized property management, with easier access to capital markets). Project-based Section 8 enables PHAs to better meet the future capital requirements of their converted projects over the long term. The mechanism for doing so is the reserves for replacement account, which is funded upfront at closing and over time out of annual project funds and is used to cover the long-term capital needs of the project. Most RAD projects in the treatment group had financial statements that included data on their replacement reserves, but some did not.

This study reviewed the Initial Deposit to the Replacement Reserve (IDRR) and the Annual Deposit to the Replacement Reserve (ADRR) calculated at closing for a sample of RAD conversions.[16] It compared the reserves for replacement floor to the replacement reserve account balances as reported on year-end 2017 financial statements. The projects consisted of 18 of the original 24 projects in the RAD sample (the treatment group).[17] Table 8 shows that these RAD conversions had deposited an IDRR and had positive balances in their Replacement Reserve Account.[18] In addition, all but one had reserve balances greater than or equal to the minimum floor, which is based on their ADRR payment. On average, their replacement reserve balance was 363 percent of the floor. These findings suggest that almost all conversions are funding reserves for replacement at a level deemed adequate to meet their projected long-term capital needs, as estimated when the projects prepared their original financing plan.[19] The reserves for

[16] Non-RAD projects do not have reserves for replacement.
[17] The six missing projects included one project that had not completed conversion and five projects that did not provide financial statements for 2017.
[18] Two properties had no IDRR requirement. Technically, these projects met their deposit requirement even though they did not make an initial deposit.
[19] The one property that did not meet this test may have submitted incomplete information.

replacement for five RAD conversions could not be analyzed, however, due to the lack of financial data available for study. For these conversions, no conclusion can be drawn.

Table 8. Replacement Reserve Deposits and Balances for RAD Conversions

RAD Conversions	Made Required IDRR Payment	Made ADRR Payment	Reported Replacement Reserve Balances	Balances at or Above Floor
Number of RAD Conversions	18	18	18	17[20]
Median Amount ($) or Percentage	$123,000	$66,000	$240,000	363%

Note: Includes 18 RAD conversions; based on project financial statements for 2017.

An independent followup PCA was performed on the RAD properties after conversion and construction. In general, long-term capital needs were higher in the followup PCA than in the initial PCA.[21] As a result, the revised reserve-for-replacement floor (estimated as the average annual capital need over 20 years) is higher than the original floor, which was set at conversion.[22] As Table 9 shows, whereas 17 of 18 properties were at or above the original floor, only 11 of 18 RAD properties had replacement reserve balances at or above the revised floor. For the seven properties below the revised floor, reserve account contribution levels would have to increase to address the capital repairs of those properties over the next 20 years; at some point, those projects will need to reassess their long-term capital needs. In addition, projects that did not have information available on their reserves for replacement should prepare and monitor this information to ensure they can meet future obligations.

Table 9. Comparison of Replacement Reserve Balances With Original Floor and Revised Floor

	# Below	# Equal	# Above	# Total
Reserve Balance vs. Original Floor	1	3	14	18
Reserve Balance vs. Revised Floor	7	0	11	18

Note: Includes 18 RAD conversions; based on financial statements for 2017 and followup PCAs.

Preserving Affordable Housing by Ensuring Financial Viability

Another way in which RAD helps preserve affordable housing is by ensuring continued or improved financial viability by promoting the use of commercial property management practices. Through such practices, PHAs are expected to make these projects more viable by stabilizing or increasing revenues while reducing operating costs. On the other hand, some projects will incur added financial obligations after conversion, such as mortgage debt, which could make them less

[20] The one property with replacement reserves below the floor provided unaudited and incomplete financial statements. It is possible that this result is due to incomplete information.

[21] The PCA calculates the minimum reserve floor as the average annual capital need over 20 years, which is arrived at by dividing the total capital needs from year 1 to year 20 (rehabilitation needs are not included) by 20. Using PCAs to compare the minimum reserve floor before and after conversion was possible for only 16 of the 18 conversions due to the lack of an initial PCA for 2 of them. The revised minimum floor based on the followup PCA could be compared with the reserve balances reported in all 18 projects' financial statements, however.

[22] The median increase was 31 percent in nominal terms. Some of this increase is inflationary, however. Because the followup PCA was conducted an average of 4 years after the initial PCA, its reserve floor estimate would include 4 more years of inflation. Because most PCAs assume an inflation rate of 2.5 percent per year, this would mean an inflation effect of about 10 percent. After adjusting for this inflation effect, the median real increase in the minimum reserve floor was 21 percent.

viable. In general, PHAs were positive about the financial performance of their RAD conversions and reported data showed that they had improved their financial viability and were meeting their debt obligations. Some PHAs did not provide enough information on their projects to assess the viability of those projects, however, and one project showed signs of financial risk.

To assess the financial viability of RAD conversions, this study initially interviewed PHAs (the treatment group) to obtain information on their use of commercial property management practices and their views on their converted projects' financial performance. Only about one-fourth of the PHAs we interviewed use private sector property managers to manage their converted projects; the remaining three-fourths continue to manage the property with their own staff. Those 75 percent of PHAs say that they have changed their property management policies and procedures and recognize the challenges of hiring and training new staff and implementing new data systems but otherwise they have few concerns.

Most PHAs reported stable or improved financial results for their converted properties. They said that project revenues were higher, and project expenses were about the same or lower. They attributed the increased revenue to better rent collection processes and higher administrative fees. They felt that lower expenses arose from reduced utility, maintenance, and administrative costs. In addition, most PHAs said their properties were earning enough for operating expenses, scheduled replacement reserve payments, and mortgage debt (where applicable) and were generating a positive net cashflow after meeting those obligations. One PHA said that revenues had declined, and another, that expenses had increased. Some PHAs also felt that their RAD rents were low and worried about long-term financial sustainability.

PHAs see benefits from new property management processes (for example, improved maintenance that can help sustain their assets over time), but when asked how property performance had changed in terms of specific metrics—such as vacancies, delinquencies, time on market, and turnover—most PHAs did not perceive a change except for tenant turnover. Overall, most PHAs appear to be able to manage properties as well or better after conversion, but a segment of them has encountered some management challenges in terms of collecting tenant rents and keeping units filled.

This study also examined the financial statements of these projects before and after conversion to construct financial performance indicators used to measure whether the projects had improved. The results were also compared with projects that did not participate in RAD (the control group) to assess what would have happened in the absence of RAD. The financial performance indicators included the Quick Ratio and the Months Expendable Net Asset Ratio (MENAR). The Quick Ratio indicates liquidity and the MENAR indicates viability. Values below one for either indicate a project is at risk of financial failure.[23]

Table 10 shows the change in the median Quick Ratio and median MENAR for RAD conversions between 2013, prior to RAD, and 2017, after projects completed conversion and any

[23] A property with a Quick Ratio below 1 has insufficient liquid assets available to pay current obligations and would be illiquid. A property with a MENAR below 1 has insufficient liquid assets available to pay an average month's operating expenses and would be non-viable. A property with a Quick Ratio below 1 or a MENAR below 1 is considered at risk. A property with a Quick Ratio equal to or above 1 or a MENAR equal to or above 1 is considered viable.

construction. On average, the sample of 18 RAD conversions marginally increased their median Quick Ratio and median MENAR after conversion, indicating a modest improvement in financial condition. One RAD project was at risk in 2017, according to its MENAR, and in 2013 before it converted under RAD. That property operates as an assisted living property whose audit reported that a deficiency in cashflow resulting from Medicaid reimbursement rates not covering the cost of housing Medicaid residents creates uncertainty about the partnership's ability to continue as a going concern. This description suggests that the RAD conversion did not mitigate the property's at-risk status but did not contribute to it either. No other properties in the study sample were classified as at-risk after conversion under RAD.

Table 10. RAD Conversions: Median Quick Ratio and Median MENAR, 2013 and 2017

RAD Conversions Before and After	Median Quick Ratio	Median MENAR
RAD Pre-Conversion, 2013	4.63	6.25
RAD Post-Conversion, 2017	5.22	6.86
Increase (decrease)	**0.59**	**0.61**

Note: Includes 18 RAD conversions; based on financial statements for 2013 and 2017.

Table 11 shows the change in the median Quick Ratio and median MENAR for non-RAD public housing projects between 2013 and 2017. On average, the sample of 46 non-RAD public housing projects noticeably decreased their median Quick Ratio and median MENAR during this period, indicating a deterioration in financial condition.

Table 11. Non-RAD Projects: Median Quick Ratio and Median MENAR, 2013 and 2017

Non-RAD Projects Before and After	Median Quick Ratio	Median MENAR
Non-RAD Projects, 2013	5.92	5.65
Non-RAD Projects, 2017	3.89	4.37
Increase (decrease)	**– 2.03**	**– 1.28**

Note: Includes 46 Non-RAD projects; based on financial statements for 2013 and 2017.

How did debt affect the financial condition of RAD properties? Sixteen of the 18 properties performed construction, with a median construction expenditure of $3.0 million, as Table 12 shows. Nine of the 18 RAD conversions carried outstanding mortgage debt in 2017, with a median mortgage amount of $3.6 million per project. Debt was an important source of financing for projects with greater construction needs. Two out of seven shallow rehab projects had mortgage debt compared with four out of six moderate-to-deep rehab projects and two out of three new construction projects. One project with mortgage debt was nonconstruction and had no construction spending.[24]

[24] This was the same project considered at risk based on its MENAR. Because it had no construction plan, HUD considered it a nonconstruction conversion; however, it did take an FHA-insured loan at closing. According to the project's financial statements, the PHA used the FHA-insured mortgage to refinance a prior non-FHA-insured mortgage on the property.

Table 12. RAD Conversions with Construction and Mortgage Debt

RAD Conversions	Median Value ($)	# Shallow Rehab	# Moderate to Deep Rehab	# New Construction	# Nonconstruction	# Total
With Construction	3.0 million	7	6	3	0	16
With 2017 Mortgage Debt	3.6 million	2	4	2	1	9

Notes: Includes 16 RAD conversions with construction spending, based on HUD closing data, and 9 with outstanding mortgage debt in 2017 based on project financial statements. One rehabilitation project had paid its mortgage debt in full.

Econometrica calculated the Debt Service Coverage Ratio (DSCR) for the nine RAD properties that had mortgage debt in 2017. As Table 13 shows, five had a DSCR above 2.5, which demonstrates that the properties had more than 250 percent of the required debt payment available from annual net income. Two had a DSCR of less than 1.11, which is the lowest acceptable ratio for underwriting Federal Housing Administration (FHA) 221(d)(4) loans. One of these had established significant operating reserves, which mitigates its debt service risk. The other had a DSCR of 1.09, and while the property has a debt service reserve, this is the property referenced earlier that was deemed at risk on its MENAR.

Table 13. DSCR for RAD Conversions with Mortgage Debt

RAD Conversions	DSCR < 1.11	1 .1 < DSCR < 2.5	DSCR > 2.5
Number	2	2	5
Median 2017 Mortgage Debt ($)	3.5 million	3.3 million	4.0 million

Note: Includes nine RAD conversions with mortgage debt based on financial statements for 2017.

In reviewing the previous Quick Ratio and MENAR calculations, all RAD properties had ratios greater than 1 except for one property at risk. That property had a MENAR below 1 both before and after conversion and is classified as at-risk both before and after conversion. The Quick Ratio for that property was slightly above 1 before conversion and did improve after conversion. The property's audit report listed that a deficiency in cashflow creates uncertainty about the partnership's ability to continue as a going concern, however, and the partnership listed an amount calculated as a necessary capital contribution to alleviate the uncertainty. According to the audit report, the financial issues were related to healthcare service reimbursements and not to Section 8 rents under RAD.

Similarly, all properties that had assumed mortgage debt had a strong DSCR or reserves in place, except for the one property at risk. Therefore, although one RAD property is classified as at-risk, all properties that were viable in 2013 remained viable after RAD conversion, and all properties with outstanding mortgage debt, except for the property at risk, were capable of meeting mortgage obligations according to their DSCR.

PHA Management

Interviews with the sample of RAD PHAs (the treatment group) addressed questions about how RAD has affected the management of the PHA. How PHAs manage and organize themselves depends mostly on which type of HAP contract they use and on whether the project uses mortgage debt and/or Low-Income Housing Tax Credits (LIHTC) financing. Project-Based Voucher (PBV) and Project-Based Rental Assistance (PBRA) are both project-based Section 8

contracts, meaning the rental subsidy is tied to specific units and does not move with tenant households, but they are separate programs with separate regulations. Conversion to one or the other will affect how PHAs manage a project. Within HUD, PBV conversions are administered through PIH; therefore, the PHA manages them according to PIH rules, guidelines, and information systems. PBRA conversions, on the other hand, are administered by HUD's Office of Multifamily Housing, which is part of the Office of Housing. Those conversions follow the policies, procedures, and data systems of that office.

Table 14. RAD Projects by Type of Section 8 Contract: All and Sample

Type of Section 8 Contract	Number of All RAD Projects	Percentage of All RAD Projects (%)	Number of RAD Projects in Sample	Percentage of RAD Projects in Sample (%)
PBV	976	62.8	14	58.3
PBRA	577	37.2	10	41.7

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Source: RAD program data through October 31, 2018, from the RAD Resource Desk

For our sample, 41.7 percent of RAD projects are PBRA conversions, and 58.3 percent are PBV conversions. As Table 14 shows, this closely matches the universe of closed transactions: 37.2 percent of all closed RAD projects are PBRA conversions, and 62.8 percent are PBV conversions.

The PHAs we spoke with clearly grasped the magnitude of PHA management changes. About three-fourths of the PHAs said the changes due to RAD were neutral or beneficial, and about one-fourth said they had concerns. From their comments, however, one could tell that many were still absorbing these changes. Staff must be realigned or retrained as the PHA reduces its asset management role and broadens its role in managing and reporting on Section 8 contracts under the HCV program for PBV conversions or the Multifamily Housing program for PBRA conversions. For the latter, the PHA must also learn the guidelines and data systems that govern that program. In many cases, the PHA will continue to fill the property management role, although it may contract this out to a third-party entity. Contracting out this function is more likely if the project had to be structured to facilitate LIHTC financing unless the PHA acquires the knowledge to manage the separate eligibility standards of that program. The use of mortgage debt also imposes its own lender compliance and reporting requirements.

Tenant Relocation

Because RAD finances construction work, its potential effect on tenants who may have to be relocated has been an abiding concern for HUD, PHAs, and other parties (for example, developers). Based on our survey of tenants, we found that 82 percent of all respondents remained in the same throughout the RAD conversion process, either because they never moved or because they moved within the same property.[25] Most of the tenants who experienced relocation and moved to a different unit because of RAD received relocation assistance, and most tenants were satisfied with the assistance they received. According to survey respondents,

[25] The study attempted to assess the relocation experience of the residents of RAD conversions relative to mobility in the general population of public housing residents using HUD's administrative data. Unfortunately, that exercise proved futile due to the insurmountable problem of tracking households that moved from public housing to assisted housing and back again. HUD's administrative data—as currently structured—do not facilitate such tracking.

75 percent were back in their original unit, 92 percent were in the original property, and almost 98 percent were receiving rental assistance of some kind (for example, Housing Choice Vouchers (HCVs). Just over 2 percent of respondents reported they were no longer in subsidized housing.

In interviews, developers and lenders mentioned project delays and other complications from tenant relocation for RAD projects undergoing rehabilitation or new construction. They cited the difficulty of coordinating and sequencing the demolition or construction work with the timely movement of tenants so that units would be empty when construction was ready to begin, and tenants could move into their new or rehabilitated units as soon as construction was completed. HUD's program rules restrict PHAs from moving tenants out of their units until after the RAD Conversion Commitment (RCC) has been issued, which may not provide enough lead time to facilitate timely movement.

In their interviews, however, PHAs reported that tenant relocation did not appear to be a problem in their rehabilitation and new construction projects. Construction phasing helped by enabling PHAs to use vacant units to house tenants on site while their units were under construction. Tenant communications, which HUD requires before a PHA applies to RAD,[26] also helped. When they did have to relocate tenants, PHAs claimed that most returned after construction was completed. These PHAs felt that these techniques were generally successful at minimizing the effect on tenants, as is also supported by the tenant survey results.

Tenant Post-Conversion Experiences

This evaluation surveyed tenants about their experience with PHAs' communication, property management, and the quality of housing after conversion. The survey of tenants revealed high levels of satisfaction with PHAs' communications about RAD (79 percent very or somewhat satisfied) and management of the RAD process (76 percent very or somewhat satisfied). Tenants tended to recognize improvements in the quality of their housing, including inside their residential units. Most tenants who answered the survey said they were very or somewhat satisfied with their housing unit (82 percent) and development (81 percent), which covers the physical quality of the facility as well as its overall management. Even higher shares of tenants indicated their housing (91 percent) and development (93 percent) were either better or about the same as before. Moreover, over half (56 percent) said that they noticed changes inside their housing units, and a slightly lower proportion (47 percent) noticed changes to the building exterior. Additionally, tenants generally thought that property maintenance (88 percent) and property management (85 percent) were as good as or better than before conversion.

Choice Mobility

One of the distinguishing features of RAD is that residents of converted properties have a right within a defined period to take an HCV—the Choice Mobility option—rather than continue to live in their converted unit. Based on interviews with PHAs and residents, it seems possible that

[26] See Section 1.8 of the RAD Notice. The PHA must notify residents of projects proposed for conversion, notify legitimate resident organizations of the PHA's intent to pursue conversion, and conduct at least two meetings with residents of projects proposed for conversion. The RAD Notice includes other requirements for resident notification. U.S. Department of Housing and Urban Development. Rental Assistance Demonstration—Final Implementation, Revision 3 PIH-2012-32 (HA) H-2017-03, REV-3, January 12, 2017. Section 1.8.

tenants could be under-using this option. Some residents are not being made sufficiently aware of the Choice Mobility option to make an informed judgment about whether to take advantage of it. The survey of tenants found that almost half (49 percent) of tenants reported that they were not informed about the Choice Mobility option during the RAD process. Few of the PHAs we interviewed displayed strong support for the Choice Mobility option, which they see as one more complication in the management of their converted project as well as their HCV program. PHAs were more likely to report that residents were interested in Choice Mobility if the RAD conversion involved rehabilitation or new construction. In many cases, however, PHAs said residents did not seem to be interested in the Choice Mobility option.[27] When this option was described to tenants during the survey, however, a large percentage of tenants (49 percent) indicated they would prefer this option to living in their current unit. It is possible tenants had not been made sufficiently aware of this option to express an interest in it. In addition, it is possible the limited timeframe of this analysis may have made it unable to capture the full extent to which tenants exercise this option. Future analysis of this question may be warranted.

RAD Program Growth

When this evaluation began, the RAD program was capped at 60,000 units. The current cap is 455,000 units, which is about 40 percent of the public housing stock.[28] Table 15 shows how the number and distribution of RAD projects have changed as the statutory unit cap has increased. The table uses the number of Commitments to Enter into a Housing Assistance Payment (CHAP) contract, which is HUD's designation for projects that have been approved to participate in RAD. It reports on the number of CHAPs issued over the period covered by each statutory cap and in total by PHA size,[29] region,[30] and Section 8 contract type through October 31, 2018.

[27] Two small PHAs said they were exempted from the requirement. Two more felt that the tenants in their projects for elderly persons were simply not interested in moving out under this option. Others simply reported that few tenants pursued Choice Mobility.

[28] When the study began in late 2013, there were 1.15 million units of public housing.

[29] As defined by HUD, small PHAs have 0 to 249 units of public housing; medium PHAs have 250 to 1,249 units of public housing: and large PHAs have 1,250 and above units of public housing.

[30] The four statistical regions defined by the U.S. Census Bureau are: Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont); Midwest (Illinois, Iowa, Kansas, Indiana, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin); South (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia); and West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). U.S. territories are not part of a census region and have been assigned as follows: the U.S. Virgin Islands and Puerto Rico to the South, and Guam to the West.

Table 15. RAD Activity by Statutory Cap Period, PHA Size, Census Region, and Section 8 Contract Type Through October 2018

	60,000-Unit Cap (Nov. 2011 to Dec. 2014)	185,000-Unit Cap (Dec. 2014 to May 2017)	225,000-Unit Cap (May 2017 to May 2018)	455,000-Unit Cap (May 2018 to Oct. 2018)	All Periods (Nov. 2011 to Oct. 2018)
CHAPs Issued in Period	342	921	187	103	1,553
PHA Size (Number of Issued CHAPs)					
Small PHAs	49	129	35	18	231
Medium PHAs	145	312	50	30	537
Large PHAs	148	480	102	55	785
Census Region (Number of Issued CHAPs)					
Northeast	31	119	32	8	190
Midwest	40	169	38	19	266
South	205	465	93	60	823
West	66	138	24	16	244
Section 8 Contract Type (Number of Issued CHAPs)					
PBRA Conversions	170	295	67	45	577
PBV Conversions	172	626	120	58	976

CHAP = Commitment to Enter into a Housing Assistance Payment. PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PHA = public housing authority.
Notes: Withdrawn and revoked CHAPs are not included in this table. CHAPs continued to be issued beyond October 31, 2018. CHAPs can change their Section 8 contract type before closing. See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: RAD projects with active or closed CHAPs through October 31, 2018

The 185,000-unit cap tripled the size of the program. The 225,000-unit cap existed for just 1 year before being raised to 455,000 units. Notable trends include the following—

- The ratio of PBV and PBRA CHAPs is 1.7 PBV projects for each PBRA project over the entire period. In the initial period (60,000-unit cap), however, when this study began, the ratio was close to 1 to 1. Small PHAs, which operate less than 20 percent of the public housing stock, have contributed the fewest properties to RAD, possibly because of their more limited experience and capacity with mixed financing or the fact that they have fewer public housing properties under management.
- Large PHAs, which have the most public housing properties to contribute to RAD, were originally less active but have increased their activity over time.

- PHAs in the West have become less active in the program, probably because they have already converted a large share of their former public housing.
- PHAs in the South dominated the program in the beginning but have become less predominant as PHAs from other regions have increased their participation.[31]

The steady increase in the authorized limit to the size of the program has been followed by the large and growing volume of conversions. HUD needs to evaluate what additional changes in the program might be needed to accommodate this continued expansion.

Recommendations

This section presents recommendations, some of which came from interviews with PHAs, lenders, developers, and HUD staff, and some of which came from the study authors. The PHAs and other stakeholders that were interviewed shared recommendations based on their experiences with the RAD program. Given the changes in how the program has been implemented since the study began, HUD staff provided helpful consultation for recommendations that were out of date or inapplicable. With that in mind, this report offers advice to HUD as it develops policies for RAD.

Improving Affordable Housing Preservation

Several stakeholders recommended the following changes to the RAD program to enable it to achieve its objective of preserving affordable housing by providing more resources—

- **Raise contract rents:** Several participants recommended that RAD use higher formula rents.[32] Higher rents would help projects with significant rehabilitation needs finance a bigger mortgage and fund greater reserves for replacement, making more projects feasible. Of course, any changes to the "budget-neutral" nature of the RAD program, such as raising contract rents, would require Congressional action.
- **Promote more "rent bundling":** One recommendation for raising RAD rents that does not require statutory action is for HUD to increase the use of rent bundling, through which projects mix higher affordable rents (for example, up to 120 percent of market rents) with Section 8 contract rents, producing a higher rent base. Rent bundling has been permitted by the RAD program since 2013 and was recently extended in the RAD Supplemental Notice published in 2018. HUD's Office of Recapitalization could provide additional educational materials, such as case studies with financial examples, showing how rent bundling is done and what effect it has both on the donating property or properties and the receiving property or properties.
- **Offer capital grants:** Another recommendation is for HUD to provide capital dollars to projects that are unable to meet their capital needs. Some participants noted that, unlike

[31] Our sample of RAD properties (the treatment group) had a high concentration of properties in the South (50 percent) because of the relative dominance of the South during the startup phase of RAD.

[32] One respondent suggested that raising RAD contract rents by $40 to $70 per unit per month would greatly increase the amount of rehabilitation that could be financed. Another suggested increasing contract rents for buildings with high concentrations of efficiencies and one-bedroom units, because those units have lower operating subsides under public housing.

HOPE VI, HUD does not provide RAD projects with a greater amount of resources. Of course, RAD projects can compete for grant funding through the Home Investment Partnership Program, Community Development Block Grant, and other sources, and they can get access to tax credit equity, which accounts for a large proportion of project financing under RAD. Even with these grant or grant-like funding sources, as noted by some observers, RAD projects may require deeper subsidies to meet all their capital needs. Without those subsidies, PHAs tend to carry out a shallow rehab or simply not participate at all in RAD. Of course, any capital funding would have to be authorized and appropriated by Congress.

- **Support LIHTC training:** An additional recommendation for increasing the amount of capital available for RAD repositioning is for HUD to expand its educational outreach to PHAs, addressing concerns about tax credits and how to mitigate or deal with the necessary realities of using tax credits. Many PHAs resist bringing tax credits into their projects for a variety of reasons, including loss of control, the complexity of the financial transactions, and high transaction costs. The advantages of projects in terms of increased level of rehabilitation and, in some cases, replacement with new construction are apparent.

This study found that rehab projects are generally able to reduce prior short-term capital needs after conversion to about the same level regardless of the depth of rehabilitation. After conversion, shallow rehab projects had short-term capital needs of $5,292 per unit and moderate-to-deep rehab projects had short-term capital needs of $4,242 per unit. The study did not conclude that RAD projects from the early years of the program are significantly under-investing in their rehabilitation needs. The study did find, however, that shallow rehab projects had higher critical needs ($256 per unit) compared with moderate-to-deep rehab projects ($10 per unit) or new construction projects ($31 per unit), which indicates that there may be some under-investment in shallow rehab projects. The research design used in this study was not able to address the question of whether these projects would have been more successful at improving their physical condition if they had had higher rents or more grants, or whether some projects are deterred from participating in RAD due to low rents and insufficient grant funds, as some stakeholders argue.

One project in our sample had difficulty meeting financial obligations, however, including covering debt service and funding reserves for replacement. Moreover, several PHAs that were interviewed expressed concern about the long-term viability of their projects due to low rents. Higher rents or grants could help these projects overcome their financial stress and alleviate the concerns of the PHAs. Over time, the Operating Cost Adjustment Factor (OCAF) could mitigate this problem but it may not be enough. At some point, HUD may need to identify tools for selectively assisting converted projects that are at risk, such as adjusting project rents to market levels or restructuring project debt.[33]

Improving Program and Project Management

Several recommendations were made to improve RAD's general program and project management—

[33] Like those used with PBRA projects in the past, namely, the Mark-to-Market program.

- **Improve long-term project oversight:** HUD should continue to support the working group recently established to study how to fill the gaps in long-term project oversight for PBV conversions. From the beginning, PHAs have had the option of choosing between PBV or PBRA Section 8 contracts for their conversions. PBV contracts are administered by PIH as part of the HCV program, which also includes tenant-based Section 8.[34] PIH monitors public housing projects but not HCV contracts (only HCV units). When a public housing project converts to PBV, it loses project-level monitoring. If the same project converted to PBRA, it would move from PIH project monitoring to Office of Multifamily Housing project monitoring. Both PBV and PBRA conversions need to be monitored at the project level to assess whether they are meeting standards of sound financial management. Without such oversight, HUD runs the risk that more of its RAD conversions could fall into disrepair and fail to cover their financial obligations, undermining the affordable housing preservation objective of the program.
- **Develop more integrated data:** HUD should consider creating a taskforce or working group dedicated to a PIH-Multifamily Housing data integration effort that would identify current data capabilities, define future data needs, and devise a feasible strategy for modifying or adapting those capabilities to better match those needs. So long as public housing and project-based Section 8 remain separate and distinct programs under the administration of different offices in HUD, the different data requirements of each program have little practical consequence. By crossing the boundaries between these organizations and programs, however, RAD conversions have exposed a need for HUD to integrate more of the project- and tenant-level data. Better integrated project-level data will support improved project oversight. In addition, HUD currently has difficulty tracking tenants who leave public housing and enter project-based Section 8 housing; their departure is an inevitable outcome of RAD. Better integrated tenant-level data will help fill this gap.
- **Provide technical assistance (TA) to PHAs:** Many PHAs and stakeholders recommended more training and preparation for PHA staff, boards, and residents covering the start of the RAD process and including post-conversion management. Specific types of TA that they recommended include support with preparation for public meetings the PHA holds to ensure that residents are aware of the changes and how they will be affected; providing board and staff with training; providing a consultant or lawyer—even a relocation consultant—who understands the process; providing good asset and property management software; and providing augmented resources through the RAD Resource Desk, including additional guidebooks, factsheets, training workshops, and other means. Many PHAs have found PBRA conversions challenging because of differences in software and billing procedures, putting a burden on the Office of Multifamily Housing staff to provide proper training in these new systems. TA to PHAs to support this transition would help and could also be used to cover other post-

[34] Under HCV rules, PIH manages tenant eligibility and contract funding but has minimal direct involvement with the projects themselves. In contrast, PBRA contracts are administered by the Office of Multifamily Housing as part of that office's general oversight of FHA-funded multifamily rental housing. The Office of Multifamily Housing has created the administrative infrastructure for monitoring PBRA projects; PIH does not have the same level of project oversight. As an example, the Office of Multifamily Housing requires that PBRA projects submit annual financial statements in a prescribed format that facilitates the monitoring of those projects.

conversion asset management topics that are new to many PHAs, such as how to manage replacement reserves.

- **Facilitate tenant relocation:** Several stakeholders recommended that HUD develop programmatic guidance, case studies, and other materials that lay out best practices in tenant relocation and related areas of the redevelopment process under RAD. Several stakeholders noted challenges with tenant relocation and the need for better sequencing of rehabilitation, demolition, new construction, and tenant moves. Specific recommendations included allowing PHAs to start moving tenants earlier, as needed, to avoid scheduling problems, such as those related to the start of the school year, and providing HUD staff with more training on logistics and potential complications of moving residents out of existing properties and into newly constructed buildings. Although there are several guidance documents related to tenant relocation, they are focused primarily on legal and regulatory constraints and procedures rather than practical advice.
- **Improve communication and transparency:** Several lenders and developers recommended more transparency in communications as properties move through the RAD conversion process. They argued for being included in more conference calls with HUD and others throughout conversion. One noted that PHAs had a portal at HUD where they could track the conversion process for their projects from the point when it receives a CHAP through completion of the RCC. They argued that giving lenders and developers access to such a portal for more real-time updates on their projects would help keep the closings on schedule. Currently, the RAD Resource Desk is flexible regarding who can be provided with access to a project's information. PHAs can provide access to their partners, including lenders. It may be that RAD could customize a "landing page" that is specific to lenders and investors, which would not include some of the more internal notes and discussions between the PHAs and HUD. In addition, there are monthly check-in calls originated by RAD's Readiness Transaction Managers, who are tasked with assisting the PHAs to prepare and submit their financing plans. PHAs can invite their lender and investor partners to participate in these calls.
- **Simplify the closing process:** To accelerate the closing process, several observers recommended that HUD standardize the RAD closing documents and adopt a process that is closer to that used for a regular Section 8 HAP contract, which can be closed using fewer steps. Another observer felt that the closing process could be improved by better coordination from HUD to avoid an unnecessary rush at the end, perhaps by using more closing coordinators so that each coordinator manages fewer ongoing closings. A few lenders commented on the need for HUD to align FHA's financial loan closing process more closely with the RAD conversion process when a project uses FHA financing. HUD has already instituted tighter alignment between FHA and RAD closings so this issue may have been addressed, however.

Introduction

This chapter provides an overview of the Rental Assistance Demonstration (RAD) program through October 31, 2018. HUD designed RAD to address the accumulated backlog of capital needs of the nation's public housing stock. RAD was established under the Consolidated and Further Continuing Appropriations Act of 2012 and amended five times, once in each fiscal year from 2014 through 2018. HUD developed administrative guidance for the RAD program and promulgated it as a set of notices, which were updated as the RAD Statute[35] was amended. The RAD program is summarized in the following based on a review of RAD program guidance and interviews with HUD offices involved in the program.[36] See appendix D for more detail on program design and requirements, the history of the RAD Statute and RAD Notice, and RAD resources.

HUD procured the services of Econometrica, Inc. and its subcontractors and consultants to conduct a multiyear evaluation in December 2013.[37] The evaluation design was approved by HUD in early 2014 when RAD was still statutorily limited to 60,000 units. The study design included a representative sample of 24 RAD projects (the treatment group) from a universe of 278 RAD projects and a matched sample of 48 non-RAD public housing projects (the control group). An additional sample of 19 RAD projects was selected for the analysis of resident effects.[38] After the Econometrica Team began data collection in 2014, Congress raised the statutory cap to 185,000 units. Congress has since continued to raise the statutory cap; it is currently at 455,000 units.

The Post-Conversion Experience with RAD chapter discusses the experiences of the sample of PHAs with RAD, with an emphasis on the time period after they completed RAD conversion. It also includes the experiences of external stakeholders, such as lenders and developers. The Physical Condition and Financial Performance chapters evaluate the physical and financial effects of RAD on the sample treatment group before and after RAD conversion and relative to the sample control group of public housing developments. The Effect on Tenants chapter describes how RAD has affected the public housing residents living in developments at the time of conversion under RAD based on a survey of a large sample of such residents. The Conclusion provides an overall conclusion to the report with recommendations.

[35] In this report, the establishing legislation and amendments are collectively referred to as the RAD Statute, and implementing guidance is collectively referred to as the RAD Notice.
[36] HUD staff interviewed included staff from the Office of Multifamily Housing's Office of Recapitalization and the Multifamily Branches of the Cleveland and Detroit Field Offices; the Office of Public and Indian Housing's Office of Field Operations, Office of Public Housing Voucher Programs, Office of Public Housing Investments (Office of Urban Revitalization and Special Applications Center), and Choice Neighborhoods; and the Office of Fair Housing and Equal Opportunity.
[37] RAD's authorizing legislation required HUD to evaluate the RAD program to "assess and publish findings regarding the impact of the conversion of assistance under the demonstration on the preservation and improvement of public housing, the amount of private sector leveraging as a result of such conversion, and the effect of such conversion on tenants." Consolidated and Further Continuing Appropriations Act of 2012. Public Law 112–55, November 18, 2011.
[38] See appendix C for a list of these three samples.

RAD Program Summary

The RAD Statute is intended to stem the potential loss of public housing and other subsidized housing units due to the growing backlog of unfunded capital needs. The program allows for the conversion of public housing properties to one of two forms of project-based Section 8 Housing Assistance Payments (HAP) contracts:[39] a project-based voucher (PBV)[40] or project-based rental assistance (PBRA).[41] The option to convert provides public housing authorities (PHAs) with more flexibility to access private and public funding sources and to augment insufficient direct appropriations.[42] The expectation is that by providing a predictable, long-term annual funding stream, Section 8 HAP contracts can be used by PHAs to leverage external sources of capital (private and public) to pay the rehabilitation or redevelopment costs of RAD projects. RAD also supports the goals and objectives of both the *HUD 2014–2018 Strategic Plan* and *HUD 2018–2022 Strategic Plan* by improving long-term affordable housing options, preserving high-quality affordable rental housing where it is needed most, simplifying the delivery of HUD's rental housing programs, and more closely aligning them with one another.

The RAD program has two components. The first—Public Housing and Section 8 moderate rehabilitation housing (Mod Rehab; excluding single-room occupancy dwellings), or "RAD Public Housing"—allows up to 455,000 units (the original cap was 60,000 units) of public housing and Section 8 Mod Rehab properties to convert to project-based Section 8 HAP contracts following an application and review process.[43] The second component, or "RAD 2," permits the conversion of properties supported through Rent Supplement (Rent Supp), Rental Assistance Payment (RAP), Section 8 Mod Rehab, McKinney-Vento Single Room Occupancy, and Section 202 Project Rental Assistance Contracts to project-based Section 8 HAP contracts. This evaluation focuses exclusively on the effects of the conversion of public housing units and

[39] A HAP contract is the legal agreement between a project's ownership entity and either HUD or the PHA that manages the vouchers. The HAP contract specifies the number and bedroom count of units covered at the property and the terms and procedures by which subsidy payments are made to the property.

[40] PBVs are Section 8 vouchers attached to specific housing units and administered as part of a public housing authority's (PHA) Housing Choice Voucher (HCV) program. Under the PBV program, a PHA enters into an assistance contract with the project owner for a specified number of units and a specified length of time. The project owner could be the PHA, a limited liability company (LLC), or a general partnership. Typically, the PHA refers families to the project owner to fill vacancies. Because PBV assistance is tied to the unit, when a family moves from the project-based unit, the assistance remains with the unit. In contrast, HCV assistance is portable and can be used at any qualified available unit in the PHA's jurisdiction.

[41] PBRA contracts are attached to specific housing units. The contract is directly between HUD and the project owner; the PHA is not a party to the contract unless it is the project owner or a member of the project ownership entity.

[42] For RAD conversions, the HAP for PBV is typically a 15-year contract and the HAP for PBRA is typically a 20-year contract, although PHAs can extend the PBV contract term to up to 20 years. In addition to having long-term funding commitments from HUD, these contracts receive an Operating Cost Adjustment Factor (OCAF), which is a percentage increase in contract rents applied on a yearly basis, as established by HUD and published annually in the Federal Register. HAPs for both PBV and PBRA conversions also have a required renewal at contract expiration.

[43] This evaluation focuses on public housing units. Mod Rehab projects converted to RAD under the first component, covering 410 units, will not be examined in this report. Mod Rehab units also convert under the second component; all Mod Rehab units converting after publication of the second revision of the RAD Notice do so under the second component.

does *not* include RAD 2 conversions or Mod Rehab projects that were in the first component of RAD.

Since the RAD program was established in 2012, HUD has issued new and revised guidance to help implement the program more effectively and reduce the regulatory burden on conversions. This guidance includes waivers that streamline the conversion process while protecting tenant rights and services. In addition, Congress has also modified the RAD program, most notably by increasing the unit cap—that is, the maximum number of public housing units allowed to convert through the RAD program—and expanding the range of projects eligible for RAD conversion.

As of October 31, 2018, the RAD program is governed by the RAD Statute, as authorized and amended by Congress (most recently in March 2018), and by the RAD Notice, Third Revision (HUD Notice PIH-2012-32 (HA) H-2017-03, REV-3, issued on January 12, 2017);[44] the Fair Housing, Civil Rights, and Relocation Notice (HUD Notice H 2016-17 PIH 2016-17 (HA), issued November 10, 2016); and the supplemental guidance in HUD Notice PIH-2018-11, H-2018-05, issued on July 2, 2018, and Federal Register Notice FR–6105–N–01, published on July 3, 2018.[45] The full legislative and regulatory history is described in appendix D.

Congress authorized the RAD program without providing additional appropriations; as a result, HUD is implementing RAD as budget-neutral.[46] The lack of incremental funds for RAD is consistent with the program's design, which is to provide a sustainable form of affordable housing by enabling public housing properties to access more flexible private funding sources to cover the short- and long-term capital needs of the properties that convert to Section 8. RAD for public housing (Component 1) was designed to test whether the conversion of public housing to project-based Section 8 enables PHAs to preserve and improve that housing better than the current funding system. The goals of RAD are to keep properties affordable and in good condition, protect tenant rights, enhance opportunities for tenant mobility, and maintain public or nonprofit ownership.

RAD allows HUD to convert public housing properties from conventional public housing support (Section 9) to an assisted housing approach that uses Section 8 PBV or PBRA as the long-term source of federal project subsidy. The ongoing Section 8 subsidy to the properties is calculated based on the total amount of the capital and operating subsidies that the public housing program provides to each property, subsequently adjusted by an annual OCAF.[47] There

[44] As of October 31, 2018, there are two versions of the RAD Notice, Third Revision. The more recent version has the footer "As amended by PIH-2018-11/H-2018-05 Rental Assistance Demonstration (RAD)—Supplemental Guidance" on each page and includes other changes and clarifications beyond the supplemental guidance issued in July 2018.

[45] Both the RAD Statute and the RAD Notice can be found at https://www.hud.gov/RAD/library/notices, along with other RAD guidance and tools.

[46] The initial RAD contract rents are established by adding together the base-year public housing operating subsidy, base-year capital funding, and tenant contributions so that the total subsidy cost is the same after conversion to RAD as it was before conversion. Future subsidies through the project-based Section 8 HAP contracts are funded by a transfer from the HUD Section 9 public housing budget to the HUD Section 8 budget.

[47] Capital and operating subsidies are the two streams of funding provided to PHAs to assist with making capital improvements and subsidize the management operations of public housing units. Capital funding is allocated based on the age, size, and estimated capital needs of each property; operating funds are based on the PHA's approved budget, reduced by the amount paid by the tenants.

are no additional subsidy dollars provided to projects by HUD under RAD. By leveraging their projects' PBV or PBRA subsidies after conversion, however, PHAs can finance debt and access other external funds, which could include grants and equity investment through Low-Income Housing Tax Credit (LIHTC) and other tax incentive programs. PHAs can then use those funds, in conjunction with internal resources, such as "soft loans," to recapitalize and renovate or redevelop their projects.

Participation in RAD is voluntary. Properties that convert to project-based Section 8 assistance are subject to long-term rental assistance contracts and use restrictions that survive any disposition of the property, including foreclosure or bankruptcy. RAD project-based Section 8 contracts also require properties to be owned or controlled by public or nonprofit entities, or, if LIHTCs are used, the PHA must demonstrate adequate control of the property, which is owned by a limited liability company (LLC) or limited partnership (LP) as required by the tax structuring associated with LIHTC.

The remainder of this chapter describes the RAD program; differences between the program at the time of Econometrica's evaluation sample (around the end of December 2014) and as it was being administered on October 31, 2018; and results through October 31, 2018, for RAD conversions of public housing.

How RAD Works

This section describes the fundamentals of the RAD program, including what PHAs use it for, project financing, rent setting, the application and conversions processes, withdrawn and revoked Commitment to Enter into a Housing Assistance Payment (CHAPs), and post-closing.

What PHAs Do with RAD

The RAD program gives PHAs significant flexibility to reposition their public housing properties. In the application, PHAs must demonstrate an approach that provides for the preservation of the property for the life of the Section 8 HAP contract and follows the RAD requirements (for example, tenants' right to return). Within those parameters, RAD permits access to a variety of approaches to the RAD conversion, including the following—

- **Capital repairs with debt only:** If the financial analysis demonstrates that the project can support the proposed amount of debt while meeting its capital needs, then a PHA can pursue a debt-only RAD conversion. The debt can be either conventional or Federal Housing Administration (FHA)-insured.
- **Capital repairs, or demolition and new construction, with debt and tax credit equity:** If debt alone is insufficient to meet the capital needs, or if the PHA is pursuing extensive rehabilitation or redevelopment, then the PHA's approach can include tax credit equity through either tax-exempt financing and 4-percent LIHTCs or competitive 9-percent LIHTCs.
- **Conversion to achieve financial stability** (sometimes referred to as "paper" or nonconstruction conversions when there is little or no physical construction): When the financial analysis demonstrates that the post-RAD conversion property will accumulate sufficient reserves to meet its capital needs, the PHA can complete the RAD conversion

without using debt financing or tax credit equity. This is an important option for properties that have recently undergone repairs but are at risk of falling into disrepair without a commitment of ongoing resources for future capital repairs and replacement.

- **Transfer of rental assistance:** PHAs can propose to use RAD for a given property and then transfer the RAD project-based Section 8 assistance to a different project. This option is important for properties that are not appropriately situated for long-term use. An example is a project located in a 100-year flood plain, in which the RAD conversion would not provide enough capital funding to demolish and rebuild the property in a different location. In this case, the PHA can acquire and, if necessary, rehabilitate an existing property and then transfer the RAD vouchers to that property. HUD will assess that the transfer does not occur in neighborhoods with highly concentrated poverty based on the criteria formulated for transfers under Section 8(bb) of the U.S. Housing Act of 1937,[48] and that the project meets the requirements of Section 5.5 of the RAD Fair Housing, Civil Rights, and Relocation Notice (Notice H 2016-17/PIH 2016-17 (HA).

PHAs can include multiple properties in one RAD application, which is helpful for planning purposes as PHAs seek to rebalance their portfolios or participate in larger redevelopment efforts. PHAs can also apply to convert all public housing units in a "Portfolio Application." A portfolio conversion will effectively remove a PHA from HUD's public housing program, as all its public housing units will convert to PBV or PBRA. Typically, for PBV portfolio conversions, PHAs with existing voucher programs will retain management of the converted units as a voucher-only PHA, while PHAs without voucher programs will convert to a voucher-only PHA or transfer the new voucher authority to another PHA.[49] PBRA is administered by the project's owner, not the PHA, so a PBRA portfolio conversion would only require the PHA to administer vouchers if the PHA retained an ownership role in the PBRA project. Regardless of ownership, PHAs must provide Choice Mobility vouchers or work with another PHA to provide such vouchers if eligible tenants request them unless granted a waiver by HUD; see the Resident Protection and Rights section in this chapter.

Phased conversions allow PHAs to reserve conversion authority for future phases of the project. This allows a conversion to proceed in phases without the PHA having to re-apply after the first phase is complete. Units in future phases are included under the statutory cap. Portfolio applications can also be multiphase applications.

RAD Financing

Through RAD, Congress has authorized HUD to convert public housing properties to an assisted housing approach that uses Section 8 PBVs or PBRAs as the long-term source of federal project subsidy. The properties are supported by a long-term Section 8 HAP contract, which can be leveraged to finance debt. PHAs can also use other external funds, grants, LIHTCs, and internal PHA resources to recapitalize and renovate or redevelop projects. PHAs that apply to RAD can

[48] Section VIII B.1 of H-2015-03, "Transferring Budget Authority of Project-Based Section 8 Housing Assistance Payments Contract under Section 8(bb)(1) of the United States Housing Act."
[49] PHAs without an existing voucher program must identify the entity that will administer the new vouchers before approval for the RAD conversion. PHAs that convert to RAD and transfer all voucher authority do not necessarily disappear, as they may continue to manage other affordable housing programs outside of public housing and HCVs.

use a wide range of options to finance the rehabilitation of their projects, and they are encouraged to explore new alternatives. Examples of possible financing options include the following (listed in order from greatest to smallest contribution)—

- Investor equity financed by the private sector and primarily subsidized through the 4-percent or 9-percent LIHTC programs,[50] which provide a tax credit that private investors earn in return for providing funds to build or renovate low-income housing, as well as through other tax credit programs, such as New Markets Tax Credits, historic preservation tax credits, and state tax credits.
- Seller take-back financing, which is typically part of an LIHTC transaction, where the PHA lends the value of the property transferred to the new ownership entity back to the new ownership entity.
- Mortgage debt financing at a fixed rate and for a fixed term through public or private lenders. This includes FHA-insured mortgage loan financing and non-FHA risk-sharing programs offered through state agencies, Fannie Mae, or Freddie Mac.
- Other forms of debt, including soft loans or "cashflow" loans, usually provided by the PHA or state or local governments.
- Public Housing Capital Funds, Replacement Housing Factor (RHF) funds, Demolition Disposition Transition Funding (DDTF),[51] and/or unobligated Capital Funds that are a part of a PHA's available public housing funding.
- Public Housing Operating Reserves (funds accumulated through the operation of public housing).
- Other PHA-controlled funds, including cash on hand and proceeds from prior real estate development activities such as the disposition of public housing properties or developer fees.
- Deferred developer fees (the portion of the developer fee that is not payable before occupancy).
- Different forms of grant funding or soft loans, including HOME Investment Partnership Program, Community Development Block Grant (CDBG), and Affordable Housing Program (AHP) grants through the Federal Home Loan Banks.

Determining RAD Rents

RAD rents are critical to the viability of a RAD conversion and debt financing. RAD rents are calculated based on the formula in the RAD Notice in effect at the time of the Commitment to Enter into a Housing Assistance Payment (CHAP) award, with PHAs having some flexibility to

[50] The Tax Cuts and Jobs Act of 2017 will affect the demand for LIHTCs, but the extent of the effect is currently unclear and may be mitigated through additional legislation or modifications to state-level tax credit programs. The indirect effect on future RAD conversions is also unclear and assessing such effect is beyond the scope and timeframe of this evaluation.

[51] RHF and DDTF are used interchangeably in this report, since RHF is transitioning to DDTF and in the future will be collectively referred to as DDTF. Some RAD projects have used RHF funds, which are provided in two 5-year increments. More recent RAD projects will only be able to use DDTF from the outset, which are limited to 5 years.

adjust the rents. RAD rents are finalized in the HAP contract and increase annually based on HUD's OCAF. The history of RAD rents and details of the formula are included in appendix D.

All RAD applications, including applications for portfolio or multiphase awards, have initial contract rents based on the project's subsidy under the public housing program during its "RAD rent base year." The project's subsidy is the sum of its operating and capital funding plus any adjusted formula income under the Operating Fund program. For the most part, the base year rents are adjusted annually by a HUD-established OCAF. RAD rents are subject to various rent caps, such as Rent Reasonableness, 110 percent of fair market rents (FMRs) for PBV, and 120 percent of FMRs for PBRA. PBRA contract rents are not affected by Rent Reasonableness.

PHAs have multiple options to adjust RAD rents. Moving to Work (MTW) agencies may supplement their initial RAD rents using fungibility of their MTW block grant, which requires an approved change to the PHA's MTW Plan. PHAs converting multiple projects may adjust RAD rents through "rent bundling," where rent adjustments in one project are offset by adjustments in another converting project. PHAs can also use future RHF or DDTF to offset an increase in RAD rents, and they can make adjustments to rents based on documented expected utility savings due to "green" construction measures and appliances.[52] Finally, if the PHA received a CHAP or is scheduled to close around the same time as a change in the RAD Statute or the RAD Notice, the PHA can petition HUD to change the version of the Statute or Notice under which its RAD rents are calculated.[53] HUD determines whether to agree to this petition.

Resident Protections and Rights

The RAD program includes significant protections and mobility rights for public housing residents. These protections were put in place during the design of the RAD program to ensure that current residents benefit from the RAD conversion. As part of these protections, RAD requires that PHAs adhere to specific guidelines regarding communication with residents and any disruptions in tenants' ability to occupy their unit during the RAD conversion and associated construction or rehabilitation. Choice Mobility provides preferences for a housing voucher to residents of RAD conversions.

PHAs must engage with residents at various stages of the RAD conversion process, beginning with pre-application planning. Two meetings must be held with residents affected by the possible RAD conversion before the submission of the RAD application, and the PHA must also send a RAD Information Notice (RIN) to all residents. The resident meeting should address the PHA's intentions with the RAD conversion, any changes in unit configuration or location, RAD partners, and the scope of work for any construction or rehabilitation related to the RAD conversion. The RIN must convey residents' rights in connection with the proposed conversion.

[52] HUD prefers that projects convert with the utility allowance rates at the time of conversion and that PHAs apply for changes based on energy cost savings 1 year after rehabilitation or construction is completed. For new construction, a third-party report may be needed to support tenant utility rates, unless the PHA will be using its voucher program rates (PBV only).

[53] As of July 2, 2018, PHAs can withdraw an existing CHAP and request a new CHAP within 1 month without submitting a new RAD application in order to obtain the new Modified 2016 Contract Rents. Provided that HUD has authority to issue the new CHAP under the 455,000-unit statutory cap, the new CHAP will establish RAD rents using the RAD rent base year corresponding to the issue date of the new CHAP. Except for the rents, this action leaves all other terms (for example, milestone dates, conversion status) the same as before the swap.

Resident questions and the PHA's required responses to them are required in the RAD application. The PHA also must describe the RAD plans in its annual plan or a significant amendment to its plan, both of which are subject to consultation with the PHA's Resident Advisory Board and a public review and comment process. After a CHAP is issued, the PHA must hold at least one more resident meeting and communicate the status of the RAD conversion and effects of the conversion and related construction or rehabilitation to all affected residents.

Throughout the conversion process, tenants retain almost all their rights as public housing residents and retain access to their affordable unit. Notably, tenants cannot be rescreened as properties convert or as temporarily relocated residents return to the property. Tenants will continue to pay no more than 30 percent of their adjusted income for rent, although there are provisions for rent increases below the 30-percent threshold. Although tenants will be assisted by the Section 8 program after conversion, they retain the grievance and organizing rights and access to other programs given to public housing residents.

In all RAD conversions that involve any displacement of residents, those residents have a "right to return," either to the same unit or to an equivalent or larger unit in the replacement building.[54] If relocation is required, the PHA must follow RAD requirements designed to ensure that residents are not relocated prematurely (for example, before the RAD conversion is reasonably assured to take place) or for unnecessarily long periods, that residents' decisions are informed and voluntary, and that residents receive information regarding their relocation in excess of that required under the Uniform Relocation Act (URA).

Finally, residents have a new right under RAD called Choice Mobility, which was established in 2012.[55] All properties that convert assistance must provide residents the choice to move with continuing tenant-based rental assistance within a reasonable time after conversion, which is 1 year if the project converts to PBV and 2 years if the project converts to PBRA.[56] Choice Mobility does not mean that a voucher will be received immediately upon request; rather, the household is placed at the top of the authority's HCV waiting list and will receive a voucher when one becomes available.

Application Process

Before applying for RAD, the PHA must determine its initial goals for the RAD conversion and identify potential and available resources for meeting its goals. The planning begins with identifying projects for conversion, which includes considering whether to convert some or all the PHA's portfolio (a portfolio application) and whether the PHA would like to proceed with conversion in phases (a multiphase application). As discussed in the previous section, PHAs will need to communicate with residents regarding the RAD conversion prior to application, including through publication of the RIN and holding at least two resident meetings.

[54] Unit sizes and configurations may change as part of the RAD conversion, but the right to return requires that the resident return to a unit at least the same size by bedroom count as the original unit.
[55] HUD issued the first RAD Notice PIH-2012-18 (HA) on March 8, 2012.
[56] There are a limited number of good-cause exceptions for PHAs with insufficient vouchers to support this housing option.

HUD has simplified the RAD application[57] while adjusting to the demand for RAD and statutory changes to the program, notably its expansion from the original statutory cap of 60,000 units to 455,000 units. As of October 31, 2018, HUD is in the middle of the third RAD application period and has cleared its waitlist (a waitlist will be re-established once the 455,000-unit cap is met).

Although a complete financing plan is not required for the RAD application, the PHA should assess its funding needs and sources to determine whether the RAD conversion will leverage enough funding to preserve the converted units. The PHA should also consider requirements, competitiveness, and timelines for other funding sources—most notably LIHTCs, some of which are competitive and have an award cycle that needs to be synchronized with the RAD process to avoid delays—and think about contingencies in case an application for a specific project is waitlisted or a funding source falls through. PHAs must submit a complete financing plan before conversion (see the next section).

Similarly, while a complete physical condition assessment (PCA) or capital needs assessment (CNA) is not required for the RAD application, each is a useful planning tool and is usually provided. The PCA identifies capital needs to be addressed by the RAD conversion and can reveal additional needs and costs through a professional inspection of the property. PHAs must complete a PCA or CNA using the CNA e-tool before or in conjunction with the financing plan; the PCA or CNA helps the PHA decide the project's future capital needs and how they will be addressed.

Finally, the PHA will need to make a preliminary election between PBV and PBRA; and, for PBV conversions, determine how it will manage the new vouchers. The choice of PBV versus PBRA is fundamental to the management of the project and units following RAD conversion, so the preliminary election is reviewed, and in some cases, changed, before closing. In brief, a PHA controls PBVs, which are treated as HCV contracts and are administered through the Office of Public and Indian Housing (PIH), whereas PBRAs are provided to the project owner and administered by HUD's Office of Multifamily Housing, which is part of the Office of Housing. In both cases, the subsidy is tied to specific units and does not move with tenant households. Both PBVs and PBRAs are similar in design, but they are separate programs governed by separate regulations. Each has different administrative requirements as part of the RAD conversion; for example, the environmental report requirements and approval processes differ between the two programs, and PBRA conversions require the submittal of an Affirmative Fair Housing Marketing Plan, which is not required under PBV.

Conversion Process

After the PHA receives a CHAP, they navigate through the RAD conversion process, which includes the finalization of financing (and completion of a financing plan) and the implementation of administrative changes necessary to complete the conversion to PBV or PBRA. HUD has developed a RAD conversion schedule for nonconstruction or debt-only transactions designed to complete closing and issue a HAP within 1 year of receipt of the CHAP award. For tax credit projects and FHA-insurance projects, the timelines of those processes govern the conversion, although PCAs should be completed in all cases within 180 days. Also,

[57] The RAD application and related materials are available at https://www.hud.gov/RAD/application-materials.

the complexity of many RAD projects can lead to delays, some of which are independent of HUD or the PHA, such as receiving an LIHTC award.

The RAD project should close, and a HAP contract should be executed within 90 days of the issuance of the RAD Conversion Commitment (RCC). The RCC sets out the requirements for PHAs to prepare to close a RAD project. These preclosing requirements include completing closing checklists and submitting a closing package to HUD for review and approval before closing. Other programs or funding sources may have their own preclosing and closing requirements (for example, those listed in the Multifamily Accelerated Processing Guide for FHA-insured projects). Typically, any delays at this point in the conversion process revolve around finalization of financial arrangements and the timing of funding awards. In some cases, closing—which is when all documents completing the conversion are executed—occurs within 1 week of the RCC, while in other cases there can be a significant gap (at least 3 months) between the RCC and closing.

Withdrawn and Revoked CHAPs

When HUD determines that a PHA cannot carry out a RAD conversion or is ineligible, it revokes the CHAP. For example, projects that execute an RCC but fail to close in a timely manner may not be capable of completing the conversion, thus, HUD will work with the PHA to identify the barrier to closing and, if it is insurmountable, HUD will revoke the CHAP. After revocation, the RAD conversion is canceled, and the PHA must re-apply to the RAD program if it wishes to pursue that project again.

PHAs can withdraw from the CHAP, either to abandon the RAD conversion or to modify the RAD project. Typically, a change in the scope of the project (for example, changing the number of units being converted or combining multiple projects into one conversion) will lead to withdrawal and re-issuance of a CHAP.[58] PHAs are not required to submit an explanation for a withdrawal.

Post-Closing

Administratively, the PHA must amend its annual and 5-year plans before closing to reflect the proposed RAD conversion. The PHA will carry out a series of steps to prepare the units to leave the public housing program. Of note, PHAs will need to terminate public housing leases and replace them with Section 8 leases, which involves communicating the changes to residents per HUD regulations and local laws. PHAs will also have to manage their Operating and Capital Funds. They must set aside the necessary subsidies within the PHA's current "year of closing" budgets so that they are available for payment of HAP vouchers during the balance of the year of closing. This is identified in the "Initial Year of Funding tool," which is one of the financing plan submittal documents. (See section 1.13 of the RAD Notice for details.)

At the RAD closing, the HAP contract is executed[59] and other HUD offices assume the function of program oversight and monitoring. The PHA can begin RAD-related construction (if

[58] As of July 2, 2018, PHAs can also voluntarily withdraw a CHAP and request a new one to change the RAD rent base year.

[59] The HAP contract may include delays, such as for a new construction project where tenants remain in public housing until the project is ready for occupancy.

applicable) after closing and in accordance with its resident relocation plan. Following the terms of the HAP contract, payments to the PHA will shift from the capital and operating fund accounts to either PBV or PBRA accounts after the year of conversion. The PHA or ownership entity is responsible for completing any construction activities and certifying that construction is complete, conforming to the requirements of other funding sources, making any debt payments on the terms prescribed in loan agreements, and preserving the converted units as affordable housing. Following RAD closing, the units are governed by the PBV or PBRA program regulations. PHAs (or designated post-closing entities) will also have to manage Choice Mobility following RAD closing.

Analysis of RAD Data

Table 16 presents key differences between the RAD Program in December 2014 and October 2018. A description of the RAD program's historical changes is included in appendix D. These programmatic differences are important for this report because the October 2018 column describes how the RAD program currently operates, whereas the December 2014 column describes how the RAD program operated at the time this evaluation began and when the first study samples were drawn. The program summary described earlier and the analysis of data in the remainder of this chapter are based on the RAD program as implemented on October 31, 2018. The analysis presented in later chapters is based on a sample of RAD projects that were selected during the December 2014 timeframe.

Table 16. RAD Program Characteristics: December 2014 and October 2018

RAD Program Characteristics	December 2014: Program When RAD Samples Were Chosen	October 2018: Current Program
Statutory Unit Cap	60,000 units In December 2014, HUD had reached the statutory cap and established a waitlist.	455,000 units In October 2018, HUD was below the statutory cap and awarded CHAPs directly (no waitlist).
Number of Projects	220 active projects 125 closed projects 14 revoked CHAPs	597 active projects 956 closed projects 69 revoked CHAPs
Application Requirements	A RAD application required financial pro formas, sources and uses, and a RAD PCA.	RAD applications are streamlined; financial documents and a CNA are not required until after CHAP award.
Selection Criteria	No priority categories or ranking factors; competing on a first-come, first served basis.	Two priority categories: (1) high investment applications, and (2) all other applications, portfolio awards and, multiphase awards.
RAD Rents	Based on fiscal year 2012 funding levels.	Modified 2016 Contract Rents (see RAD rents discussion described earlier and in appendix D).
Conversion Process	6 milestones and strict deadlines.	3 milestones and more flexible deadlines; better synchronization with other funding source cycles.
Tenant Protections	As provided in the RAD Notice, First Revision.	Additional protections and clarifications, including the RIN and no rescreening of tenants upon conversion.

RAD Program Characteristics	December 2014: Program When RAD Samples Were Chosen	October 2018: Current Program
Fair Housing, Civil Rights, and Relocation	The burden is on the PHA to research and ensure conformation with existing laws and regulations.	HUD published guidance that includes a listing of applicable regulations and provisions.

CHAP = Commitment to Enter into a Housing Assistance Payment. CNA = capital needs assessment. PCA = physical condition assessment. PHA = public housing authority.

The program results presented—including those related to participation, type of conversion, financing, and effect on the public housing stock through October 31, 2018—are based on HUD program data.[60]

RAD Program Description

Through October 31, 2018, the RAD program closed RAD transactions covering 956 projects and 103,268 units. An additional 71,191 units and 597 projects were active CHAPs (Table 17). Not shown in that table, HUD has also reserved RAD authority for 21,485 additional units for multiphase and portfolio conversions. HUD has also revoked 69 CHAPs covering 8,563 units; 39 of the revocations covering 4,727 units were for expired RCCs.

Table 17. RAD Participation by Census Region

Region	Active CHAPs	Closed CHAPs	Total
Northeast	38 PHAs 80 projects 11,307 units	62 PHAs 140 projects 17,533 units	85 PHAs 220 projects 28,840 units
Midwest	36 PHAs 130 projects 19,171 units	52 PHAs 136 projects 15,714 units	73 PHAs 266 projects 34,885 units
South	93 PHAs 297 projects 33,622 units	154 PHAs 526 projects 58,619 units	198 PHAs 823 projects 92,241 units
West	28 PHAs 90 projects 7,091 units	41 PHAs 154 projects 11,402 units	53 PHAs 244 projects 18,493 units
All Regions	195 PHAs 597 projects 71,191 units	309 PHAs 956 projects 103,268 units	409 PHAs 1,553 projects 174,459 units

CHAP = Commitment to Enter into a Housing Assistance Payment. PHA = public housing authority.
Notes: See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: RAD data for active and closed projects through October 31, 2018. Some PHAs have both active and closed CHAPs, so the total number of PHAs differs from the sum.

[60] The primary data sources for the program analysis are three tracking spreadsheets provided by HUD. The first compiles statistics on all active and closed projects, the second consists of a breakdown of funding sources for all closed RAD transactions, and the third lists withdrawn and revoked CHAPs. Econometrica also used a PIH Information Center data extract from January 2015 to approximate the public housing universe before RAD. HUD provided additional data and clarifications, as needed. Up-to-date statistics on the RAD program are available on the RAD Resource Desk at http://radresource.net/index.cfm.

Overall, the South has been the most active region in terms of the number of PHAs, active and closed projects, and units converting under RAD. RAD participation in the Northeast, Midwest, and West are similar in terms of the number of projects. The West has fewer PHAs participating in RAD, but it has fewer PHAs overall (approximately 7 percent of all PHAs are in the West).

PHA size affects the capacity to carry out a complex RAD conversion (Table 18).[61] Small PHAs, by definition, have fewer units and fewer projects than medium and large PHAs, so even though about the same number of small and medium PHAs are participating in RAD, larger PHAs have more projects and are converting more units. Small PHAs represent 40.1 percent of PHAs participating in RAD but only 12.8 percent of the RAD units. Large PHAs are 16.5 percent of the RAD population but represent 54.8 percent of RAD units. Medium PHAs are 43.4 percent of the RAD population but represent 32.4 percent of RAD units.

Table 18. RAD Participation by PHA Size

PHA Size	Active CHAPs	Closed CHAPs	Number of Total CHAPS	Percent of Total CHAPS (%)
Small	60 PHAs 86 projects 9,470 units	124 PHAs 145 projects 12,896 units	175 PHAs 231 projects 22,366 units	40.1 14.9 12.8
Medium	80 PHAs 171 projects 17,640 units	134 PHAs 366 projects 38,874 units	168 PHAs 537 projects 56,514 units	43.4 34.6 32.4
Large	55 PHAs 340 projects 44,081 units	51 PHAs 445 projects 51,498 units	66 PHAs 785 projects 95,579 units	16.5 50.5 54.8
All Sizes	195 PHAs 597 projects 71,191 units	309 PHAs 956 projects 103,268 units	409 PHAs 1,553 projects 174,459 units	100.0 100.0 100.0

CHAP = Commitment to Enter into a Housing Assistance Payment. PHA = public housing authority.
Source: RAD data for active and closed projects through October 31, 2018. Some PHAs have both active and closed CHAPs, so the total number of PHAs differs from the sum.

RAD's Effect on the Public Housing Program Inventory

Units that convert under RAD are removed from the public housing program. As such, the growth of RAD has led to a corresponding shrinkage in the total number of public housing units. Econometrica used a PIH Information Center (PIC) data extract from January 2015 as a baseline. These data were also used to select the sample used for the in-depth analysis in other chapters.

Table 19 shows high relative use of RAD in the South, where 14.5 percent of public housing units have converted since January 2015. Table 19 also shows strong participation in the west with 12.2 percent of units converted, although from a much smaller initial pool than the other three regions. In total, 9.6 percent of units have converted since the January 2015 baseline.

[61] Following HUD's definition, large PHAs have 1,250 units and greater, medium PHAs have 250 to 1,249 units, and small PHAs have fewer than 250 units of public housing.

Table 19. Public Housing and RAD Units by Census Region

Census Region	Public Housing Units in January 2015	Converted Units as of October 31, 2018	Percent of Public Housing Units Converted to RAD (%)
Northeast[62]	368,283	17,533	4.8
Midwest	214,445	15,714	7.3
South	403,349	58,619	14.5
West	93,791	11,402	12.2
Total	**1,079,868**	**103,268**	**9.6**

Note: See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Sources: RAD data for active and closed projects through October 31, 2018; PIC data extract from January 2015

Table 20 echoes the trend of medium and large PHAs converting a larger percentage of units than small PHAs. The lower conversion rate for small PHAs is a function of the lower number of units in the participating PHAs and possibly the capacity constraints for small PHAs compared to medium and large PHAs.

Table 20. Public Housing and RAD Units by PHA Size

PHA Size	Public Housing Units in January 2015	Converted Units as of October 31, 2018	Percent of Public Housing Units Converted to RAD
Small	211,324	12,896	6.1%
Medium	312,676	38,874	12.4%
Large	555,868	51,498	9.3%
Total	**1,079,868**	**103,268**	**9.6%**

PHA = public housing authority.
Source: RAD data for active and closed projects through October 31, 2018; PIC data extract from January 2015.

As of October 31, 2018, 195,944 units are covered by the RAD program (converted units, those under active CHAPs, and those reserved for multiphase or portfolio conversions), and the statutory cap is 455,000 units. These two numbers represent 18.1 percent (for units covered) and 42.1 percent (for statutory cap units) of the public housing program stock in January 2015, respectively.

Characteristics of RAD Conversions

Because some aspects of a RAD conversion can change before closing, the following analyses focus on closed RAD transactions, unless otherwise noted.

The choice between PBRA and PBV is fundamental in the RAD conversion process. Although more than one-third of closed RAD transactions have used PBRA, they covered 42 percent of RAD units (Table 21). Broken down by PHA size, small PHAs choose PBV as often as PBRA

[62] The Northeast region includes the New York City Housing Authority (NYCHA), the largest PHA in the country. In January 2015, NYCHA administered 176,439 units of public housing and was not participating in RAD. As of October 31, 2018, NYCHA had one closed RAD transaction and three active CHAPs. Excluding NYCHA, there is a base of 191,844 units in the Northeast, 16,140 converted units, and an 8.4-percent conversion rate.

and have converted about the same number of units under each subsidy type. Medium and large PHAs are much closer to the overall PBRA to PBV ratio in terms of the number of projects.

Table 21. RAD Projects by Subsidy Type and PHA Size

Subsidy Type by PHA Size	Number of Closed CHAPs	Percentage of Closed CHAPs (%)	Number of Converted Units	Percentage of Converted Units (%)
PBRA	**361**	**37.8**	**43,419**	**42.0**
Small	72	7.5	6,751	6.5
Medium	128	13.4	14,386	13.9
Large	161	16.8	22,282	21.6
PBV	**595**	**62.2**	**59,849**	**58.0**
Small	73	7.6	6,145	6.0
Medium	238	24.9	24,488	23.7
Large	284	29.7	29,216	28.3

CHAP = Commitment to Enter into a Housing Assistance Payment. PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Source: RAD program data through October 31, 2018

RAD conversions can facilitate the rehabilitation of existing affordable units, the construction of new affordable units, or the financial repositioning of existing units without construction activities (referred to as nonconstruction, or paper, conversions). Econometrica grouped the 956 closed CHAPs into three categories[63]—

- **Conversion with rehabilitation:** Some or all financing is used for rehabilitation of existing units (indicated by positive construction costs and no new construction).
- **Conversion with new construction:** The conversion includes the construction of new affordable units (indicated by a new construction flag in the data).
- **Nonconstruction (or paper) conversion:**[64] The conversion has minimal construction (usually indicated by no construction costs and no new construction).

Table 22 shows most RAD projects are conversions with rehabilitation; this holds across PHA size, region, and subsidy types. For PHA size, small PHAs pursue rehabilitation at a higher rate than average, while large PHAs have a slightly higher proportion of nonconstruction conversions. There is a greater deviation from the overall proportions for Midwestern and Western PHAs, where nonconstruction conversions are less common (with a shift to rehabilitation in the Midwest and new construction in the West). The largest deviations occur by subsidy type: 71.2 percent of PBRA conversions focus on rehabilitation, whereas 34.3 percent of PBV conversions are nonconstruction.

[63] There are many complex permutations of these categories, such as rehabbing and reconfiguring an existing building to larger unit sizes, then partially transferring rental assistance to a newly constructed building to preserve the total number of assisted units.
[64] A nonconstruction conversion is inferred from existing HUD data. Such conversions could occur with construction funded occurring outside of RAD and by other sources, which the data would not reflect. A RAD transfer of assistance transaction also could be identified as nonconstruction if units targeted for the assistance transfer were acquired or built using non-RAD funds.

Table 22. RAD Rehabilitation and Construction by PHA Size, Census Region, and Subsidy Type

	Number of Closed CHAPs	Conversion with Rehabilitation	Conversion with New Construction	Nonconstruction Conversion
All RAD Projects	956	566 (59.2%)	136 (14.2%)	254 (26.6%)
PHA Size				
Small PHAs	145	95 (65.5%)	18 (12.4%)	32 (22.1%)
Medium PHAs	366	221 (60.4%)	53 (14.5%)	92 (25.1%)
Large PHAs	445	250 (56.2%)	65 (14.6%)	130 (29.2%)
PHA Census Region				
Northeast	142	73 (51.4%)	26 (18.3%)	43 (30.3%)
Midwest	131	87 (66.4%)	23 (17.6%)	21 (16.0%)
South	529	311 (58.8%)	55 (10.4%)	163 (30.8%)
West	154	95 (61.7%)	32 (20.8%)	27 (17.5%)
Subsidy Type				
PBRA	361	257 (71.2%)	54 (15.0%)	50 (13.9%)
PBV	595	309 (51.9%)	82 (13.8%)	204 (34.3%)

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PHA = public housing authority.
Notes: All RAD conversions with $0 construction costs and no new construction are defined as nonconstruction conversions. See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: RAD projects with closed CHAPs through October 31, 2018

RAD Transfer of Assistance (TOA) Projects

RAD includes a TOA mechanism, which allows PHAs to transfer RAD project-based assistance to other units on a different site, subject to HUD approval. This mechanism enables PHAs to address properties that are not appropriately situated, such as those located in flood plains. As of October 31, 2018, there are 104 closed RAD transactions (10.9 percent of all closed CHAPs) covering 5,805 units (5.6 percent of all closed units) that include TOA.

The results in Table 23 show that TOA projects are more likely to be carried out by large PHAs, although small and medium PHA conversions show that it is a viable option for all PHAs.[65] TOAs are used more widely in the West than in any other region. There also appears to be a preference for PBV subsidies in TOA transactions.

[65] The Housing Authority of San Francisco's 28 closed projects represent more than one-fourth of all TOA projects.

Table 23. RAD TOA Projects

	Number of Closed CHAPs	Percentage of All RAD Projects (%)	Number of TOA Projects	Percentage of RAD Projects That Are TOA (%)
All RAD Projects	956	100	104	10.9
PHA Size				
Small PHAs	145	15.2	7	4.8
Medium PHAs	366	38.3	25	6.8
Large PHAs	445	46.5	72	16.2
PHA Census Region				
Northeast	142	14.9	12	8.5
Midwest	131	13.7	10	7.6
South	529	55.3	32	6.0
West	154	16.1	50	32.5
Subsidy Type				
PBRA	361	37.8	23	6.4
PBV	595	62.2	81	13.6

CHAP = Commitment to Enter into a Housing Assistance Payment. PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PHA = public housing authority. TOA = transfer of assistance.
Note: See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: RAD projects with closed CHAPs, through October 31, 2018

RAD Financing

PHAs use many financing sources for RAD conversions and individual completed transactions are valued between $0 and $470 million. HUD provided RAD funding sources data[66] for the 956 closed CHAPs, grouped into the following 22 categories—

- Commercial Non-FHA Loan
- Commercial FHA-insured Loan
- PHA Non-Federal Funds[67]
- Public Housing Operating Reserves
- Public Housing Capital Funds
- Public Housing RHF Funds
- Public Housing MTW (all sources)
- Public Housing Program Income
- Seller Note/Take-Back Financing
- National Housing Trust Fund
- Other Federal Funds
- State or Local Funds
- Interim Income[68]
- Accrued and Unpaid Interest
- Deferred Developer Fee
- Sponsor or Partner Funds

[66] HUD attempts to collect final funding sources at closing or after the CHAP closes, but a final list of sources is not required. Econometrica did not review all closed projects but did identify numerous projects where a final list of sources is not available, and the data provided originated in the RCC or the approved financing plan (and may change prior to closing). Econometrica also did not audit HUD's categorization of funding sources. As such, the statistics presented here may not reflect the actual aggregate sources and categories retained by these projects at closing.
[67] PHAs can earn non-federal income for a variety of activities and can also be funded by non-federal sources. For example, a PHA can receive a management fee or subsidy for managing affordable units under a state housing program.
[68] Interim income includes Rehab Assistance Payments.

- Federal Home Loan Bank (FHLB) Affordable Housing Program (AHP)[69]
- HOME
- CDBG
- Philanthropic/Foundation
- Investor Equity (for example, tax credits)[70]
- General Partner Equity/Reinvested Capital

The 956 closed CHAPs correspond to $12.6 billion in funding for the preservation of 103,268 affordable housing units, an average of $121,747 per unit. The average closed RAD transaction generated $13.2 million, although the median amount is $2.8 million.[71] Eleven transactions were for more than $100 million, while 7 transactions had no dollars in funding.

The average RAD transaction is funded from 3.5 categories (there can be multiple sources within each category, such as first, second, and third mortgages). The most funding categories used by one project is 13. Table 24 lists the most commonly used funding categories in order from most to least common; it is notable that even the most popular category, Public Housing Operating Reserves, is used in less than one-half of all transactions.

While RAD funding sources are diverse, investor equity is the second most common funding source, used by 40.7 percent of closed projects and accounting for 38.6 percent of total RAD funding—more than any other source. The average amount of investor equity in a project, $12.5 million, is also larger than for any other source. At 19.2 percent of total RAD funding, the sixth most popular source, seller note/take-back financing, is usually used in conjunction with investor tax credit equity.

[69] Despite the name, FHLB AHP is a private source of funds for affordable housing.
[70] Investor equity includes federal 4-percent and 9-percent LIHTCs and state tax credits.
[71] The first quartile is $530,481, and the third quartile is $17.6 million.

Table 24. RAD Funding Sources

Funding Source	Number of Projects	Percentage of Projects (%)	Total Amount ($)	Percentage of Total Amount (%)	Average Amount per Project ($)
Total	**956**	**100.0**	**12,573 million**	**100.0**	**13.2 million**
Public Housing Operating Reserves	459	48.0	342 million	2.7	0.7 million
Investor Equity (including Tax Credits)	389	40.7	4,858 million	38.6	12.5 million
Public Housing Capital Funds	387	40.5	391 million	3.1	1.0 million
Commercial Non-FHA Loan	295	30.9	1,411 million	11.2	4.8 million
Deferred Developer Fee	284	29.7	240 million	1.9	0.8 million
Seller Note/Take-Back Financing	275	28.8	2,410 million	19.2	8.8 million
Public Housing RHF Funds	179	18.7	216 million	1.7	1.2 million
State or Local Funds	154	16.1	792 million	6.3	5.1 million
Sponsor or Partner Funds	152	15.9	99 million	0.8	0.7 million
PHA Non-Federal Funds	134	14.0	286 million	2.3	2.1 million
Commercial FHA-Insured Loan	127	13.3	888 million	7.1	7.0 million
Other[72]	372	38.9	639 million	5.1	1.7 million

FHA = Federal Housing Administration. PHA = public housing authority. RHF = Replacement Housing Factor.
Note: Projects can have multiple funding sources, so the Percentage of Project column sums to more than 100 percent.
Source: Funding sources data provided by HUD for RAD projects with closed CHAPs, through October 31, 2018.

RAD's Leveraging of Public Housing Funds

RAD's program design, which allows PHAs to leverage Section 8 HAPs and integrate other funding sources, has resulted in a significant leveraging of public housing funds to rehabilitate and preserve affordable housing units. Based on discussions with HUD, Econometrica considered different approaches to calculating leverage for RAD. A leverage ratio describes the amount of additional funding raised for each dollar of funding committed.

Econometrica worked with HUD to develop five leverage ratios, as shown in Table 25. These ratios represent the interests and perspectives of different stakeholders: HUD, PHAs, congressional appropriators, investors, and oversight agencies. They were calculated for all 956 public housing conversions completed through October 2018 using funding sources as classified by HUD.

[72] Other includes 11 funding categories: general partner equity/reinvested capital, public housing Moving to Work (MTW; all sources), Home Investment Partnership Program (HOME), interim income (rehab assistance payments), accrued and unpaid interest, FHLB AHP, Community Development Block Grant (CDBG), other federal funds, public housing program income, National Housing Trust Fund, and philanthropic/foundation funding. Although at least 1 of the 11 Other funding categories is used in 38.9 percent of closed RAD transactions, the most commonly used of these other categories is general partner equity/reinvested capital, which was used in 10.9 percent of closed transactions. Public Housing MTW accounts for 1.8 percent of total RAD funding; the remaining 9 Other categories each account for less than 1.0 percent.

Table 25 includes different leverage types and ratios. The Public Housing Appropriated Funds ratio—$9.66 for every dollar of public housing program funds—demonstrates the ability of RAD to leverage a large amount of funding for the preservation of affordable units by using public housing resources. The Internal PHA Funds ratio—$7.47 for every dollar of PHA funds—accounts for other funding sources available to PHAs, including non-federal funds and program income.

Table 25. RAD Leverage Ratios

Leverage Type	Leverage Ratio	Description
Public Housing Appropriated Funds	$9.66 : $1	Compares $1 of all federally appropriated public housing funds, including operating reserves, Capital Funds, RHF funds, and DDTF to all other funding sources.
Internal PHA Funds	$7.47 : $1	Compares $1 of all funds held by the PHA, including public housing-appropriated funds and other funds in the PHA's control, to all other funding sources.
Federal Appropriated Funds	$8.34 : $1	Compares $1 of all federally appropriated or obligated funds, including public housing appropriations, CDBG, HOME, National Housing Trust Fund, and other federal appropriations, to non-federally appropriated sources.
Publicly Held Funds	$1.59 : $1	Compares $1 of all funds contributed by public entities, including internal PHA funds, federal appropriations, and take-back financing, to funds that are privately held, such as FHA-insured and other commercial mortgage debt and investor equity.
Publicly Subsidized Funds	$0.29 : $1	Compares $1 of all publicly subsidized sources of funds, including publicly held funds plus Rehab Assistance Payments and investor equity (raised via tax credits), to all unsubsidized sources, such as FHA-insured and other commercial mortgage debt.

CDBG = Community Development Block Grant. DDTF = Demolition Disposition Transitional Funding.
FHA = Federal Housing Administration. HOME = Home Investment Partnership Program.
PHA = public housing authorities. RHF = Replacement Housing Factor.
Source: Funding sources data provided by HUD for RAD projects with closed Commitment to Enter into a Housing Assistance Payment (CHAPs); through October 31, 2018

A broader leverage ratio, the Federal Appropriated Funds ratio—$8.34 for every dollar of federally appropriated funds—includes HUD programs like CDBG and HOME as well as other federal programs that can be used for housing and neighborhood redevelopment.

The Publicly Held Funds ratio—$1.59 for every dollar of publicly held funding—expands the number of categories related to public funding. It includes state and local government funds and the additional funds held by the PHA that are included in the Internal PHA Funds ratio. It also includes the $2.4 billion in seller note/take-back financing, as those funds are generated by removing units from public housing as part of a Low-Income Housing Tax Credits transaction. In this ratio, investor tax credit equity is considered privately held funds.

Finally, the Publicly Subsidized Funds ratio—$0.29 for every dollar of publicly subsidized funding—represents the broadest range of funding sources that are tied to public sources. Of note, publicly subsidized funds include investor equity, the vast majority of which is subsidized via the LIHTC and other federal and state tax credit programs and other elements of the tax code, such as the deduction of depreciation and losses. Investor equity is raised by investors

purchasing tax credits, but the tax credits themselves and other allowable tax deductions are a federal and/or state tax expenditure, so they are publicly subsidized.[73]

The RAD Program over Time

Table 26 displays the number of public housing projects as a baseline before RAD with RAD activity over time as the statutory unit cap has increased. These cap increases correspond to changes in the RAD Statute and RAD Notice. The table shows the number of public housing projects in 2010 with the number of CHAPs issued in each period and in total by PHA size, Census region, and type of Section 8 contract.[74]

Table 26. RAD Activity and Public Housing Baseline

	Public Housing Projects, 2010	CHAPs Issued Under the 60,000-Unit Cap (Nov. 2011 to Dec. 2014)	CHAPs Issued Under Expanded Unit Caps (Dec. 2014 to Oct. 2018)	Total CHAPs Issued Through Oct. 2018
PHA Size				
Small PHAs	2,469	49	182	231
Medium PHAs	2,233	145	392	537
Large PHAs	2,736	148	637	785
PHA Census Region				
Northeast	1,516	31	189	220
Midwest	1,744	40	226	266
South	3,450	205	618	823
West	728	66	178	244
Section 8 Contract Type				
PBRA	n/a	170	407	577
PBV	n/a	172	804	976

CHAP = Commitment to Enter into a Housing Assistance Payment. PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PHA = public housing authorities.
Note: See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Sources: RAD projects with active or closed CHAPs through October 31, 2018; HUD PD&R Picture of Subsidized Households, 2010; withdrawn and revoked CHAPs are not included

[73] Although they are federally guaranteed, FHA loans are not included in the Publicly Subsidized Funds ratio. FHA offers a loan guarantee tied to a commercial mortgage, and that same or similar commercial mortgage is available without the FHA guarantee (with the caveat that the total amount available to borrow may be smaller or financing costs and interest rates may be higher).
[74] Each period represents a different length of time, with a different constraint on the number of units.

The underrepresentation of small PHAs at the start of the program is clear, compared with the pre-RAD baseline, although over time their relative participation has improved. The dominance of the South mostly reflects its share of public housing, whereas the West is participating at a higher rate despite its smaller numbers. The data also show that the proportion of PBV and PBRA projects has shifted markedly. Under the 60,000-unit cap, almost the same number of PBV and PBRA CHAPs were issued. In subsequent periods, the ratio is close to two PBV projects for each PBRA project.

Post-Conversion Experience With RAD

This chapter reports on the post-conversion experiences of public housing authorities (PHAs) and other stakeholders under the Rental Assistance Demonstration (RAD) as related through interviews. It discusses PHAs' responses to questions about the execution of construction plans, the management of project operations and finances, and general management changes under RAD. This chapter also presents responses to interviews with lenders, developers, and tax credit syndicators about their experiences on RAD projects with construction, tenant relocation, and sustainment. Both sets of responses supplement the analysis of how RAD has improved the physical condition and financial performance of converted projects and the effect it has had on tenants, as presented in the next three chapters.

While describing their experiences, PHAs and stakeholders also shared their opinions about the perceived benefits and challenges of the RAD program. In addition, they made recommendations about how RAD could more effectively meet the preservation needs of public housing. These recommendations highlight general issues about the RAD program that participants deem to be significant. The specifics of what they propose, however, may require further deliberation.

Methodology

The study design included the collection and analysis of over-the-phone interview data from a sample of 23 participating RAD PHAs, representing 24 RAD projects (the treatment group), and a second sample of 14 other stakeholders.[75] The interviews focused on respondents' direct experiences with RAD conversions and suggestions for improving RAD. The study summarizes the responses by topic, but the small sample size precludes statistical analysis.[76] The range of PHA experiences with project development and operations for RAD conversions supports the analysis of project data presented in the next two chapters. The range of PHA and other stakeholder experiences with tenant relocation supports the analysis of resident surveys in the Effect on Tenants chapter.

Objective and Research Questions

The objective of this part of the study is to understand the direct experiences of PHAs and other participants with RAD conversions and their views of the program's strengths and weaknesses.

The study posed the following research questions to PHAs regarding their completed RAD projects—

- Were projects able to complete rehabilitation or renovation as planned? Were they on time and within budget? Were changes in scope made? Were cost and/or schedule affected?

[75] Additional data on these 24 RAD projects in the treatment group is discussed in the next two chapters. See appendix C for a list of the projects and PHAs in the treatment group. The 14 stakeholders collectively had experience with many more than 24 RAD developments.

[76] The small size of the RAD sample is due in part to the small size of the population of RAD projects that were near conversion when the sample was drawn. The sample framework for the treatment group consisted of 132 RAD properties that had an approved Commitment to Enter into a Housing Assistance Payment (CHAP) as of December 31, 2013 and had either closed or reached the RCC stage by December 31, 2014.

- How are projects performing after conversion? Has conversion affected property management? Have projects experienced changes in revenue and expenses? Are projects able to cover debt payments, expenses, and reserve requirements?
- Has RAD conversion affected the administration of the PHA?
- How has the Choice Mobility option been implemented?
- How beneficial or challenging has conversion under RAD been?
- What changes to the RAD Program or Statute would participants recommend HUD consider for the program to better meet its goal of preserving affordable housing?

The study asked other stakeholders an abbreviated set of questions about their experiences with RAD developments, views of RAD's benefits and challenges, and recommendations for making RAD more effective.

Data

Researchers collected primary data by interviewing a sample of 23 PHAs and 14 external stakeholders involved in RAD.[77] The PHA interview questions were structured around the completion of any rehabilitation or new construction and the management of projects after stabilized occupancy.[78] Most PHA respondents were knowledgeable about their projects, shared their experience with RAD, and made recommendations for improving RAD, although some PHA staff were new and could offer only basic information.

The study team also interviewed eight affordable housing developers and six financial institutions, including commercial mortgage lenders and tax credit syndicators. The purpose of these interviews was to gain a sense of participants' roles and experiences with RAD, views of how the program works, and suggestions for making the program better. All stakeholders had broad and long-term experience with RAD on an array of rehabilitation and new construction projects, and some had experience with nonconstruction conversions.

The interview responses from PHAs supplement the physical and financial condition data, as analyzed in the next two chapters. The interview data from PHAs and other stakeholders supplement the resident survey data, as analyzed in the Effect on Tenants chapter.

[77] The 23 PHAs were also interviewed for the pre-closing phase of the RAD evaluation, as described in the *Interim Report*. These PHAs represented the 24 RAD developments (the treatment group) from the original sample design for this study (one PHA had two developments). This sample was stratified to include projects from small, medium, and large PHAs and projects that had high, standard, and substandard Real Estate Assessment Center (REAC) physical condition scores. Additional data on the physical and financial condition of these 24 RAD developments were collected and were analyzed and discussed in the next two chapters. The 14 stakeholders were selected from a list of developers, lenders, and tax syndicators provided by a RAD consultant. Those stakeholders did not necessarily have experience with the same sample of 24 RAD developments.

[78] See appendix A for the PHA interview guide.

PHA Experiences

This section discusses the experiences of the 23 PHAs in our interview sample with the management of 24 RAD projects after conversion (one PHA had two projects). It divides the discussion into five parts: construction management, project management, financial performance, PHA administration and staffing, and Choice Mobility. Construction management applies only to completed rehabilitation and new construction projects because only those projects involved construction, whereas the other parts apply to all completed RAD projects in the sample.

As Table 27 shows, 23 projects (representing 22 PHAs) in our sample had completed conversion to project-based Section 8; one project for one PHA had not at the time of data collection.[79] Fifteen PHAs had used RAD to rehabilitate their 16 projects' physical condition upfront. Three PHAs had used RAD to replace their original public housing with newly constructed housing.[80] Four PHAs had used RAD for nonconstruction conversions; that is, they had converted their public housing to Section 8 but had not financed any immediate investment in improving their projects' physical condition.

Table 27. PHAs Interviewed and Projects by Type of RAD Conversion

Type of RAD Conversion	PHAs Interviewed	RAD Projects
Rehabilitation	15	16
New Construction	3	3
Nonconstruction Conversion*	4	4
Incomplete	1	1
Total	**23**	**24**

PHA = public housing authority.
* Nonconstruction conversion is a RAD conversion that has little or no planned construction.
Notes: The total number of RAD projects in the full sample was 24. Because 1 PHA had two rehabilitation projects, only 23 PHAs were in the sample.

Overall, the PHAs we spoke with rated RAD favorably. Twenty-two of the 23 we interviewed said that they would recommend RAD to other PHAs and would participate again if they had the assets. They also advised that RAD might not be for every PHA and that it was important for any PHA considering conversion to Section 8 under RAD to make sure that it was a financially sound decision. Opinions of the ease or difficulty of participating in RAD were mixed. Some

[79] According to the PHA, this project had not completed conversion because of issues with the release of the Declaration of Trust that was taking time to resolve. This incomplete project consisted of scattered-site single-family housing. Because that type of housing can occupy multiple parcels, the land on which the housing sits may have been acquired by the PHA over time through multiple transactions, contributing to complications with the Declaration of Trust. The PHA reported in the middle of 2018 that this project was on track for completion in less than a year.

[80] In general, PHAs opt for new construction when the costs of refurbishing an existing building or addressing environmental issues on a built site are too high. For instance, one of the PHAs had extremely old units that "looked good on the outside, [but were] terrible on the inside." This PHA would have had to spend $1 million to fill and recondition the site because the existing units were settling. Another site had buildings with structural issues, asbestos, and extensive water damage. The third site had units from the 1960s that were slab on grade with concrete floors. The ventilation ducts were rusting, insulation was inadequate, and other issues were costly to fix. In the end, these three PHAs decided to demolish and replace with new construction rather than rehabilitate the existing buildings.

PHAs that had prior experience with Section 8, LIHTC, or mixed finance, in general, said that the RAD process worked well and expressed appreciation for the support provided by their local Field Offices (FOs) and other HUD staff. Less experienced PHAs were more apt to feel overwhelmed at times and confused about changing guidance or multiple channels of communication. They would have preferred a more centralized process in which HUD could "speak with one voice." As shown in the External Stakeholder Experiences section, several RAD developers and lenders shared the same perspective.

Findings: Construction Completion, Tenant Relocation, and Housing Quality

The 18 PHAs in our sample whose RAD conversions involved new construction or rehabilitation answered questions about their construction experience.[81] All agreed that RAD was important, though their assessment of the relative degree of its importance varied. Less than one-half (8 out of 18 PHAs) felt that RAD was useful but probably not essential. As one PHA said, its RAD conversion was the third phase of a 180-unit "gut rehab/new-build" project that was going to happen "one way or another." Slightly more than one-half (10 out of 18 PHAs) said they would not have completed their construction projects without the RAD program. As one PHA said, "Due to the decrease in capital funds, we would never have been able to do the [rehabilitation] project in a reasonable amount of time."

What made RAD important to these PHAs was the wide array of financing sources that it brought to the table, particularly tax-exempt bonds and tax credit equity, relative to the amount of funding required to meet the construction plan. One PHA said that their state housing finance agency provided the tax-exempt bond financing for their RAD project, which also enabled them to tap 4-percent LIHTC equity financing. This PHA "came to RAD out of necessity." By opening the doors to bond and LIHTC equity financing, RAD was "the only game that…addressed the existing conditions" facing their housing.

The majority of the PHAs that used RAD to finance rehabilitation or new construction felt that RAD had enabled them to improve the physical condition of their projects. One PHA had a newly constructed tax credit property located beside the rehabilitated RAD property and said: "you can't really tell the difference" between the two projects. This PHA expected these improvements to increase the satisfaction of residents. Another PHA said that "the [new construction] project now looks like a subdivision, not a public housing project." A third PHA reported that they were able to make substantial improvements to accessibility for disabled persons, add larger units, install new appliances, and construct a new community center. A few PHAs said that conversion did not make a significant difference in improving the physical condition. In these cases, either the property was already in decent shape or funding covered only minor repairs. The next chapter provides additional data supporting these observations.

Most PHAs reported that they were able to address their pre-conversion housing quality issues. The most frequently noted issues that they addressed included accessibility requirements for people with disabilities, lead-based paint and asbestos hazards, and small units (for example,

[81] Four PHAs had nonconstruction conversions and one PHA had not closed on its RAD project. The 18 PHAs whose experiences are described in this section represented 19 rehabilitation and new construction projects because 1 PHA had 2 rehabilitation projects.

converting studios into one-bedroom units). Some of the other housing quality issues that they were able to address included—

- Adding hard surfaces, such as parking and walkways, that were more durable than before.
- Replacing old and failing plumbing and electrical systems.
- Making energy efficiency improvements, such as new thermal pane windows; thicker insulation; better sealing of joints; more-efficient heating, ventilation, and air conditioning (HVAC) and appliances; and low-water-using landscaping.
- Improving stormwater drainage system.
- Installing solar panels.
- Replacing failing retaining walls.
- Replacing sewer lines that frequently backed up.
- Upgrading unit interiors, including new kitchens and bathrooms.
- Improving security with better exterior lighting and changes to the entryway for tighter control of how nonresidents enter the building.
- Improving curb appeal by upgrading building exterior and landscaping.
- Installing window awnings to control ice buildup.
- Repairing sinking floors.
- Adding laundry unit space.
- Tuck-pointing bricks to preserve the exterior and reduce water leakage and energy loss.
- Repairing siding on building that had deteriorated.

For the completed rehabilitation and new construction projects, the PHA was responsible for managing the construction process, though it may have hired an outside construction manager.[82] Over one-half of the PHAs said they experienced some delays in completing their projects, mostly due to construction issues. More complicated projects, such as those with multiple buildings or larger construction scopes, tended to have more construction issues and delays. Contractor selection issues were common sources of delays, with some projects having to replace their construction contractors. Overall, however, the PHAs managing these projects did not think that the construction delays had a serious effect on the cost or scope of their projects.

Most PHAs said that they were able to follow their original construction plans or had to make only minor changes. When unexpected construction costs occurred, a project could use its contingency fund or developer fee. Beyond that, it would usually have to cut the scope of

[82] That construction process included hiring an architect, construction firm, and possibly an advisor to oversee construction; ensuring that units were available for construction work, as needed; overseeing the permitting process, inspection, and approval of construction work and adherence to the construction schedule; managing the construction budget; processing change order requests; responding to unforeseen conditions that would create schedule delays or cost increases without appropriate adjustments; and accepting final delivery of the project, including appropriate local government approvals.

construction. For example, one PHA said that when the contractor encountered a problem with the building's electrical system that was not in the original construction plan, they reduced the scope of its scheduled energy efficiency updates. Two other PHAs said they changed their construction plans in ways that did not affect project scope. For instance, one PHA hired an outside contractor when the staff person slated to do the work in-house left the agency. In this case, the scope and cost of construction work were the same although the mode of delivery differed.

The PHAs that used RAD for rehabilitation or new construction reported few problems with tenant relocation during construction. (In contrast, as reported in the following section, developers cited tenant relocation as one of the challenges of RAD projects.) Many PHAs said that they did not have to displace their tenants, even for rehabilitation, because of their construction phasing strategy; they had planned on creating vacancies in the property, which they used to move families in temporarily while other units were being rehabilitated. By employing these types of phasing strategies for rehabilitation projects, PHAs were able to mitigate the Uniform Relocation Act (URA), which governs tenant relocation in public housing. According to these PHAs, when tenants were relocated to another site during construction work, most, though not necessarily all, of the residents returned to their project after construction was completed.

Findings: Project Management

One goal of RAD is to improve management of the converted project by promoting the use of more efficient private property management practices. PHAs can introduce those practices by hiring an outside private property manager, or they can re-engineer the PHA's property management functions by adopting commercial practices and training current or hiring new staff in those practices. For the RAD conversions in our sample, most PHAs seem intent on the latter approach. Seventy-five percent of PHAs (15 of 20) said that the PHA is continuing to manage the RAD property after conversion. Only five of the responding PHAs reported that another entity, like a private property management company, will continue to manage the property after conversion (Table 28). Even in these cases, some PHAs have considered replacing the private property manager with their own staff.[83] The question is whether the PHAs are willing and able to implement commercial property management practices that would be available to them under conversion.

Table 28. Who Manages Property After RAD Conversion

	PHA	Other Entity
Who Manages the Property after Conversion?	15	5

PHA = public housing authority.
Notes: n = 20. Three PHAs did not respond to this question: one PHA had not completed conversion, and the staff members for the other two PHAs were uncertain of the answer.

About 65 percent (13 of the 20 PHAs that answered this question) said that their property management policies had changed after conversion under RAD, whereas 35 percent (7 of 20) said they had not changed (Table 29). These responses correspond to whether the PHA or a new

[83] For instance, one PHA was concerned that fees for late rent payment were doubled by the private property manager, creating a hardship for poor families. The PHA was considering making itself the property manager so that it could institute fairer policies. In this case, the PHA objected to the commercial practices introduced by the private property manager and would possibly reverse those practices.

entity is managing the project. PHAs that were still managing the project after conversion were likely to indicate that they had changed their property management policies. When another entity was managing the property, the PHA was less likely to have changed its property management practices. These results suggest that PHAs are prepared to change their practices if they think changes are needed to improve property management—because they are directly responsible for it. There are some indications that these changes would make their property management more commercial. For instance, some PHAs mentioned the goal of improving project maintenance and managing tenant intake more effectively but it is too soon to tell whether the adoption of commercial practices is widespread.[84]

Table 29. Property Management Policies for PHAs After RAD Conversion

	Yes	No
Have Property Management Policies Changed?	13	7
Does PHA have Concerns about Property Management under RAD?	5	15

PHA = public housing authority.
Notes: n = 20. Three PHAs did not respond to this question: one PHA had not completed conversion, and the staff members for the other two PHAs were uncertain of the answer.

Five PHAs indicated that they had concerns about how the property was managed after conversion compared with 15 PHAs that did not (Table 29). These PHAs mentioned property management fees and the need to retrain or hire new staff. Other management issues included adapting to rule changes and learning new data systems. That result may reflect the assessment of many PHAs that property management changes are minor, given their prior experience. For instance, some PHAs were already managing LIHTC properties, so the rules for their RAD project were similar.[85] Other PHAs were already managing Section 8 projects. For example, one PHA moved the converted RAD property to its preexisting nonpublic housing portfolio. The manager of that portfolio was already prepared to handle the new site as multifamily housing. In another case, a PHA that served as its own developer and was multifamily-certified before RAD is currently contracted to manage the RAD property. In terms of staffing, this PHA's project management team is like the one before RAD. These prior experiences would tend to position these PHAs toward the readier adoption of commercial practices in the management of converted projects under RAD.

We asked PHAs whether certain measures of operational performance had improved, worsened, or stayed the same after the RAD conversion. As Table 30 shows, we specifically asked about delinquency, occupancy/vacancy, turnover, and time on market. Delinquency measures the percentage of tenant contributions to rent that are/are not collected on time; occupancy/vacancy measures the percentage of units that are/are not earning rent; turnover measures the percentage

[84] Specific changes mentioned by PHAs include new procedures for tenant eligibility screening and greater attention to property maintenance. For instance, one PHA says that it is screening tenants more thoroughly to eliminate those with criminal records. They felt that this policy would improve the performance of the project. Another PHA said it feels pressure to improve the maintenance of its converted properties due to annual Housing Quality Standards inspections and the ability to tap replacement reserves, but this PHA was not more specific about how its actual practices were changing.
[85] LIHTC has different rules for calculating rents and different affordability thresholds than project-based Section 8. One PHA was able to change their software to the system already being used for their LIHTC properties and are now using it for all their converted units, however.

of residents that leave their unit over a given period; and time on market measures the number of days it took to lease out a vacant unit. For these measures, the majority of PHAs (more than 10 of the 20 responses) reported either "no change" or "improvement" to their performance after conversion under RAD. In other words, they perceived their converted projects as having the same or lower delinquency rate, vacancy rate, turnover rate, and time on market. A sizeable minority of PHAs, however, perceived deterioration in these measures.

Table 30. Changes in Property Management Measures for RAD Projects

	Improved	No Change	Worsened	Too Soon to Tell
Delinquency	1	13	5	1
Occupancy/Vacancy	5	13	2	0
Turnover	6	8	6	0
Time on Market	1	12	7	0

PHA = public housing authority.
Notes: n = 20. For four projects, the PHAs did not respond to this question. One project is incomplete; one has not reached stabilized occupancy; and for two projects, the PHA said it did not know the answer or did not respond.

These results suggest that most PHAs appear to be able to manage properties as well or better after conversion, but a segment of them have encountered some property management challenges after conversion in terms of collecting tenant rents and keeping units filled. These challenges could be short-term and transitional as those PHAs learn to manage a new asset and therefore are ultimately solvable. They could also reflect the increase in tenant mobility that several PHAs commented on that is possibly a byproduct of the relocation of tenants during construction and rehabilitation; that may solve itself over time. They could be due to other factors that prove to be less tractable. Whatever the case, these performance measures—or others with similar focus—should be tracked to monitor the continued sustainability of RAD projects after they have converted.

Findings: Financial Performance

Most PHAs reported that their projects performed the same or better than before conversion in terms of revenues and expenses. As Table 31 shows, PHAs reported that most projects (18) earned as much or more revenue after converting to Section 8 and achieving stabilized occupancy; one project was earning less.[86] All but one PHA that responded said that their project's expenses were the same as or lower than they were before conversion; one reported that their expenses were higher (although its revenues were also higher). The rest included those that either had not converted, had not achieved stabilized occupancy, or the one PHA that did not provide a direct answer.

[86] See the Financial Performance chapter for a more in-depth financial analysis of these RAD developments.

Table 31. Revenue and Operating Expenses

	More Revenue	As Much Revenue	Less Revenue	Total
Greater Expenses	1	0	0	1
Same Expenses	6	7	1	14
Lower Expenses	3	1	0	4
Total	**10**	**8**	**1**	**19**

Note: n = 19. One project is incomplete; one has not reached stabilized occupancy; and for two projects, the PHA said it did not know the answer or did not respond.

PHAs reporting the same or higher revenue for 18 projects attributed this result to receiving the same or greater contract rents compared with their public housing subsidy,[87] having a stronger rent collection process, and collecting higher administrative fees than under public housing. In most cases, PHAs reported there was a high demand for units. Where units had been vacated for RAD conversion, PHAs reported that the project had reached stabilized occupancy within 6 months of completing construction. The effect of vacancies on project revenue was limited, they claimed.

For most projects (14), PHAs reported paying the same expenses before and after conversion. For the four projects reported as paying lower expenses, the PHAs pointed mostly to reduced utility, maintenance, and other management costs due to energy saving improvements, reduction in deferred maintenance, and elimination of public housing program requirements as a result of conversion to Section 8.

Overall, as Table 32 shows, PHAs reported most properties were earning enough for operating expenses (21), scheduled reserve-for-replacement payments (20), and mortgage debt (18) and generated a positive net cashflow after meeting those obligations (18). PBRA projects seem to be more likely to have better post-conversion finances. For most PBRA conversions, responses indicated they were meeting their replacement reserves, covering operating expenses, and generating positive net cashflow. In contrast, for PBV conversions, the number of responses in each category is less than the number of projects (although missing values do not necessarily mean a response of "no"). The Financial Perspective chapter analyzes project financial information to assess what it shows about the financial viability of these projects.

[87] During the RAD application stage—long before conversion—RAD projects have their initial contract rents set by HUD based on the project's operating and capital funding subsidy under the public housing program. The base-year rents are adjusted annually by a HUD-established OCAF, for the most part. In addition, various rent caps—such as Rent Reasonableness, 110 percent of FMRs for PBV, and 120 percent of FMRs for PBRA—can constrain RAD rents. For more detail on these and other rules that affect RAD rents, see the Introduction.

Table 32. Current Project Revenue Versus Obligations

	PBRA	PBV	Total Responses
Can Meet Replacement Reserves Schedule	9	11	20
Can Meet Mortgage Repayment Schedule (if they have one)	8	10	18
Can Meet All Operating Expenses	9	12	21
Generating Positive Net Cashflow after All Obligations	9	9	18
Number of Projects	9	14	23

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Notes: n = 23. One project did not complete conversion. More than one response is allowed for these questions. Not all projects had a fixed mortgage repayment. The large number of responses about meeting the mortgage payment schedule could reflect "soft" loans that do not have a defined repayment schedule. Nonresponses should be regarded as missing values, reflecting uncertainty about the answer, rather than a clear "no."

As Table 33 shows, when PHAs speculated about the future, they thought that most of their projects (17 of 23) would have positive cashflow in 5 to 10 years. Four projects were expected to break even. No PHA predicted negative cashflow for its project, but two were uncertain. In general, PHAs with PBRA conversions were more positive about future revenues than those with PBV conversions. Although cashflow was projected to be positive, it was often expected to be a small amount, or the amount was uncertain, which meant the simplest plan was to roll any positive cashflow back into the RAD project to cover insufficient reserves or unexpected expenses.

Table 33. Future Revenue Expectations

	PBRA	PBV	All Projects
Positive Cashflow	9	8	17
Breakeven	0	4	4
Negative Cashflow	0	0	0
Unsure	0	2	2

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Notes: n = 23. One project did not complete conversion.

In most cases (15), PHAs said they would use future revenue to invest in the RAD project; for three projects, the PHA said it would invest in other projects; for two projects, the PHA said it would spend revenue on other affordable housing activities; and for one project, the PHA did not respond (Table 34). Investments back into the same RAD project included reserves, maintenance, future rehabilitation, and capital improvements. For the PHAs that said they would invest in other projects, such work included creating more units, converting vacant projects to market-rate units, investing in homeownership units, and expanding their affordable housing portfolio.

Table 34. Expected Use of Earned Revenue

	PBRA	PBV	All Projects
Invest in the Revenue-Generating RAD Project	6	9	15
Invest in Another Project	1	2	3
Fund Other Affordable Housing Activities	2	0	2
Not Sure	0	2	2
No Response	0	1	1

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Notes: n = 23. These options were presented to the respondents. One project did not complete conversion.

We also asked whether the PHA expected to be able to sustain the converted project over the long run. Usually, PHAs thought that projects were currently sustainable, but some PHAs felt there were elements of RAD that could make long-run project sustainability a challenge. Nine PHAs said their project was sustainable over the long run, two said their project was probably sustainable but the PHA was not certain, and two said their projects were not sustainable. In another case, a PHA reported that the RAD rent was too low, which left it in a financial bind. According to this respondent:

> *"Contract rents [are] not at the [Section 8] payment standard for the area, so [we] are having trouble making these projects work. We have Section 8 rents in the area whose rent is twice as much. … Makes it difficult to make the project work."*

Where RAD contract rents are less than the Section 8 payment standard, converted projects can still improve their financial performance. Conversion preserves the same level of subsidy as under public housing, but due to rehabilitation, energy savings, and reduction in deferred maintenance, projects can reduce their ongoing operating costs. In addition, after conversion, projects can benefit from the Operating Cost Adjustment Factor (OCAF) that increases contract rents each year.

An open question is whether PHAs will be able to meet their long-term capital needs. There were differences of opinion on this question: several PHAs thought that the property improvements would last 15 to 20 years or for their remaining useful life before needing another major overhaul, whereas other PHAs had concerns about whether the conversion would be sustainable over the long run because of a lack of funds to meet future capital needs due to low contract rents.

Findings: PHA Administration and Staffing

All the 22 PHAs that had completed conversions under RAD were asked how those conversions had affected the administration of the PHA. One-half (11) of the respondents reported that the conversion of housing under RAD had influenced how the PHA organized itself, used and trained its staff, and carried out basic administrative processes; the other half (11) reported no such effect.

Examples of administrative changes mentioned by the PHAs include the following—

- Some public housing administrative processes (such as the Admissions and Continued Occupancy Policy, or ACOP) are no longer required once a project converts from a

public housing Annual Contributions Contract (ACC) to a Section 8 PBV or PBRA contract.

- For PBRA conversions, PHAs must prepare and provide to HUD's Office of Multifamily Housing new financial statement reports that replaced and differed from the financial reports previously provided to PIH.
- Implementing these changes could present a challenge for PHAs that have had no familiarity with the Office of Multifamily Housing's systems and processes. PHAs have had to learn new administrative systems, software, and reporting requirements, as needed, to manage privately owned, assisted multifamily housing.
- At one PHA, the greatest changes from RAD were due to the introduction of LIHTC, which required operational changes, such as doubling the number of income certifications.[88]

The effect of conversion causes PHAs to add new management processes to those the PHA already executes for its public housing programs, or to replace the old processes with new processes if the PHA no longer operates public housing after conversion. New administrative processes often necessitate new management information systems, such as resident intake and project management, which have changed significantly following RAD conversion. These administrative changes and new information systems have led many PHAs to increase staff training, hire new staff, reorganize staff functions, and initiate other staffing changes. Whether PHAs have completed all required changes, how thoroughly they have been adopted, and the extent to which they will need additional guidance and support from HUD will require further investigation.

Despite the extent of required administrative changes, most of the PHAs we interviewed did not seem overly worried about how RAD would affect the organization and management of the PHA. We asked PHAs to categorize whether administrative changes were "beneficial," "burdensome," or "neutral/no change." As Table 35 shows, one-half of the PHAs (11) said the changes due to Rental Assistance Demonstration conversion were neutral, about one-third (7) said they were beneficial, and about one-sixth (4) said they were a burden. Of course, any change in policies, procedures, or management systems will involve a learning period, and public housing authorities that saw it as a burden mentioned that the burden was more in the adjustment, not the new processes or systems themselves. PHAs that cited the changes as beneficial pointed to gains in efficiency or improvements in asset management.

[88] Income definitions differ between the Section 8 and LIHTC programs, which means that two income certifications, rather than one, were required.

Table 35. PHA Administrative Changes Attributed to RAD

	PHAs
Beneficial Changes	7
Burdensome Changes	4
Neutral or No Changes	11
Total	**22**

Note: One PHA had not completed conversion.

PHAs' ready acceptance of the management changes due to RAD largely reflected their prior background with related programs. PHAs that were already managing Section 8 projects or that had mixed-finance public housing properties with Low-Income Housing Tax Credit (LIHTC) financing tended to say that they found the administrative aspects of conversion under RAD less of a challenge than those that did not have such background and experience.

PHAs reported that the total number of staff members often remained the same after conversion, although their roles and responsibilities often changed. In the short term, many PHAs had to put more staff on development to oversee the construction work. In the longer term, however, because converted projects ceased to be managed under public housing rules, and some projects were converted to ownership and control by a separate legal entity, many PHAs felt that they needed less staff for asset management. For example, at some PHAs, several staff members were combined or consolidated under the HCV program when they eliminated their public housing program, which resulted in staff taking on new roles. In another example, one PHA eliminated the office manager and other front office staff to streamline the PHA more along the lines of a private-sector asset manager.[89]

Findings: Choice Mobility

Choice Mobility is a special feature of the RAD program. This option allows residents of converted housing to request a voucher that the household can use in the private market.[90] In general, the PHAs that we interviewed displayed muted enthusiasm for the Choice Mobility option in RAD. As expressed by one respondent:

> *"The Choice Mobility requirement is a challenge because we are in a sense encouraging people to move out and there are costs that are associated with that, [such as] leapfrogging those in need already on our waiting list. The hidden message that it sends is that this wonderful location is not [good] enough and you can leave."*

As Table 36 shows, PHAs said that tenants inquired about Choice Mobility in about 46 percent of the projects (11 out of 24), but in an equal number (11 out of 24) of cases, PHAs said that tenants did not inquire about it. Two projects were exempted from the Choice Mobility

[89] In some cases, streamlining could overshoot the mark: One PHA initially reduced their staff to one person, then realized that they still needed two people to administer the Section 8 program and went back to a staff of two.
[90] Under the PBV program, residents may request an HCV after living in a RAD property for 1 year; under the PBRA program, they can request an HCV after living in a RAD property for 2 years. When residents make a Choice Mobility request, they will receive priority on the PHA's waiting list. When they move out, their former unit in the RAD property will be leased to another eligible family from the waiting list.

requirement. The projects where tenants did not show interest in Choice Mobility could be where tenants were not interested or where the PHA did not present the option clearly.[91]

Table 36. Interest in Choice Mobility

	Projects
Tenants Asked about Choice Mobility	11
No Interest from Tenants	11
Did Not Answer (Exempted from the Requirement)	2
Total	**24**

HCV = Housing Choice Voucher.
Notes: n = 24. Two of the PHAs did not have an HCV program and received an exemption from HUD for the Choice Mobility requirement. They did not answer this question.

In two cases involving elderly properties, the PHAs said that they did not anticipate that residents would use the Choice Mobility option. At the other extreme, two PHAs said the RAD property had become a way for residents to access the HCV program. In one of these properties, residents decided to stay for a year after conversion—"just long enough to get the voucher"—and then move elsewhere. In a few other cases, the PHAs described the demand for vouchers as "latent"—either the low supply of vouchers at the PHA or the lack of local housing options for use of the vouchers kept residents from using them.

Conclusion on PHA Experience

Overall, the sample of PHAs interviewed rated RAD favorably. These PHAs, however, differed in their views on the program's relative ease or difficulty and advised that it may not work in all cases. All agreed that RAD was an important—in some cases, an essential—means for accessing tax-exempt bonds, tax credit equity, and other construction funds. The PHAs used these resources to improve their projects' physical condition and address critical housing quality issues, such as accessibility for disabled persons, lead-based paint and asbestos hazards, and small unit sizes.

More than one-half of the PHAs said they had experienced some construction delays but did not consider them serious enough to affect the cost or scope of their projects. Most PHAs said that they followed their original construction plans or made only minor changes. PHAs also reported few problems with tenant relocation during construction. In contrast, as the External Stakeholder Experiences section in the Post-Conversion Experience with RAD chapter describes, developers cited tenant relocation as a challenge for RAD. Many PHAs said that they did not have to displace their tenants, even for rehabilitation, because of their construction phasing strategy.

One goal of RAD is to promote more efficient commercial property management practices by outside private property managers or enable reforms to PHAs' internal property management functions. Most PHAs in our sample adopted the latter approach and changed their property management policies accordingly. There are some indications that these changes would make their property management more commercial, but it is too soon to tell. Most PHAs said they had

[91] Most of the PHAs mentioned holding meetings with tenants about the RAD conversion and some sent out letters, but it was not clear what they conveyed about Choice Mobility. In the Effect on Tenants chapter, which reports on the results of our survey of tenants, survey responses tend to support the observation that many tenants were unaware of this option.

no serious concerns about how the property was managed after conversion. In part, this reflects their assessment that the property management changes were minor. In some cases, these PHAs had prior experience with commercial property management practices from tax credit projects.

The majority of PHAs reported that the operational performance of their project had not changed or was better after conversion. A sizeable minority of PHAs, however, perceived deterioration in performance. These results suggest that most PHAs appear to be able to manage properties as well or better after conversion, but a segment has encountered some property management challenges. These challenges could be short-term and solvable, or longer-lasting and harder to resolve. Project performance measures should be tracked and monitored after conversion.

Most PHAs reported that their projects performed the same as or better than before conversion in terms of revenues and expenses. They also reported that most properties were earning enough to cover operating expenses, scheduled reserve-for-replacement payments, and mortgage debt, as well as generate positive net cashflow. They expected this situation to continue for the next 5 to 10 years and planned to roll the cashflow back into the project. PHAs with Project-Based Rental Assistance (PBRA) projects were somewhat more likely than those with Project-Based Voucher (PBV) projects to say their projects had better finances after conversion, but the difference was small.

Although most PHAs were confident that their RAD project would be sustainable, some PHAs felt their Section 8 rents were low and were worried about having enough net operating income to fund their reserves for replacements. Of course, converted projects can improve their financial performance despite low contract rents by reducing deferred maintenance and operating costs and benefiting from the OCAF that increases contract rents each year. Initial financial constraints can undermine long-term capital needs, however. Several PHAs thought that their property improvements would last 15 to 20 years, or for their remaining useful life, but other PHAs had concerns about whether the conversion would be sustainable over the long run because of a lack of funds to meet future capital needs, primarily due to low contract rents.

One-half of the PHAs reported that RAD influenced their organization, use and training of staff, and basic administrative processes; the other half, mostly those who already had some commercial property experience with project-based Section 8 and the LIHTC program, reported no such effect. Those who cited an effect said they had increased staff training, hired new staff, and reorganized roles and responsibilities without changing the total number of staff members. Whether PHAs have completed all required changes, how thoroughly those changes have been adopted, and the extent to which PHAs will need additional guidance and support from HUD remain open questions. One-half of the PHAs said the changes due to RAD conversion were neutral, about one-third said they were beneficial, and about one-sixth said they were a burden. PHAs that cited the changes as beneficial pointed to gains in efficiency and asset management. PHAs that saw these changes as a burden mentioned the adjustment process itself.

In general, the PHAs interviewed showed little enthusiasm for the Choice Mobility option, which allows residents of converted housing to request a voucher that the household can use in the private market. PHAs said that tenants inquired about Choice Mobility in about one-half of the projects. The projects where tenants did not show interest in Choice Mobility could be those

where tenants had no intention to use the option or where the PHA did not present the option clearly.

External Stakeholder Experiences

The RAD program engages a wide array of private sector stakeholders, including developers, lenders, tax credit syndicators, and consultants. Private developers work with PHAs to rehabilitate, construct, and operate converted projects. Some developers also act as consultants. Lenders and tax credit syndicators provide debt and equity capital. For this report, researchers interviewed a small sample of eight developers/consultants, four lenders, and two tax syndicators. This section discusses what these external stakeholders say about the benefits and challenges of RAD.

Background and Qualifications

External stakeholders had a significant background with HUD and housing development before RAD and bring a depth of experience with RAD. Two developers were regional, and six were national. Most developers specialized in affordable housing. Some acted as development-owners—one managed more than 50,000 units. The developers also reported long familiarity with several HUD programs, including HOPE VI[92] and project-based Section 8, and an array of financing sources, including conventional mortgages, Federal Housing Administration (FHA) insurance, Federal Home Loan Bank (FHLB) Affordable Housing Program (AHP), Community Development Block Grant (CDBG), Home Investment Partnership Program (HOME), historic tax credits, and LIHTC investor equity.

The lenders varied from a small community bank ($750 million in assets) to a large national institution ($90 billion in assets). All four lenders were FHA-approved; several specialized in FHA's 221(d)(4) and 223(f) programs and used Fannie Mae, Freddie Mac, and the U.S. Department of Agriculture. The tax syndicators operated nationwide.

Most stakeholders that we interviewed (10 of 14) had worked on more than 5 RAD transactions, and a large number (6) worked on more than 15 RAD transactions. More than one-half of the developers had closed on over 3,000 RAD units—one developer/consultant reported 16,000 RAD units. Their RAD transactions had total development costs ranging from $23 million to $85 million, debt contributions of up to $17.5 million per project, and average tax credit equity of about $4 million.

Perceived Benefits and Challenges of RAD

Almost all stakeholders in our sample supported the continuation of the RAD program and said that they would keep conducting RAD transactions. A typical response was: "Taking residents out of public housing and putting them into new or rehabilitated housing that involves the use of private money—there's nothing else comparable." One respondent, however, had experienced issues with a RAD project and questioned whether he would continue with RAD.

The stakeholders with whom we spoke listed the following benefits of RAD—

[92] See appendix E for a description of the HOPE VI program.

- **Expanded access to needed capital:** For most of the stakeholders, the clearest benefit of RAD is that it gives PHAs access to new sources of capital for improving their housing. As one interviewee said, "There is very little money to fix public housing right now. RAD facilitates the infusion of private sources of capital, whether it be tax credit equity or debt."
- **Preservation of affordable housing:** Most of the stakeholders acknowledged the preservation of affordable housing to be a major benefit of RAD. As one respondent remarked, "RAD makes a real difference. For example, if a building has a repair budget of $2 million…we [can use RAD] to set up a fund to repair the property going forward [by funding] replacement reserves at $2 million."
- **Improved flexibility:** Finally, several stakeholders contended that RAD offers PHAs added flexibility in how to manage their affordable housing assets. As one argued, "Part of what is good about RAD is the fact that it offers great flexibility. If you have a housing authority whose portfolio is in good enough shape with [few] improvement needs, they can do a nonconstruction conversion through RAD…to provide operational sustainment and a more stabilized capital environment for the long-term sustainment of those assets."

In addition to pointing out its benefits, the stakeholders identified several challenges with RAD based on their direct experience with the program.

- **Funding limitations:** Most of the developers and lenders mentioned that some RAD projects are not raising optimal levels of funding due to (1) low contract rents and (2) the lack of capital funding. More than one-half of the respondents said that the rents for many RAD projects are too low to support the amount of debt required to finance all their capital needs. Also, because "budget-neutral" RAD does not provide projects with increased capital dollars (unlike HOPE VI), it positions PHAs to do only a "shallow rehab" when their projects would benefit from greater investment.
- **Tenant relocation:** Several developers noted construction delays and other complications from tenant relocation for RAD projects. They find it difficult to coordinate construction work with the timely movement of tenants so that units are empty when construction begins, and tenants can move back when construction is completed. They also felt that HUD's program rules make a difficult process even more difficult. For instance, HUD restricts PHAs from moving tenants out until after the RAD Conversion Commitment (RCC) has been issued, which may not be enough lead time and may ignore family needs, such as school calendars. These complications can make tenants unhappy and cause construction delays.
- **Steep learning curve for PHAs***:* Several stakeholders noticed that PHAs that do not have experience with managing debt and replacement reserves face a steep learning curve with RAD. One developer noted that RAD was a "cultural change" for PHAs that are not used to handling project debt. As PHAs have become more involved in RAD, they have placed more demands on developers for technical assistance (TA).
- **Multiplicity of decision makers:** The multiplicity of HUD offices and other parties involved in the RAD conversion process causes confusion in the view of some stakeholders. On HUD's side, these include the Office of Recapitalization, Office of General Counsel, Office of Multifamily Asset Management, and HUD's Office of Public

and Indian Housing. Other parties can include the PHAs, a consultant to the PHA, a lender, a tax credit syndicator, a developer, a general construction contractor, and one or more attorneys. All parties must coordinate among themselves for the project to succeed, and the sheer number of parties can make coordination problematic in their view.

- **Complicated closing process**: The RAD closing process can seem exceptionally slow from the vantage point of experienced lenders and developers. They point out that there are more steps in RAD closings than for regular project-based Section 8 contracts. Two lenders mentioned that they have had to postpone locking in interest rates because of delays at closing. Another developer said that the closing process was always rushed at the end and that there were situations when RCCs did not get executed in time for closing.
- **Differing program requirements**: Several stakeholders expressed frustration with the need to respond to differing HUD requirements for RAD conversions. For example, some RAD requirements differ from FHA mortgage insurance requirements, which they felt creates confusion and delays in completing RAD transactions that involve FHA financing. As another example, HUD's Site and Neighborhood Standards limit the circumstances in which new construction can occur in areas with high concentrations of minority populations.[93] Some stakeholders argued that these standards may deter PHAs from replacing dilapidated properties with new properties when alternative sites are not readily available or feasible.[94] Because the RAD Notice does not require a front-end civil rights review for substantial rehabilitation in existing properties, these stakeholders contend, PHAs may be inclined to pursue rehabilitation over new construction or acquisition even if the existing building has significant environmental or other problems that are costly to remediate.[95]

PHA and External Stakeholder Recommendations

The PHAs and external stakeholders made a variety of recommendations for how RAD could be improved by addressing TA needs for PHAs, project underfunding, tenant relocation, and

[93] The purpose of site and neighborhood standards are to help HUD recipients, such as PHAs, fulfill their obligation under the Fair Housing Act and Title VI of the Civil Rights Act by requiring them to consider the effect on racial and ethnic concentrations when siting HUD-assisted housing projects. It is the PHA's responsibility to ensure that the site selection complies with all applicable site selection requirements. When a RAD project involves new construction, HUD will conduct a front-end civil rights review to determine whether the site is located in an area of minority concentration and, if so, it will review the data and analysis submitted by the PHA to determine whether it supports the conclusion that the site meets one of the exceptions that allows for new construction in an area of minority concentration.

[94] According to data provided by FHEO, there were 131 active or closed RAD transactions that received a site and neighborhood standards approval as of December 4, 2018; 70 were in areas of minority concentration; and only three RAD transactions received a disapproval. One developer said they have had some success appealing HUD rulings about site and neighborhood requirements for RAD new construction.

[95] RAD projects that involve rehabilitation must certify that the site meets applicable site and neighborhood requirements, including the requirements of Title VI of the Civil Rights Act, Section 504 of the Rehabilitation Act, Title II of the Americans with Disabilities Act, and 24 CFR 983.57(b)(2) (for PBV conversions) and paragraph (a) of Appendix III of the RAD Notice (for PBRA conversions). The front-end civil rights review that applies to new construction is not applicable to rehabilitation projects.

program management. For some of the issues they raised, such as differing program requirements, they had no suggestions for how to address them.

Several PHAs and stakeholders recommended—

- **Increase TA for PHAs:** As noted both by PHAs and external stakeholders, many PHAs do not have the skills or experience needed to apply for project loans, manage project debt obligations, set up replacement reserve accounts, monitor LIHTC compliance, or comply with Section 8 requirements, which could deter them from participating in RAD or complicate their involvement. The process can be especially daunting for small and rural PHAs.[96] HUD already provides TA through its assigned Readiness Transaction Managers and contractors, who meet directly or via telephone with PHAs and their partners in the RAD program monthly to respond to questions and point them to possible solutions and resources. HUD also provides a substantial number of resources on the RAD Resource Desk, including webinars, guidebooks, and case studies. Although helpful, this may not be enough for those PHAs that have to train and prepare their staff, boards, and residents or bring in outside consultants who understand the process. One suggestion is that HUD expands its TA with onsite financial advisors, additional guidebooks, factsheets, training workshops, and other means.

Several stakeholders recommended the following changes to RAD to reduce project underfunding—

- **Raise rents:** Several interviewees recommended that RAD use higher formula rents and increase the use of rent bundling, where higher affordable rates (for example, up to 120 percent of market rents) could mix with the Section 8 rents to produce a higher rent base. Higher rents would help finance a larger mortgage and make more projects feasible.[97] One developer commented that increasing RAD contract rents by $40 to $70 per unit per month would be a "game-changer" in terms of the number of rehabilitation projects that could be financed. Some changes to the budget-neutral nature of the RAD program, such as higher contract rents, could require congressional action, but other changes, such as the promotion of rent bundling, which is permitted under RAD, can be implemented administratively.[98] It may be beneficial for the RAD program office to provide additional educational materials, such as case studies with financial examples, showing how rent bundling is done and what effect it has on both the "donating" and "receiving" property or properties. The new change to Section 8 that permits scattered-site properties to receive tenant protection vouchers expands the tools available to PHAs to address the needs of their portfolios.[99] These changes provide flexibility within existing program regulations without changes in statute.

[96] HUD has recently provided a streamlined RAD conversion process for small PHAs that could address this need.
[97] One developer said that they have seen rent bundling used to support properties with a high proportion of elderly residents because RAD rents are skewed toward larger unit sizes, and thus projects that are primarily efficiencies and one-bedroom units have low contract rents.
[98] HUD has implemented this policy in the RAD Supplemental Notice.
[99] This option allows RAD conversion projects to receive Section 18 disposition approval for 25 percent of the units at the converting property. These units receive voucher funding under the traditional PBV program, based on fair market rents (FMRs), which are commonly higher than RAD contract rents. This increased subsidy results in the project being able to assume a higher level of debt. If tax credits are being used, they increase the amount of equity

- **Offer capital grants:** Unlike HOPE VI, RAD does not provide projects with greater direct resources, leaving many PHAs to carry out a "shallow rehab" or simply not participate in RAD. The recommendation is that HUD provides Capital Fund dollars to supplement the funding available to projects that are unable to meet all their capital needs otherwise.
- **Promote more use of tax credits**. Many PHAs resist using tax credits because they fear loss of control, fail to understand the program's complexity, or are deterred by high transaction costs. These PHAs lose out on the advantages that tax credits provide in terms of increased investment in rehabilitation or, in some cases, making new construction feasible. Expanding educational outreach to PHAs and addressing their concerns about tax credits would promote access to more capital for RAD projects.

To address tenant relocation issues, several stakeholders recommended the following—

- **Facilitate tenant relocation:** Developers cited the need for coordinating the sequencing of rehabilitation activities with tenant relocation. HUD restricts the authority to move tenants until after the RCC is issued; but, as one lender said, relocation can then take up to 6 months. Community needs come into play as well (for example, scheduling construction so that families can be moved in line with school calendars). Although there are several guidance documents related to tenant relocation, they are focused primarily on legal and regulatory constraints and procedures rather than practical advice.[100] It would be beneficial for RAD to develop programmatic relocation guidance, case studies, and other resources that lay out best practices in this area of the redevelopment process.

To improve the general management of the RAD program, several stakeholders made the following recommendations—

- **Provide more timely communications:** Several developers and lenders we interviewed wanted more timely communications from HUD as properties move through the conversion process. During this process, HUD primarily communicates with the PHAs. The PHAs determine the extent to which developers, lenders, investors, and other stakeholders are involved. Depending on how the PHAs have communicated with these stakeholders, the process can appear to be a "black box" with insufficient communication at each step. For instance, several developers and lenders argued for being included in more conference calls with HUD and others throughout the conversion process. One developer noted that PHAs had a portal—the RAD Resource Desk—where they could track the conversion process for their projects, from the point when it receives a Commitment to enter into a Housing Assistance Payment (CHAP) through completion of

that the project can obtain. This option is provided where the capital budget reaches a certain level (60 percent of HUD's Hard Construction Cost number for the given units) and the project is not using 9-percent LIHTC tax credits. Another option permits PHAs with 50 or fewer units (there are more than 800 PHAs of this size) to receive Tenant Protection Vouchers (TPVs) for all units. Similarly, for scattered-site developments that are inefficient to operate, PHAs are now permitted to request TPVs.

[100] One developer had the impression that HUD does not understand the complications and logistics of moving residents out of an existing property into a newly constructed building because its guidance does not address practical relocation issues.

the RCC.[101] HUD has recently upgraded its portal to allow the PHAs' partners to access transaction documents. Going forward, HUD may want to consider further improvements. For instance, HUD could customize a landing page that is specific to lenders and investors, which would exclude some of the internal notes and discussions between the PHAs and HUD. In addition, there are currently monthly check-in calls originated by RAD's Readiness Transaction Managers, who are tasked with helping PHAs prepare and submit their financing plans. PHAs could be encouraged to invite their lender and investor partners to participate in these calls.

- **Simplify coordination with HUD:** At least one respondent called for the consolidation of the administration and implementation of the RAD program into fewer offices at HUD. Given the involvement of diverse offices in the RAD program, a complete consolidation would be difficult, but some consolidation is likely feasible. Some simplification in how outsiders interact with the program and more clarification about the various points of contact could improve the flow of communications. For example, developers and lenders mentioned that as many as three or more HUD offices within PIH and the Office of Multifamily Housing are involved in the RAD process. They felt that HUD had divided the program among so many "silos" that outsiders had difficulty keeping track of events. One developer thought that HUD should consolidate RAD into a single office. An option worth exploring would be for HUD to establish a point person (or persons) to coordinate the work of the different offices and act as a point of contact for PHAs and developers on a given RAD conversion.
- **Accelerate closing process:** Both the developers and lenders we talked to argued that RAD needs to be faster at closing. To speed up the closing process, one developer recommended standardizing the RAD closing documents and adopting a process that was closer to that used for a regular Section 8 HAP contract, which involves fewer steps. Another developer felt that the closing process could be improved by better coordination from HUD. In their experience, RAD closings were always rushed at the end, and there were situations when RCCs did not get executed in time for closing due to inadequate coordination.

None of the stakeholders we interviewed made recommendations to address the challenge of balancing Fair Housing requirements with other aspects of the RAD program. In November 2016, HUD published guidance on meeting fair housing and civil rights requirements (Notice H 2016-17/PIH 2016-17 (HA)). The Office Fair Housing and Equal Opportunity also provides TA to PHAs on meeting these requirements and has noted that most RAD projects have been approved. Several stakeholders viewed this as an area that HUD should continue to consider how to improve, however.

[101] The RAD Resource Desk is flexible as to who can be granted access to a project's information. There are various pages with subsets of data accessible to specific players in the process, including PHAs, HUD staff, Office of Fair Housing and Equal Opportunity (FHEO), Field Office (FO) staff, and the RAD transaction manager. PHAs can also provide access to their partners, including lenders.

Physical Condition

The RAD program was designed to preserve affordable housing, in part by enabling PHAs to improve the physical condition of their public housing properties and address capital needs. In concept, RAD works by converting annual public housing subsidies into long-term project-based Section 8 subsidies, which PHAs use to finance the cost of repairing or replacing their converted housing. This chapter examines the extent to which projects invested in construction after conversion. It then measures the degree to which the investment improved projects' physical condition and addressed their short-term capital needs, including critical needs. In addition, it explores whether some projects were more successful than others at addressing capital needs and what would have happened to those projects in the absence of RAD. The core of the analysis compares the change in short-term capital needs before and after conversion for a sample of RAD properties (the treatment group) and the corresponding change for a sample of non-RAD properties (the control group).[102]

Methodology

The study design included an analysis of primary and secondary data from a sample of RAD projects and comparable non-RAD projects to understand RAD's effect on the physical condition and capital needs of low-income housing. Primary data were collected using physical condition assessments (PCAs; also called physical needs assessments (PNAs) or capital needs assessments (CNAs) for the RAD and non-RAD samples).[103] HUD provided secondary project data on financing and construction costs and the initial PCAs for the RAD sample.

The analysis started with a sample of 24 RAD projects (the treatment group) and 48 non-RAD projects (the control group). Appendix C provides a list of the projects included in these two samples. The sample framework for the treatment group consisted of 132 RAD public housing properties that had an approved CHAP as of December 31, 2013 and had either closed or reached the RAD Conversion Commitment (RCC) stage by December 31, 2014. For sampling purposes, analysts grouped the sample frame into nine subgroups based on the combination of PHA size and physical condition of the property.[104] The result is a sample that broadly represents RAD projects that had closed or were expected to close during the initial period of the program. These are the "early adopters."

For the control group, or non-RAD sample, analysts selected two non-RAD public housing properties for each RAD property in the treatment group—a total of 48 properties—based on

[102] These are the same RAD and non-RAD samples that are included in the analysis of the effect of RAD on the financial condition of properties in the Financial Performance chapter. The Post-Conversion Experience with RAD chapter reported on interviews with the PHAs managing the same RAD sample of properties.
[103] PCAs, PNAs, and CNAs are similar assessments. Hereafter, "PCA" will be used to refer to all three. See the addendum to this chapter for a description of how PCAs are prepared.
[104] PHA size categories were large PHAs (1,250 and more Annual Contributions Contract (ACC) units), medium PHAs (250 to 1,249 ACC units), and small PHAs (fewer than 250 ACC units). Physical condition categories were high performers (over 90 points on the Real Estate Assessment Center (REAC) score), standard performers (between 70 and 89 points on the REAC score), and substandard (lower than 70 points on the REAC score).

how well they matched.[105] Matching helped reduce self-selection biases due to the voluntary nature of RAD.[106] The 2-to-1 ratio allowed for the possibility that less data could be available for non-RAD projects compared with RAD projects—for example, if non-RAD projects were less inclined to participate in data gathering.[107]

This study uses the change in short-term capital needs per unit of housing between two PCAs (the initial and followup) for the same project as the key indicator of the effect of RAD on physical condition and short-term capital needs.[108] The analysis also looked at the change in short-term capital needs by building component. Seventeen RAD rehabilitation and nonconstruction projects and 46 non-RAD public housing projects satisfied the data requirements and were included in the before–after analysis.[109] RAD new construction projects generally do not have complete initial PCAs and could not be analyzed using this approach. Therefore, the analysis also compares the post-conversion physical condition (that is, short-term capital needs) of RAD projects by level of construction and with non-RAD projects. Due to incomplete data in the initial PCAs on critical needs, which is a subset of short-term capital needs, the analysis also compares the post-conversion critical needs of RAD projects by level of construction and with non-RAD projects.

The objectives of this part of the study are to assess whether conversion under RAD enabled projects to finance enough construction to meet their short-term capital needs and improve their physical condition, and what the effect would have been without RAD.

Research Questions

The primary research questions are presented in the same order as they are addressed in the section—

- How much financing did converted-RAD properties raise, and how much did they spend on construction for RAD properties? How did construction spending vary, especially for rehabilitation conversions (the Financing and Construction Spending section)?
- Did the physical condition of converted properties improve? In what way? Did the change in physical condition vary based on the level of construction spending? How many of projects' critical needs did they address? What would have happened in the absence of RAD (the Changes in Physical Condition section)?

[105] Non-RAD projects were selected from the Public and Indian Housing (PIH) inventory of projects, excluding those that were in RAD. They were matched against the RAD sample on 13 key variables available from HUD or Census datasets. Data from HUD's administrative systems and the American Community Survey 2012 5-year estimates were used to create the key matching variables.

[106] The matching technique was "genetic matching," which is a method that compares RAD to non-RAD properties and identifies those that are as similar as possible. It is useful in observational studies, such as the study of the RAD program; in the RAD program, program participation is non-randomized, which potentially introduces self-selection bias into the data. See the *Interim Report* and Stout, Ruiz, and Herlihy, 2017.

[107] Non-responsiveness turned out to be a minor issue.

[108] The number of units per project was taken from the PCA, since it is consistent with the PCA's estimate of the project's capital needs. For RAD projects, PCA units did not necessarily match and may exceed RAD units because a project can include a mix of units funded through a RAD conversion or another subsidy program.

[109] Six RAD projects did not have both initial and followup PCAs, in some cases because they were new construction projects, which are not required to complete initial PCAs. One RAD project was dropped because it had not completed conversion. Two non-RAD projects were missing either the initial or the followup PCAs.

- How many of their pre-conversion capital needs did converted properties meet, and how many still remained after conversion and construction? What would have happened in the absence of RAD (the Addressing Prior Capital Needs section)?

Table 37 summarizes the outcomes and measures used in the analysis to address these questions.

Table 37. Outcomes and Measures

Outcomes	Measures
Financing and Construction Spending (Section)	• Comparison of construction costs and financing for RAD properties by type of conversion (nonconstruction, rehabilitation, new construction) and by shallow and moderate-to-deep rehabilitation ($). • Comparison of construction costs with rehabilitation needs by type of conversion ($).
Changes in Physical Condition (Section)	• Change in short-term capital needs before and after conversion for RAD projects and over a comparable period for non-RAD projects ($). • Change in short-term capital needs by physical component of building or site (for example, kitchen, bathroom, heating, and cooling system) before and after conversion for RAD projects and over a comparable period for non-RAD projects ($). • Comparison of short-term capital needs for new construction projects versus other types of RAD conversions and non-RAD projects ($). • Comparison of critical needs for new construction projects with other types of RAD conversions and non-RAD projects ($).
Addressing Prior Capital Needs (Section)	• Amount and percent of capital needs that were addressed or accelerated based on comparing short-term capital needs prior to conversion with unscheduled capital needs after conversion for RAD projects and over a comparable period for non-RAD projects ($). Unscheduled capital needs are estimated by deducting capital needs scheduled to occur in the initial PCA as building systems reach the end of their expected useful life from the short-term capital needs measured in the followup PCA.

PCA = physical condition assessment.

Data

This study relied on HUD for data on the amount of financing raised by PHAs and the amount of construction costs incurred to meet a Rental Assistance Demonstration project's rehabilitation needs. It used this information to classify rehabilitation projects as shallow (covers less than 115 percent of rehabilitation needs) or moderate-to-deep (covers more than 115 percent of rehabilitation needs). HUD identified which projects are nonconstruction conversions based on their little-to-no planned construction.

For data on physical condition, short-term capital needs, critical needs, and unscheduled capital needs, the study relied on PCAs for the RAD and non-RAD projects in the study sample. The research design called for two PCAs for each project: an initial PCA before conversion and a followup PCA after conversion for each RAD project, and an initial and followup PCA for each non-RAD project over a comparable period. For RAD projects, HUD provided the initial PCA, which it obtained from the public housing authority (PHA) as part of the financing plan. The

research team used a single third-party contractor to prepare all other PCAs used in this study, following HUD guidelines.[110]

The PCA identifies current physical deficiencies by system, component, and type of equipment. It also estimates when a system or component will probably need repair, replacement, or refurbishment in the future. Finally, it estimates the cost of remedying each deficiency or replacing each system or component based on standard unit cost assumptions. These dollar costs are aggregated by year to estimate capital needs for that year. Capital needs are presented in both constant dollars and inflated dollars.

The PCA estimates the project's capital needs for each year from the time of the assessment for 20 years.[111] The PCA classifies these estimates as—

- Rehabilitation needs (deficiencies that should be addressed immediately by the PHA, or in year 0). Rehabilitation needs include critical needs (defined as life and safety deficiencies) plus other immediate needs that the project should address upfront (in year 0).
- Short-term capital needs (capital investments that should be made in years 1 through 3). Short-term capital needs consist of deferred maintenance items that do not require immediate attention but nonetheless should be completed over the next 36 months.
- Long-term capital needs (which cover years 4 through 20). Long-term capital needs represent items that will need to be repaired, replaced, or refurbished as their useful life expires.

Rehabilitation and short-term capital needs reflect an assessment by the onsite investigator of the current physical condition of the property. They are an important part of the analysis in the next three sections. For convenience, the discussion of physical condition in this report often uses the term "short-term capital needs" to refer to both rehabilitation and short-term capital needs.

This chapter does not address the effect of RAD on long-term capital needs because long-term capital needs do not define a project's physical condition. In the Addressing Prior Capital Needs section, however, long-term capital needs from the initial PCA are used to estimate a project's scheduled and unscheduled capital needs. Long-term capital needs are also important for determining a project's reserves for replacement requirement. The next chapter discusses this requirement to assess the effect of RAD on converted projects' financial condition.

Financing and Construction Spending

This section reviews the total financing amounts and construction spending for the sample of RAD conversions. The amount of financing that a PHA raises through RAD conversion should affect the amount it spends on construction. In turn, construction spending should affect the

[110] The third-party contractor prepared the PCAs in accordance with HUD's Multifamily Instructions for the PCA Property Evaluator and professional standards for assessing property condition, as described in International Association for Testing Materials. (2015). In a few cases, the PHA had already prepared a PCA and provided it to the third-party contractor for review.
[111] The Addendum: Physical Condition Assessments section provides more detail on how PCAs are prepared.

scope of capital needs a project addresses and the physical condition of the project. The first analysis considers the entire sample of 23 RAD conversions (1 of the 24 RAD properties in the original sample had not completed conversion). The second analysis considers the smaller sample of 17 RAD conversions for which there is an initial and followup PCA (6 projects did not have both PCAs). The latter analysis also identifies projects as shallow rehab or moderate-to-deep rehab.

RAD Conversions

As Table 38 shows, the 23 RAD projects in the sample that had completed conversion had an average funding level of $99,999 per unit and an average construction cost per unit of $49,279. Construction costs absorbed 49 percent of total financing. As expected, new construction projects incur, on average, the greatest construction costs per unit at $155,832 because new construction is often the most expensive option for improving a project's physical condition. They also have the highest financing per unit at $215,845 and the highest share of construction costs to financing at 72 percent. Rehabilitation projects have the second highest funding level, at an average of $96,645 per unit, and construction cost per unit at an average of $41,598. Their percentage share of construction costs to financing is 43 percent. Nonconstruction conversions, which undertake only nominal construction, have close to zero dollars in construction costs, zero percent share of financing, and average financing of $26,530 per unit.[112]

Table 38. Financing and Construction Costs Per Unit: RAD Sample of Converted Properties

Type of RAD Project	N (Projects)	Amount of Financing A ($)	Construction Costs B ($)	Construction as Percent of Financing B/A (%)
Nonconstruction	4	26,530	86	0
Rehabilitation	16	96,645	41,598	43
New Construction	3	215,845	155,832	72
All RAD Conversions	**23**	**99,999**	**49,279**	**49**

Notes: Financing and construction cost data provided by HUD. Per-unit calculations use the number of units in the followup PCA. Using the followup PCA rather than the initial PCA enabled the analysis to include more projects.

The positive relationship between financing and construction costs per unit makes sense: projects with higher construction costs require greater financing, whereas projects with access to more financing can afford higher construction costs and therefore may be more apt to pursue them.

The table also shows that average construction costs as a proportion of average financing increase moving up the scale from nonconstruction conversions to rehabilitation and new construction. For new construction projects, the cost of construction on average absorbs most of their financial resources. Even projects with little to no construction costs raise financing for other uses (for example, to refinance mortgage debt, in a few cases). Other possible uses for financing in addition to construction costs include resident relocation costs, professional fees,

[112] The amount of financing per unit for the nonconstruction projects in our sample is unusually high due to one project refinancing an existing mortgage. Most nonconstruction projects in the RAD program do not take on mortgage debt or equity financing. Although mortgage refinancing does not support construction, it could improve the financial condition of projects by reducing their debt service.

financing costs (fees and interest), escrows, and the Initial Deposit to the Replacement Reserves (IDRR).

Shallow and Moderate-to-Deep Rehab

In the Post-Conversion Experience with RAD chapter, several developers and lenders mentioned that low contract rents under RAD result in conversions limiting their physical improvements to shallow rehab. Although they did not define this term, the notion is that, for some RAD conversions, the amount of rehabilitation they can afford is inadequate to meet some or possibly most of their short-term capital needs. This section uses the sample of RAD projects to explore the concept of shallow rehab and its complement, moderate-to-deep rehab. The analysis relies on the initial PCAs submitted by PHAs as part of their financing plan under RAD for the estimate of rehabilitation needs. Because this exercise is used to analyze the effect on the change in short-term capital needs and physical condition, it is limited to the 17 completed RAD conversions that have the required PCAs. The analysis also uses data provided by HUD on financing and construction costs. Because there was no construction cost data for non-RAD projects, they are not included.

To determine whether a rehabilitation project was shallow or moderate-to-deep, the analysis first estimated the amount of financing, construction costs, and rehabilitation needs per unit. Rehabilitation needs represent the project's capital needs that should be addressed immediately (that is, before the first 12 months, or in year 0). The analysis then calculated the rehab coverage ratio, which is the ratio of construction costs to rehabilitation needs. This ratio represents the percentage of rehabilitation needs that the project's construction plan should be able to address. All rehabilitation projects in our sample had a rehab coverage ratio of at least 100 percent, meaning that all rehabilitation projects could meet all rehabilitation capital needs.[113] Most rehabilitation projects in our sample clustered near the bottom of the scale, but a few had high ratios (one project had no rehabilitation needs). The nine projects near the bottom, which had coverage ratios ranging from 100 percent to 112 percent, were assigned to the shallow rehab category. The remaining five projects were assigned to the moderate-to-deep rehab category. Their coverage ratios ranged from 158 percent to 989 percent and higher (the ratio was incalculable for the project with no rehabilitation needs).

Based on this approach, shallow rehab encompasses rehab projects whose construction spending is only marginally adequate to cover the project's rehabilitation needs as defined before conversion in the first PCA, leaving little room for covering other short-term capital needs over the 3-year period. Moderate-to-deep rehab[114] encompasses rehab projects whose construction spending is more than enough to cover the project's rehabilitation needs. Projects with coverage ratios greater than 100 percent are likely spending their construction dollars on short-term capital needs (that is, capital needs in years 1 through 3), which are greater than rehabilitation needs. They could also be addressing a portion of their long-term capital needs (that is, capital needs from years 4 through 20), spending on capital items and costs that are not included in the capital

[113] The three nonconstruction projects had construction costs covering only 26 percent of their rehab needs despite having substantial financing. Their rehab needs were modest enough to be covered through active maintenance, and their financing was being used to fund their reserves for replacement and pay for other costs. One nonconstruction project refinanced a preexisting mortgage on the property.

[114] If the sample size had been larger, this category would have been divided into moderate and deep rehab.

needs estimate, such as amenities or enhancements that go beyond the quality standards for affordable housing, or covering other costs, such as closing costs or debt refinancing, however.[115]

Findings: Meeting Rehabilitation Needs

Table 39 shows the results of the analysis of rehabilitation needs. Shallow rehab projects had less financing per unit ($23,066) and lower construction costs per unit ($10,025) compared with moderate-to-deep rehab projects, which had more than eight times the amount of financing ($190,538) and more than six times the amount of construction spending ($61,888). Shallow rehab projects also averaged 35 percent less financing per unit than nonconstruction conversions ($35,366), although the latter had minimal construction costs per unit ($114).

Despite differences in financing and construction costs, all rehab projects were able to cover rehabilitation needs, fulfilling an objective of the RAD program. As expected, shallow rehab projects had a lower average rehab coverage ratio (109 percent) than moderate-to-deep rehab projects (305 percent). Shallow rehab projects spent enough on construction to respond to their rehabilitation needs and had a little left over for additional improvements. In contrast, moderate-to-deep rehab projects spent more than three times the amount needed to cover just rehabilitation needs on construction.

Table 39. Financing, Construction Costs, and Rehabilitation Needs Per Unit, and Rehab Coverage Ratio: RAD Sample of Converted Properties With Initial PCAs[116]

Type of RAD Project	N (Projects)	Amount of Financing A ($)	Construction Costs B ($)	Percent of Financing B/A (%)	Rehabilitation Needs C ($)	Rehab Coverage Ratio B/C (%)
Nonconstruction Conversion	3	35,366	114	0	434	26
All Rehabilitation	14	82,877	28,547	34	13,171	217
Shallow Rehab	9	23,066	10,025	43	9,202	109
Moderate-to-Deep Rehab	5	190,538	61,888	32	20,316	305
All RAD Conversions	**17**	**74,493**	**23,530**	**32**	**10,924**	**215**

Notes: Per-unit calculations use the number of units in the initial PCA (physical condition assessment). Rehabilitation needs are taken from initial PCA. All three new construction conversions, two rehabilitation conversions, and one nonconstruction conversion are not included because they do not have both PCAs. One project did not complete conversion.
Source: Financing and construction cost data supplied by HUD

[115] "The repairs/improvements identified should be those necessary for the project to retain its original market position as an affordable project in a decent, safe and sanitary condition (recognizing any evolution of standards appropriate for such a project). The project should be able to compete in the non-subsidized market on the basis of rents rather than amenities. Where a range of options exists, the least costly options for repair or rehabilitation should be chosen, when both capital and operating costs are taken into consideration." (*RAD Physical Condition Assessment (RPCA) Statement of Work and Contractor Qualifications,* 2012.)

[116] Numbers differ from the previous table because of differences in the sample of projects. The previous table used projects that had the followup PCA; this table uses projects that had the initial PCA.

The low rehab coverage ratio for nonconstruction conversions (26 percent) may be largely a matter of choice because those projects appear to have ample financing per unit ($35,366) to increase their low construction costs of $114 per unit to a level sufficient to meet their low rehabilitation needs of $434 per unit.[117]

Changes in Physical Condition

This section focuses on the effect of RAD on improving the physical condition of converted properties relative to how the physical condition of non-RAD properties changed over a comparable period. Physical condition is related to short-term capital needs (including rehabilitation needs), as discussed in the Methodology Section. The Financing and Construction Spending Section demonstrated that RAD enabled projects to raise financing and pay construction costs at levels more than enough to cover rehabilitation needs, on average. One would expect that RAD would also enable those properties to improve their physical condition. This analysis confirms that expectation. In addition, it investigates what features of the physical condition of properties were affected most by RAD. Finally, it compares the overall physical condition and critical needs of new construction projects after conversion with the physical condition of other RAD projects post-conversion as well as with non-RAD properties.

Approach

The analysis uses the change in short-term capital needs (include rehabilitation needs) per unit between the initial and followup PCAs as the measure of the change in physical condition for 17 RAD projects before and after conversion and over a similar period for 46 non-RAD projects.[118] If the change is negative (that is, short-term capital needs have decreased), then the physical condition has improved. If the change is positive (that is, short-term capital needs have increased), then the physical condition has deteriorated. This analysis was performed by type of RAD conversion (nonconstruction, shallow rehab, moderate-to-deep rehab) and for non-RAD properties. Only properties with "before" and "after" PCAs could be included in this part of the analysis.

The analysis also examined the change in physical condition by building component for RAD and non-RAD projects that had two PCAs. Building components describe the specific aspects of the buildings, such as kitchens and bathrooms, that could have changed (see the Addendum: Physical Condition Assessments section for a description of these components). Details about how each component changed provide insights into the ways in which their physical condition changed and whether these changes would have been evident to residents and therefore would have influenced their assessment of the effect of RAD, as the Effect on Tenants chapter discusses. The analysis discusses how these changes varied depending on the scope of

[117] As noted earlier, the amount of financing per unit for nonconstruction projects is largely due to one project that refinanced an existing mortgage. For that project, the financing left little more for other uses.

[118] As discussed in the first section, the PCA measures short-term capital needs based on the investigator's assessment of a project's current physical condition, which is used to determine if and when a building system or component needs to be repaired or replaced. The cost of repair or replacement in the first 3 years is the short-term capital need.

construction under RAD (nonconstruction, shallow rehab, and moderate-to-deep rehab); it also discusses what would have happened in the absence of RAD.

Differences in short-term capital needs per unit and critical needs per unit reflect differences in physical condition. In the case of RAD new construction projects, which did not complete initial PCAs, the analysis compares their post-conversion short-term capital needs and critical needs with those of other RAD projects and non-RAD projects.[119]

Findings: Change in Physical Condition for RAD and Non-RAD Properties

Table 40 shows the average short-term capital needs per unit (as a measure of physical condition) for 17 RAD and 46 non-RAD properties at two points (before and after conversion for RAD properties, and over a similar period for non-RAD properties). It also calculates the average per-unit change in short-term capital needs between the two points in dollars and percentages. This analysis shows that average short-term capital needs per unit for RAD units decreased significantly, from $12,981 to $4,608—a reduction of $8,373, or 65 percent. In contrast, average short-term capital needs per unit for non-RAD units increased significantly from $3,740 to $8,710—a rise of $4,970, or 133 percent. Using short-term capital needs as a measure of physical condition, these results show that, on average, the physical condition of RAD properties significantly improved after conversion. In contrast, the physical condition of non-RAD properties significantly deteriorated. Hence, one can say that the effect of RAD was to enable properties to improve their physical condition on average, whereas in the absence of RAD, their physical condition likely would have deteriorated.

Table 40. Change in Average Short-Term Capital Needs Per Unit: RAD and Non-RAD Sample Properties

Project Type	N (Projects)	Initial PCA Short-Term Capital Needs (A) ($)	Followup PCA Short-Term Capital Needs (B) ($)	Change in Short-Term Capital Needs (B-A) ($)	Percent Change
RAD					
Nonconstruction Conversion	3	3,133	3,164	31	1
Rehabilitation	14	15,036	4,917	– 10,119	– 67
Shallow Rehab	9	11,392	5,292	– 6,100	– 54
Moderate-to-Deep Rehab	5	21,596	4,242	– 17,354	– 80
RAD Total	**17**	**12,981**	**4,608**	**– 8,373**	**– 65**
Non-RAD	**46**	**3,740**	**8,710**	**4,970**	**133**

PCA = physical condition assessment.
Notes: Totals may include rounding. Includes only properties that had both initial and followup PCAs.

The table also shows that these findings vary based on the scope of rehabilitation under RAD. In general, the greater the scope of rehabilitation, the greater the improvement in physical

[119] The initial PCAs for RAD projects, unlike their followup PCAs, did not provide detail on critical needs. Therefore, the analysis could not examine the effect of RAD on the change in critical needs.

condition. RAD rehabilitation properties improved their physical condition by reducing short-term capital needs per unit from $15,036 to $4,917—a reduction of $10,119, or 67 percent. The improvement was greater for moderate-to-deep rehab than for shallow rehab. The former improved their physical condition by reducing short-term capital needs per unit from $21,596 to $4,242—a reduction of $17,354, or 80 percent. The latter improved their physical condition by reducing their short-term capital needs per unit from $11,392 to $5,292—a reduction of $6,100, or 54 percent. Nonconstruction conversions had almost no change in physical condition. Their short-term capital needs per unit were about the same before conversion ($3,133) as after conversion ($3,164), differing by only $31, or 1 percent. For these projects, conversion under RAD enabled them to maintain their prior physical condition, which was already better than the other RAD conversions.

Findings: Change in Physical Condition for RAD and Non-RAD Properties by Component

Table 41 provides a more detailed picture of how the physical condition of RAD projects has improved. It shows the breakdown of the change in short-term capital needs per unit, as a measure of physical condition, for 14 categories of capital needs.[120] These categories provide detail on the full scope of capital needs for the 17 RAD properties in our study sample that had available data before and after conversion (no new construction projects are included due to lack of complete data). The table illustrates where RAD properties had deficiencies in their physical condition before and after conversion and completion of any planned rehabilitation. It also displays the calculated change in those deficiencies. An increase in short-term capital needs indicates deterioration in the physical condition for that component; a decrease in short-term capital needs indicates improvement in the physical condition for that component. Table 41 is sorted in order from the greatest percentage reduction to the greatest percentage increase.

[120] See Addendum: Physical Condition Assessments in this chapter for a description of these components.

Table 41. Change in Short-Term Capital Needs Per Unit by Building Component: RAD Sample Properties

Category of Capital Need	Initial PCA Short-Term Capital Needs ($)	Percent of Total (%)	Followup PCA Short-Term Capital Needs ($)	Percent of Total (%)	Change in Short-Term Capital Needs ($)	Percent Change (%)
Other	1,529	12	76	2	– 1,453	– 95
In-Unit	212	2	14	0	– 198	– 93
Building Exterior	3,394	26	344	7	– 3,050	– 90
Parking/Driveways	369	3	88	2	– 280	– 76
Heating and Cooling	1,336	10	371	8	– 965	– 72
Building Interior (Excluding In-Unit)	2,140	16	629	14	–1,511	– 71
Bath	342	3	118	3	– 224	– 65
Safety Equipment	107	1	38	1	– 69	– 64
Kitchen	1,096	8	409	9	– 687	– 63
Site	772	6	359	8	– 414	– 54
Water System	919	7	1,145	25	226	25
Elevator	120	1	153	3	33	28
Common Area	164	1	220	5	56	34
Mechanical and Electrical	481	4	643	14	162	34
Total	**12,981**	**100**	**4,608**	**100**	**– 8,373**	**– 65**

PCA = physical condition assessment.
Notes: Totals may include rounding. Includes 17 RAD properties with initial and followup PCAs. Sorted in order from the largest percentage decrease to the largest percentage increase.

As Table 41 shows, for RAD properties before conversion, the greatest deficiencies were in the exterior of the building—the roof, outside doors and windows, and cladding—accounting for $3,394, or 26 percent of all short-term capital needs per unit. These were followed by deficiencies in building interior (excluding residential units) of $2,140, or 16 percent); then by other costs ($1,529, or 12 percent), heating and cooling ($1,336 or 10 percent), and kitchen ($1,096, or 8 percent). Deficiencies in many of these components would have been noticeable (for example, heating and cooling) or visible (for example, building interiors and kitchens) to tenants, and

some would have affected energy consumption and operating costs for the building (for example, roofs, windows, and other aspects of building exteriors). Other costs included an assortment of support items, such as leasing offices and recycling bins.

The followup PCA estimated the short-term capital needs for these components after conversion under RAD. The analysis calculates whether short-term capital needs increased (physical condition worsened) or decreased (physical condition improved). As Table 41 showed, almost all components (10 of 14) benefited from a significant reduction in short-term capital needs after conversion, with an average reduction of 65 percent. In other words, the physical condition of the buildings converted under RAD improved almost across the board and in areas likely to benefit tenants directly. Those components that experienced reductions in short-term capital needs per unit include (in decreasing order of percentage reduction)—

- Other costs (a reduction of 95 percent, or $1,453).
- In-unit (a reduction of 93 percent, or $198).
- Building exterior (a reduction of 90 percent, or $3,050).
- Parking/driveways (a reduction of 76 percent, or $280).
- Heating and cooling (a reduction of 72 percent, or $965).
- Building interior (a reduction of 71 percent, or $1,511).
- Bath (a reduction of 65 percent, or $224).
- Safety equipment (a reduction of 64 percent, or $69).
- Kitchen (a reduction of 63 percent, or $687).
- Site (a reduction of 54 percent, or $414).

The four components that had an increase in short-term capital needs per unit include (in increasing order of percentage increase): water system (up 25 percent, or $226), elevator (up 28 percent, or $33), common area (up 34 percent, or $56), and mechanical and electrical (up 34 percent, or $162). These components either had low capital needs to begin with so that a percentage increase represented a small change, or they function behind the scenes so that tenants are less likely to notice them.

Table 42 repeats this analysis but for non-RAD projects. It shows the breakdown by the 14 building components of short-term capital needs per unit for non-RAD properties at two points, sorted in order from largest to smallest percentage increase. Looking at the percentage distribution of short-term capital needs per unit in the initial PCA, there are many similarities between non-RAD properties and RAD properties (Table 41). The largest difference is in other, which accounted for 1 percent ($50) of short-term capital needs per unit for non-RAD properties versus 12 percent ($1,529) for RAD properties, and kitchen, which was 17 percent ($623) for non-RAD properties and 8 percent ($1,096) for RAD properties.

Table 42. Change in Short-Term Capital Needs Per Unit by Building Component: Non-RAD Sample Properties

Category of Capital Need	Initial PCA Short-Term Capital Needs ($)	Percent of Total (%)	Followup PCA Short-Term Capital Needs ($)	Percent of Total (%)	Change in Short-Term Capital Needs ($)	Percent Change (%)
Mechanical and Electrical	81	2	2,137	25	2,056	2,548
Safety Equipment	33	1	409	5	376	1,157
Other	50	1	575	7	526	1,060
Elevator	36	1	102	1	66	186
Site	142	4	369	4	226	159
In-Unit	66	2	167	2	100	152
Parking/Driveways	76	2	174	2	99	130
Building Interior (Excluding In-Unit)	491	13	1,114	13	623	127
Water Systems	225	6	425	5	200	89
Common Area	91	2	162	2	71	78
Bath	242	6	364	4	122	51
Heating and Cooling	554	15	803	9	249	45
Kitchen	623	17	758	9	135	22
Building Exterior	1,033	28	1,152	13	120	12
Total	**3,740**	**100**	**8,710**	**100**	**4,970**	**133**

PCA = physical condition assessment.
Notes: Totals may include rounding. Includes 46 non-RAD properties with initial and followup PCAs. Sorted in order from largest to smallest percentage increase.

As Table 42 shows, initial short-term capital needs per unit for non-RAD properties ($3,740) were below those for RAD properties ($12,981), even though the samples were matched on the basis of Real Estate Assessment Center (REAC) physical condition scores. This table also shows that short-term capital needs per unit for non-RAD properties increased by an average of 133 percent—a $4,970 total increase—when they were re-measured about 3 years later in the followup PCA. All components increased, but the percentage increase varied widely, from a low of 12 percent to a high of 2,548 percent. Those components of non-RAD properties that had higher-than-average increases (over 133 percent) in short-term capital needs per unit include (in order from largest to smallest percentage increase):

- Mechanical and electrical (up 2,548 percent, or $2,056).
- Safety equipment (up 1,157 percent, or $376).
- Other costs (up 1,060 percent, or $526).
- Elevator (up 186 percent, or $66).
- Site (up 159 percent, or $226.
- In-unit (up 152 percent, or $100).

Those components with less-than-average increases (under 133 percent) include (in order from smallest to largest percentage increase):

- Building exterior (up 12 percent, or $120).
- Kitchen (up 22 percent, or $135).
- Heating and cooling (up 45 percent, or $249).
- Bath (up 51 percent, or $122).
- Common area (up 78 percent, or $71).
- Water systems (up 89 percent, or $200).
- Building interior (up 127 percent, or $623).
- Parking/driveways (up 130 percent, or $99).

There is wide variation in the magnitude of changes for non-Rental Assistance Demonstration properties, especially when compared with that for RAD properties. This variation is a function of the aging of equipment and systems and the high cost of replacing them. As properties age, their out-year capital needs will shift closer in time. Some high-cost capital items that did not appear as short-term items in the original assessment will become short-term over time as the building ages unless substantial funds are invested in addressing those needs in advance. The aging process—and the timing of repair or replacement—can be accelerated if the systems are poorly maintained. It is possible that the wide range in variation for non-RAD projects reflects the effect of poor maintenance for some components during the intervening period between the two PCAs.

In sum, these findings show that RAD projects improved the physical condition of most components of their buildings. The components that improved tended to be highly visible or to affect tenants directly. In the absence of RAD, those components probably would have deteriorated across the board as systems and equipment aged.

Findings: New Construction Conversions

This section compares the short-term capital needs per unit of new construction projects after conversion with those of the other types of RAD conversions that have been analyzed—nonconstruction conversion, shallow rehab, and moderate-to-deep rehab—along with non-RAD projects. Heretofore, there has been little discussion of the effect of RAD on the physical condition of new construction projects due to the lack of complete data on those projects before conversion. Because of those data constraints, this analysis is limited to comparing results after conversion.

Table 43. Average Short-Term Capital Needs Per Unit After RAD Conversion: RAD and Non-RAD Sample of Properties

	N (Projects)	Short-Term Capital Needs per Unit ($)	Ratio of Short-Term Capital Needs per Unit to Total RAD (%)
RAD			
Nonconstruction	3	3,164	80
Shallow Rehab	9	5,292	134
Moderate-to-Deep Rehab	5	4,242	107
New Construction	3	229	6
Total RAD	**20**	**3,951**	**100**
Non-RAD	**46**	**8,710**	**220**

Note: Includes projects that had followup PCAs and completed conversions.

As expected, new construction conversions are in the best physical condition of all RAD conversions because the housing is newly built (Table 43). Using short-term capital needs per unit as a measure of physical condition, new construction conversions are in better physical condition than all other types of conversions. At $229, their short-term capital needs per unit are the lowest in the table and are only 6 percent of the average of $3,951 for all RAD conversions. Among RAD conversions, shallow rehab has the highest level of short-term capital needs per unit—$5,292, or 134 percent of the average for all RAD conversions. Non-RAD projects have the greatest short-term capital needs per unit—$8,710, or 220 percent of the average for all RAD conversions.

Findings: Critical Needs

This section analyzes how RAD has affected the most urgent deficiencies in properties and what would have happened in the absence of RAD. Physical condition assessments usually include estimates of critical needs, which are a subset of rehabilitation needs. Like rehabilitation needs in general, critical needs should be addressed before the first 12 months are over. As the name implies, however, critical needs are particularly important because they include health, life, and safety deficiencies that pose hazards to residents and others who have access to the property. Examples of cost items under critical needs include required modifications to achieve compliance with federal accessibility standards (for example, the Fair Housing Act, Section 504 of the Rehabilitation Act, and Americans with Disabilities Act, or ADA), dangerous electrical wiring, and faulty fire sprinkler systems.

Table 44 shows the five most costly critical need items for the RAD and non-RAD properties in our samples based on per-unit costs in the followup PCAs.[121] Non-RAD properties had critical need items that were almost an order of magnitude greater than those for RAD properties. For example, the highest ADA-related accessibility item for RAD properties was only 13.5 percent of what it was for non-RAD properties ($841 for RAD versus $6,241 for non-RAD).

[121] Unfortunately, data from the initial PCAs for RAD projects were too sparse to describe critical needs. Therefore, the analysis could not examine how critical needs changed before and after conversion. Instead, the analysis compares the average critical needs per unit for RAD and non-RAD properties after RAD projects completed conversion using data from the followup PCA.

Table 44. Top Five Critical Needs Per Unit: Post-Conversion RAD and Non-RAD

Critical Need Item	Amount per Unit ($)
RAD	
Renovate Unit to Add ADA Mobility Accessibility	841
Repair Concrete Balcony	718
Replace Community Center Flat Roof	614
Replace Wall Heater	300
Replace Vinyl Siding Trim Work	142
Non-RAD	
Add ADA items	6,241
Install Sprinkler Heads	3,214
Add Fire Sprinkler System	1,759
Repair Fire Sprinkler System	622
Replace Distribution Panel	402

ADA = Americans with Disabilities Act.
Note: Some data were rounded.
Source: Data from followup PCAs for 20 RAD and 46 non-RAD projects.

As Table 45 shows, non-RAD properties had an average of $693 in critical needs per unit, which was 433 percent of the $160 in average critical needs per unit for RAD properties after they had converted. Critical needs per unit for RAD projects were the lowest for new construction ($31, or 19 percent of the RAD average) and moderate-to-deep rehab conversions ($10, or 6 percent of the average). They were the highest for nonconstruction conversions ($246, or 154 percent of the RAD average) and shallow rehab ($256, or 160 percent of the average). Taken in context with earlier analyses of the effect of RAD, these results suggest that RAD enables properties to address their critical needs in areas that benefit residents the most. Moreover, RAD's effect on critical needs appears to be greater to the extent that RAD supports more construction. This finding suggests that public housing authorities use RAD to address the critical needs of their projects.

Table 45. Average Critical Needs Per Unit After RAD Conversion: RAD and Non-RAD Sample of Properties

	N (Projects)	Critical Needs per Unit ($)	Ratio of Critical Needs per Unit to Total RAD (%)
RAD			
Nonconstruction	3	246	154
Shallow Rehab	9	256	160
Moderate-to-Deep Rehab	5	10	6
New Construction	3	31	19
Total RAD	**20**	**160**	**100**
Non-RAD	**46**	**693**	**433**

Note: Includes 20 RAD and 46 non-RAD projects that had followup PCAs.

Addressing Prior Capital Needs

The previous section demonstrated that RAD improved the physical condition of converted projects by comparing changes in short-term capital needs before and after conversion for a sample of rehabilitation and nonconstruction conversions and over a comparable period for a sample of non-RAD projects. Differences in short-term capital needs, it was argued, reflect differences in physical condition. Those differences, however, do not tell the whole story of RAD's effect on reducing projects' short-term capital needs. This section undertakes additional analysis of PCA data from the 17 RAD projects and 46 non-RAD projects in our sample to estimate if prior capital needs have been addressed for RAD projects after conversion and for non-RAD projects over a comparable period.

Approach

As shown previously, a RAD project will still have short-term capital needs after it has completed conversion and rehabilitation. Those post-conversion short-term capital needs will include capital needs scheduled to occur after conversion as building systems exhaust their remaining useful life. In addition, however, those post-conversion short-term capital needs could also include capital needs not previously scheduled; in other words, unscheduled capital needs. Unscheduled capital needs can be positive, negative, or zero and can arise from several possible sources. Positive unscheduled capital needs could reflect unaddressed prior short-term capital needs (a backlog),[122] increases from higher unit costs (higher construction costs), the effect of unexpected events (for example, flooding, fires, storm damage), or accelerated depreciation due to poor maintenance.[123] Negative unscheduled capital needs could reflect decreases in unit costs, or the effect of upfront investments and improved maintenance that extend the useful life of building systems and delay the timing of future repair or replacement.

Figure 1 illustrates the method used to estimate the percent of pre-conversion, short-term capital needs that RAD was able to address based on a simplified hypothetical model in which the project experiences an increase in its unscheduled capital needs. Data for RAD projects come from the initial PCA, which provides information on a project's short-term capital needs before conversion and its scheduled capital needs projected to occur after conversion, and the followup PCA, which provides information on a project's short-term capital needs after conversion.[124] For

[122] See Abt Associates Inc., 2010: ii. That report defines "inspection-based existing needs"—corresponding to our term "short-term capital needs"—as "the costs of repairs and replacements beyond ordinary maintenance required to make the housing decent and economically sustainable," and "accrual needs"—corresponding to our term "scheduled capital needs"—as "the costs needed each year [in the future] to cover expected ongoing repairs and replacements beyond ordinary maintenance *assuming that all existing needs are met"* (emphasis added). "*Inspection-based existing needs* are estimated using the repair or replacement costs for each system based on observed condition, multiplied by the number of times the system is present. *Annual accrual costs* are the costs needed each year over the next twenty years to repair/replace systems that reach the end of their useful life that year, assuming all inspection-based existing needs are addressed." A backlog of unscheduled capital needs occurs when inspection-based existing needs are *not* addressed.

[123] Long-term capital needs as projected in PCAs assume that building systems are properly maintained and will therefore last for their expected useful life. Poor maintenance would tend to accelerate depreciation and shorten useful life below what is expected.

[124] Scheduled capital needs post-conversion are the long-term capital needs from the initial PCA that correspond to the same period covered by short-term capital needs in the followup PCA.

non-RAD projects, the two PCAs are available over a comparable period of time; the method of analysis is the same.[125] The analysis estimates positive unscheduled capital needs ($100 in this example) by subtracting the scheduled capital needs in the initial PCA ($300) from the short-term capital needs in the followup PCA ($400). It then compares that change in unscheduled capital needs with the initial PCA's short-term capital needs ($600) to determine how much of the latter has been addressed (83 percent = ($600 - $100)/$600). If the analysis had produced negative unscheduled capital needs, the result would suggest that all of the initial PCA's short-term capital needs had been addressed and some of its long-term capital needs had also been addressed (that is, their timing had been delayed and/or their magnitude had been reduced).

Figure 1. Estimating Percent of Capital Needs Addressed: Hypothetical Example for a RAD Project With Positive Unscheduled Capital Needs

Source	Pre-Conversion	Post-Conversion
	Short-Term Capital Needs	Scheduled Capital Needs
Initial PCA	$600	$300
	—	Short-Term Capital Needs
Follow-Up PCA	—	$400
	Percent Capital Needs Addressed	Unscheduled Capital Needs
Calculation	83% = ($600 - $100)/$600	$100 = $400 - $300

PCA = physical condition assessment.

Findings: Effect of RAD on Addressing Prior Capital Needs

As Table 46 shows, based on data in the followup PCA, RAD properties on average had estimated unscheduled capital needs per unit after conversion of $1,649. The size of the unscheduled capital needs varied with the scope of rehabilitation; it was lower for shallow rehab ($1,864) compared with moderate-to-deep rehab ($2,708) and was negative for nonconstruction conversions (-$766).[126] The RAD amount was considerably below that for non-RAD projects ($5,221) measured at a similar point in time. Moreover, the larger amount of unscheduled capital needs for non-RAD projects compared with RAD projects ($1,649 for RAD versus $5,221 for non-RAD, or a difference of $3,572) accounts for most of the difference in their short-term capital needs ($4,608 for RAD versus $8,710 for non-RAD, or a difference of $4,102) as measured in the followup PCA.

[125] For properties in this study, the approximate amount of time between the initial PCA and the followup PCA was, on average, 3 years for non-RAD properties and 4 years for RAD properties.
[126] A negative value means a project reduced its scheduled capital needs, possibly by repairing or replacing systems ahead of schedule or improving maintenance that extended their useful life.

Table 46. Estimated Unscheduled Capital Needs Per Unit: RAD Sample of Properties Post-Conversion Compared With Non-RAD Sample

RAD/Non-RAD and Project Type	N (Projects)	Followup PCA's Short-Term Capital Needs A ($)	Scheduled Capital Needs B ($)	Estimated Unscheduled Capital Needs C = A – B ($)
RAD				
Nonconstruction Conversion	3	3,164	3,930	-766
All Rehabilitation	14	4,917	2,751	2,166
Shallow Rehab	9	5,292	3,428	1,864
Moderate-to-Deep Rehab	5	4,242	1,534	2,708
Total RAD	**17**	**4,608**	**2,959**	**1,649**
Non-RAD	**46**	**8,710**	**3,489**	**5,221**

PCA = physical condition assessment.
Notes: Includes 17 RAD and 46 non-RAD projects that had both initial and followup PCAs. New construction projects did not have estimates of initial capital needs.

Table 47 compares the estimated unscheduled capital needs after conversion with the initial short-term capital needs of RAD projects before conversion and for non-RAD projects at a comparable point. This table shows that RAD projects succeeded on average at addressing most of their prior short-term capital needs. In contrast, non-RAD projects experienced an increase in capital needs. RAD projects had initial short-term capital needs of $12,981 per unit on average; after conversion, their unscheduled capital needs were estimated to be $1,649 per unit—a reduction of $11,332 per unit, or 87 percent. In contrast, non-RAD projects had initial short-term capital needs of $3,740 per unit on average; after 3 years, their unscheduled capital needs were estimated to be $5,221 per unit—$1,481 per unit higher, or an increase of 40 percent. They failed to address prior capital needs and probably experienced an increase in capital needs as more systems were considered more likely to need replacement earlier or as the cost of replacement had increased. These results suggest that, in the absence of RAD, converted projects would have been significantly less successful at addressing their prior capital needs.[127]

[127] The PCAs did not disclose any unusual circumstances that would have affected these results, such as spikes in construction costs or disasters that caused unusual damages.

Table 47. Estimated Prior Capital Needs Addressed Per Unit: RAD Sample of Properties Post-Conversion Compared With Non-RAD Sample of Properties

RAD/Non-RAD and Project Type	N (Projects)	Initial PCA's Short-term Capital Needs A ($)	Estimated Unscheduled Capital Needs B ($)	Estimated Prior Capital Needs Addressed C = A – B ($)	Percent Prior Capital Needs Addressed C/A (%)
RAD					
Nonconstruction Conversion	3	3,133	– 766	3,899	124
All Rehabilitation	14	15,036	2,166	12,870	86
Shallow Rehab	9	11,392	1,864	9,528	84
Moderate-to-Deep Rehab	5	21,596	2,708	18,888	87
Total RAD	**17**	**12,981**	**1,649**	**11,332**	**87**
Non-RAD	**46**	**3,740**	**5,221**	**– 1,481**	**– 40**

Notes: Includes 17 RAD and 46 non-RAD projects that had both initial and followup PCAs. New construction projects did not have estimates of initial capital needs.

The table also shows that the relative success of RAD projects with addressing their prior capital needs varied by the scope of construction. Nonconstruction conversions reduced prior capital needs by a greater percentage than rehabilitation conversions on average. Nonconstruction conversions had significantly lower initial short-term capital needs per unit ($3,133) than rehabilitation conversions ($15,036) on average. Although they did not use RAD for more than nominal construction, nonconstruction conversions reduced prior capital needs by $3,899 per unit or 124 percent.[128] These projects likely achieved this result by increasing maintenance activities or making capital expenditures outside of the purview of their conversion plan under RAD.

In contrast, rehabilitation projects reduced their prior short-term capital needs by $12,870, or 86 percent. An interesting finding comes from comparing the success at addressing prior capital needs for shallow rehab versus moderate-to-deep rehab projects. The concern about shallow rehab is that it leaves a higher proportion of prior capital needs unaddressed because the project cannot afford all repair items. This analysis shows that shallow rehab and moderate-to-deep rehab projects are about equally successful at addressing prior capital needs. This is largely because they start at different levels of short-term capital needs. Shallow rehab projects had $11,392 per unit in short-term capital needs before conversion, or about 53 percent of the $21,596 per unit of short-term capital needs for moderate-to-deep rehab projects. After conversion, shallow rehab projects reduced prior capital needs by $9,528 per unit or 84 percent. Although moderate-to-deep projects reduced prior capital needs by a larger absolute amount—$18,888 per unit—the reduction was 87 percent. In percentage terms, the reductions were close in magnitude. Thus, despite having a smaller scope of construction than moderate-to-deep rehab projects, the shallow rehab projects were able to concentrate their limited construction dollars on addressing the bulk of their smaller prior capital needs. At the same time, neither moderate-to-deep rehab projects nor shallow rehab projects succeeded at eliminating all their prior short-term

[128] This result suggests that these projects addressed all their short-term capital needs and some of their long-term capital needs ahead of schedule.

capital needs on average, suggesting that both operated under financing constraints that limited their capacity for resolving those capital needs.

Conclusion

This chapter focuses on the effect of the RAD program on the physical condition and short-term capital needs of projects that converted to RAD. That effect is important to the conception of RAD: by financing construction, converted projects should be able to address their physical needs. On average, the RAD projects in our study sample raised $99,999 in financing per unit and spent $49,279 per unit on construction. New construction projects spent the most on construction ($155,832 per unit), followed by rehabilitation projects ($41,598 per unit). Nonconstruction conversions spent almost nothing on construction.

How did construction spending affect their physical condition? Based on information from PCAs before and after conversion and construction, the RAD projects in our treatment group improved their physical condition as shown by having short-term capital needs that were 65 percent lower after conversion.[129] The improvement in physical condition affected almost all building components, particularly those that are most visible to residents, such as heating and cooling, bath, kitchens, and unit interiors. Comparing changes in PCAs over a similar period, the non-RAD projects in our control group experienced an increase in short-term capital needs of 133 percent, representing a deterioration in their physical condition. This deterioration affected all building components. In other words, whereas RAD enabled converted projects to improve housing quality—and to do so in ways likely to affect residents—in the absence of RAD, converted projects likely would have suffered a decline in the quality of their housing.

As noted in the Post-Conversion Experience with RAD chapter, several developers and other stakeholders expressed concerns that some RAD projects are carrying out shallow rehab—under-spending on construction due to financing constraints—and are not meeting as large a proportion of their capital needs as they should. This analysis defined shallow rehab conversions as RAD projects spending on construction only marginally more than needed to cover rehabilitation needs, in contrast to moderate-to-deep rehab conversions, which are covering more (and in some cases, many more) of those capital needs through construction spending. Comparing construction spending with rehabilitation needs, this analysis showed that all rehabilitation projects were able to meet rehabilitation needs, but moderate-to-deep rehab conversions were able to cover a higher share of total short-term capital needs. Comparing the change in short-term capital needs before and after conversion and construction, this analysis confirmed that shallow rehab conversions had short-term capital needs (including rehabilitation needs) after conversion that were only 54 percent of what they were before conversion, compared with short-term capital needs that were 80 percent lower for moderate-to-deep rehab conversions.

Due to the lack of data on the physical needs of new construction projects prior to conversion (which PHAs were not required to complete), the analysis compared the capital needs of new construction conversions with other RAD projects and non-RAD projects. After conversion, new construction projects had the lowest short-term capital needs per unit ($229) as compared with

[129] The before–after analysis of RAD projects does not include new construction projects because they did not complete an initial PCA.

all RAD conversions in general ($3,951) or non-RAD projects ($8,710). These results suggest converted new construction projects are in better physical condition than other RAD projects and non-RAD projects.

Due to the lack of pre-conversion detail on critical needs, which are immediate needs to address life, health, and safety issues, the analysis compared the critical needs of RAD projects after conversion and non-RAD projects at a similar point. RAD projects had lower critical needs per unit than non-RAD projects ($160 versus $693); new construction and moderate-to-deep conversions had the lowest critical needs per unit ($31 and $10). These results suggest that RAD projects have less significant life, safety, and health deficiencies, and the critical needs they do have tend to be less life-threatening compared with non-RAD projects.

The analysis performed a more in-depth look at the effect of RAD on addressing projects' prior short-term capital needs. RAD projects on average reduced prior short-term capital needs by 87 percent; in contrast, non-RAD projects experienced a 40-percent increase in prior short-term capital needs as depreciation accelerated and repair and replacement costs increased. The relative success of RAD projects at addressing prior short-term capital needs varied by the scope of construction. Nonconstruction conversions reduced short-term capital needs by a greater percentage than rehabilitation conversions, on average. Shallow rehab and moderate-to-deep rehab projects reduced prior short-term capital needs by comparable percentages. Due to data limitations, this part of the analysis could not be applied to RAD new construction projects.

Addendum: Physical Condition Assessments

Following the American Section of the International Association for Testing Materials' (ASTM) *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* (2015),[130] the PCA incorporates information on the physical condition of a project obtained from a walk-through survey of the property, review of documents, and interviews with property managers. The purpose of those steps is to identify physical deficiencies, including the presence of conspicuous defects and deferred maintenance of systems, components, or equipment.[131] The PCA also includes estimates of the costs for suggested remedies of the physical deficiencies identified during the assessment of physical condition.

To conduct a PCA, the contractor performs the following steps—

- Visits the property and interviews property management staff to evaluate the general condition of the building and site improvements; reviews available construction documents; walks through the property to observe representative samples of the in-place construction systems, life safety, mechanical, electrical, and plumbing systems, and the

[130] ASTM is an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services. The purpose of *E2018 – 15, Standard Guide for Property Condition Assessments,* is to define good commercial practice in the United States for conducting a baseline property condition assessment of the improvements located on a parcel of commercial real estate by performing a walk-through survey and conducting research as outlined in the guide.

[131] The definition of physical deficiency specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous minor repairs, normal operating maintenance, and so on, and it excludes de minimis conditions that generally do not present material physical deficiencies of the subject property.

general built environment; and evaluates their physical condition in accordance with applicable HUD and ASTM standards.

- Identifies those components that are exhibiting deferred maintenance issues and provides cost estimates based on observed conditions, maintenance history, and industry standard useful life estimates. This will include the review of documented capital improvements completed within the last 5-year period and work currently contracted for, if applicable.
- Performs a limited assessment of accessible areas of the building(s) for the presence of suspect mold, conditions conducive to mold growth, and/or evidence of moisture.
- Reviews maintenance procedures with the in-place maintenance personnel.
- Observes a representative sample of the interior tenant spaces/units, including vacant spaces/units, to gain a clear understanding of the property's overall physical condition. Other areas to be observed include the exterior of the property; the roof; interior common areas; and mechanical, electrical, and elevator equipment rooms.
- Evaluates the physical condition of building systems and related components as being in one of five rating categories.[132]
- Estimates when a system or component will most probably necessitate replacement (or refurbishment; that is, its Remaining Useful Life (RUL)), in part based on its physical condition.[133] The RUL determines the timing of when a system or component needs to be replaced or refurbished.
- Estimates the cost of repairing or replacing items based on invoice or bid documents provided either by the facility or construction costs developed from construction resources.[134]

The PCA report includes the following—

- Description of the property and in-place systems and commentary on observed conditions.
- General statement of the property's compliance with federal accessibility requirements, including the Fair Housing Act, Section 504 of the Rehabilitation Act, and ADA, to identify exposure to issues and the need for further review.

[132] Rating Category 1: No substantial concerns observed, requiring no further action required; Rating Category 2: Some minor issues are noted, requiring limited follow-up; Rating Category 3: Substantial and/or critical issues, where documented follow-up is required; Rating Category 4: Overall condition showing signs of deterioration, requiring documented follow-up with possible action plan; and Rating Category 5: Severe deferred maintenance observed, requiring substantial follow-up and action plan.

[133] The RUL is determined based on referencing Expected Useful Life (EUL) tables from various industry sources along with site observations, research, judgment, and historical replacement records, if provided. Exposure to the elements, initial quality and installation, extent of use, and the quality and amount of preventive maintenance are all factors that affect the estimated effective age of a system or component. The RUL of a component or system equals the EUL less its effective age.

[134] Sources include RSMeans from Gordian and Marshall & Swift from CoreLogic, which are the two leading construction cost databases in the United States, as well as experience with past costs for similar properties, city cost indexes, and assumptions regarding future economic conditions. Estimated costs are based on professional judgment and the probable or actual extent of the observed defect, inclusive of the cost to design, procure, construct, and manage the correction of the physical deficiency.

- Estimates of the capital needs of the project up-front (rehabilitation), for the next 3 years (short-term needs), and projected for 4-to-20 years (long-term needs).

In preparing the PCA, the investigator itemizes the costs used to arrive at the estimate of capital needs by 94 separate components. The list below groups these 94 components into 14 categories—

- Bath: Countertops, sinks, vanities, faucets, floor coverings.
- Common area: Floor covering, lighting bulbs, lighting fixtures.
- Elevator: Cabs, controls, lift mechanisms, escalators.
- Exterior: Exterior walls, sliding glass doors, windows, storm doors.
- Heating and Cooling: HVAC common area and in-unit heating and cooling.
- Interior: Interior doors, painting, carpet, baseboard.
- In-unit: In-unit lighting bulbs, lighting fixtures, electrical.
- Kitchen: Cabinets, exhaust fans, dishwashers, range hoods, ranges, refrigerators.
- Mechanical and electrical: Gas and water distribution and metering.
- Parking/driveway: Parking, asphalt paving, asphalt sealing, surface treatment.
- Safety equipment: Fire extinguishers, smoke detectors.
- Site: Dumpster enclosure, signage, erosion.
- Water system: Plumbing, water savers.
- Other: Personnel, community buildings, unlabeled costs.

Some capital needs have lifespans that are less than 20 years and can be expected to show up more than once in a 20-year schedule, while some capital needs have lifespans that are longer than 20 years and will show up only once and maybe not at all in a 20-year schedule. The contractor performing the PCA evaluates the estimated useful life (EUL) of the components and estimates when a component will most probably need to be replaced based on its physical condition. The component shows up in the schedule according to its EUL.

Table 48 lists some of the EULs of site and building components as established by HUD in its Capital Needs Assessment Tool (CNA e-Tool), which automates and standardizes the preparation, submission, and review of a CNA (HUD, 2018).[135]

[135] Use of the CNA e-Tool became mandatory on February 1, 2018, for all RAD conversions. The inspector can adjust these EULs based on locality, type of property, and so on. For example, climates with frequent freeze–thaw cycles can be much harder on some systems than more temperate climates. Finishes, doors, appliances, and kitchen and bath fixtures may have much longer EULs in a senior property than in a family development, which has many more people in the unit and typically much more frequent unit turnover.

Table 48. EUL of Site and Building Components

Site and Building Components	Description	EUL
EUL <= 20		
Windows	Storm/screen windows	7
Sprinklers and Standpipes	Fire extinguishers	10
Finished Walls, Ceilings, and Floors	Paints, stains, clear finishes, interior	12
Appliances	Refrigerator/freezer	12
Site Utilities	Parking gravel surfaced	15
Site Waste Disposal	Dumpster	15
Dwelling/Common Area HVAC Equipment	Electric heat pump, condenser, pad, or rooftop	15
Landscape	Fencing, steel, or aluminum	20
Plumbing	Boilers electric	20
EUL > 20		
Paving, Curbing, and Parking	Asphalt pavement	25
Exterior Door and Entry Systems	Unit entry doors, exterior, solid wood/metal clad	25
Site Utilities—Gas	Gas supply lines	40
Storm Water Drainage	Storm drain lines	50
Elevators/Escalators	Escalators and electrical switchgear	50
Sprinklers and Standpipes	Building fire suppression sprinklers, standpipes, and fire hose station	50
Slope Roofs	Metal/clay	55
Roof Frame and Sheathing	Wood frame and board or plywood sheathing	75
Plumbing—Water Supply and Piping	PVC/CPVC pipe, supply, and waste	75

EUL = Expected Useful Life. HVAC = Heating, Ventilation, and Air Conditioning.
Source: CNA e-Tool, 2018

Financial Performance

Congress intended the Rental Assistance Demonstration (RAD) program to preserve affordable housing by solving two problems affecting public housing—

1. Addressing short-term capital needs in deteriorating projects.
2. Setting the projects on a sound financial footing so that rents can cover all reasonable costs, including debt payments and long-term capital needs.

The Physical Condition chapter dealt with addressing short-term capital needs. This chapter presents the data, analysis, and results regarding the effect of RAD on the financial performance of converted projects. HUD expects converted projects to preserve or improve their financial viability, including meeting any debt service obligations and covering capital expenses out of project income and paying for all project operating expenses. HUD is also interested in whether converted projects are financially better or worse off than they would have been if they had not participated in RAD but rather had remained as public housing. To evaluate the extent to which these financial performance goals have been achieved, this study examined financial performance data provided by HUD or the PHA from a sample of housing projects that converted under RAD (the treatment group) and a sample of public housing projects that did not convert under RAD (the control group). These two samples were the same as those used to analyze the effect of RAD on the physical condition of converted properties, as presented in the Physical Condition chapter. The results of this analysis can be compared to the findings in the Post-Conversion Experience with RAD chapter, which summarized the treatment group PHAs' answers to questions about project operational and financial performance.[136]

Methodology

This section documents and assesses the success of RAD at preserving affordable housing by maintaining the financial viability of converted projects, defined as the demonstrated ability of those projects to meet their financial obligations, including debt service and reserves for replacement. To assess the effect of RAD on financial performance, this study reviewed "before" and "after" financial statements for the RAD and non-RAD sample projects to measure differences in revenue, expenses, net operating income (NOI), and net cashflow and to classify projects as viable or at risk based on the results of that review. It also analyzed debt service coverage and reserves for replacement for RAD conversions.

Carrying out data collection and analysis required the following—

- Using existing HUD administrative data and program data, including financial statement data, and working with the Office of Policy Development and Research to collect that data for the RAD and non-RAD samples, which was put into a database for analysis.

[136] Although the original samples (24 RAD and 48 non-RAD projects) were the same for the Post-Conversion Experience with RAD, Physical Condition, and Financial Performance chapters, incomplete data for some projects caused the size of the response set to vary at different stages of the analysis in all three chapters. See discussion under Data Sources for variations in the number of projects reported for this chapter. See appendix C for the list of projects in these samples.

- Obtaining additional financial statement data from the RAD sample of PHAs, particularly those with PBV conversions, when such data were not available from HUD.
- Gathering information from HUD staff, public housing authorities (PHAs), lenders, developers, and advisors to understand how the RAD program works, especially with respect to the collection and analysis of financial data on converted projects and the use of that data to monitor the financial performance of those projects.
- Reviewing HUD's Office of Public and Indian Housing (PIH) and Multifamily Housing programs that must meet the same objectives as RAD when it comes to the financial oversight of affordable rental housing projects.

Goals and Objectives

This section addresses the following research goal regarding the financial performance of RAD projects—

- To what extent did converted properties remain financially viable after conversion? What happened to properties that experienced financial stress?

Research Questions and Analytical Approach

Table 49 crosswalks between the research questions and analytical approach to evaluating the effect of RAD on the financial performance of converted projects.

Table 49. Research Questions and Analytical Approach for Evaluating the Effect of RAD on the Financial Performance of Projects

Research Question	Analytical Approach
To what extent were financial conditions preserved or improved because of conversion? (Findings: Change in Financial Condition with RAD section)	Analyze pre- and post-conversion project financial statement data on the RAD sample to determine quantitative changes in project financial performance between the two periods.
What would have happened to these properties in the absence of RAD? (Findings: Change in Financial Condition without RAD section)	Analyze non-RAD sample project changes in financial performance to estimate what would have happened without RAD.
To what extent do converted properties remain financially viable after conversion? What happens to properties that experience financial stress? (Findings: Continued Financial Viability for RAD Conversions section)	Analyze RAD sample project financial statements against measures of project financial strength and weakness, such as debt-service coverage and reserves for replacement funding levels. Apply those results to classify the RAD sample as financially viable or financially at risk.
Were these outcomes different based on the choice of PBRA or PBV, PHA size, or level of rehabilitation? (Findings: Effect of Different Factors on Financial Condition section)	Use the preceding approaches to analyze the effect of PBRA or PBV conversions, PHA size, and level of construction spending on project financial performance of the RAD sample.

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PHA = public housing authority.

Data Sources

For data to evaluate the effect of RAD on projects' financial condition, we used annual project financial statement data from HUD and PHAs. For the RAD and non-RAD projects in our

sample, we obtained property financial statements from comparable points in time. The first group of financial statements was acquired from HUD's Financial Assessment Subsystem for Public Housing (FASS-PH) for the years before the start of RAD. These FASS-PH statements establish the baseline financial condition for both the treatment and control groups and include data on assets, liabilities and equity, revenue, expenses, other financing sources, and memo account information, as presented in HUD's Financial Data Schedule Line Definition Guide. HUD's PIH requires PHAs to submit FASS-PH statements for all projects using the definitions of this guide. PHAs submit unaudited and audited information to HUD annually, with audited financial statements required no later than 9 months after the PHA's fiscal year-end. For this analysis, audited information was used whenever it was available. Statements for 2013 were selected as the baseline for both the RAD and non-RAD samples. Three projects in our RAD sample did not have FASS-PH statements for 2013.

For the years after the start of RAD, FASS-PH financial statements were used for the non-RAD projects. Two projects in our non-RAD sample did not have FASS-PH statements for 2017. For RAD projects, researchers obtained 2017 Financial Assessment Subsystem for Multifamily Housing (FASS-MF) and financial statements from HUD for Project-Based Rental Assistance (PBRA) conversion properties. These statements include substantially similar data to the FASS-PH statements as well as additional data, such as a statement of cashflows and required supplemental information (for example, a schedule of reserves for replacement). Like HUD PIH, HUD Multifamily Housing requires PBRA project owners to submit FASS-MF statements using definitions prescribed by HUD.

In addition, we requested financial statements from the PHAs for Project-Based Voucher (PBV) conversion properties, since PBV conversion properties have no requirement to file financial statements with FASS-MF or FASS-PH. Multiple follow-ups were performed with these PHAs. Responses varied from no statements to partial statements to full audited annual financial statements. Some PHAs provided year-end financial information in the form of balance sheets and statements of operations, whereas others provided statements that were not project-specific and therefore could not be used to measure the financial performance of their PBV conversion.

All statements obtained and used for this analysis covered a 12-month period for the property's 2017 fiscal year. Although not all these statements were prepared using FASS-PH account definitions, they provided enough detail for comparison except where noted. In total, 18 RAD projects had usable post-conversion financial statements for 2017.

The year 2017 was selected as the year by which we expected RAD projects to have completed conversion and any planned rehabilitation or new construction. The same year's statements were used for non-RAD projects. Table 50 summarizes this data collection effort, which resulted in 18 RAD projects and 46 non-RAD projects with a complete set of before and after financial statements.[137]

[137] For certain parts of the analysis, the absence of specific data items resulted in further reductions in the sample set. For instance, information on reserves for replacement was not included in all statements that were provided. Projects without fixed debt service were not included in the analysis of debt service coverage.

Table 50. Data Collected on Financial Performance of RAD and Non-RAD Projects

Study Properties	Sample	FASS-PH Statements Pre-Conversion or at Start of Period 2013	FASS-PH Statements at End of Study Period 2017	FASS-MF and PHA Post-Conversion Statements at End of Study Period 2017
RAD Projects	23*	20**	N/A	18***
Non-RAD Projects	48	48	46****	N/A

FASS-MF = Financial Assessment Subsystem for Multifamily Housing. FASS-PH = Financial Assessment Subsystem for Public Housing. N/A = data not available. PHA = public housing authority.
* One RAD project in the original sample of 24 projects did not complete conversion.
** Three RAD projects that had completed conversion did not have FASS-PH statements for 2013 available.
*** An additional two RAD projects did not have FASS-MF or PHA statements for 2017 available.
**** Two non-RAD properties did not have 2017 financial statements available.

Financial Performance Metrics

To assess the financial performance of both converted projects (treatment group) and public housing (control group), we used methodologies presented in HUD's *Financial Indicator Methodology and Analysis Guide* (2011) and an analysis of property reserves for replacement funding levels. Within HUD's guide, the PHA Financial Condition Indicator is defined as a component of the Public Housing Assessment System (PHAS) methodology. The indicator has three FASS sub-indicators—Quick Ratio, Months Expendable Net Asset Ratio (MENAR), and Debt Service Coverage Ratio (DSCR)—that are calculated for each public housing project. The three FASS sub-indicators are calculated individually, and a scoring methodology assigns values that are summed to provide a single financial condition score for each property. The Quick Ratio and MENAR each have a score level defined by HUD as financially unacceptable. We used these definitions to categorize a property as at-risk; any property with a Quick Ratio of less than 1 is considered to have liquidity risk, and any property with a MENAR value of less than 1 is considered to have viability risk. The three FASS sub-indicators and reserve-for-replacement funding levels were used as performance metrics as listed in Table 51.

Table 51. Performance Metrics

Performance Metric	Definition	Calculation Methodology	Performance Indicator
Quick Ratio	A measure of liquidity; measures the PHA's ability to cover its current obligations.	Cash + Cash Equivalents + Current Receivables *divided by* Current Liabilities	Value < 1.0 Indicates liquidity risk
MENAR	A measure of viability; measures the PHA's ability to operate using its net available unrestricted resources without relying on additional funding.	Unrestricted Resources *divided by* Average Monthly Operating and Other Expenses	Value < 1.0 Indicates viability risk
DSCR	A measure of the cashflow available to pay current debt obligations.	Adjusted Operating Income *divided by* Annual Debt Service excluding Capital Fund Financing Program Debt	Value < 1.11 Below minimum for FHA underwriting
Reserve-for-Replacement Funding Level	The amount of cash restricted for the future replacement of capital items.	Annual funding amounts, end-of-year reserve balance	Reserve Balance < Floor Generally deemed unacceptable

DSCR = Debt Service Coverage Ratio. MENAR = Months Expendable Net Asset Ratio. PHA = public housing authority.

Econometrica found the FASS sub-indicator ratios to be good indicators of property financial performance and applicable to both public housing properties and RAD properties. The Quick Ratio and MENAR provide a detailed measure of the PHAs' ability to meet financial obligations. The ratios were used directly for comparison rather than using the scoring assigned by the PHAS methodology to generate an overall property financial condition score. Although FASS-PH and FASS-MF report financial performance under different charts of accounts, the level of detail is sufficiently alike to enable the ratios to be calculated for comparative analysis. An increase in the Quick ratio means liquidity has improved, a decrease means it has deteriorated, and a ratio below 1 indicates financial risk. Similarly, an increase in MENAR means financial viability has improved; a decrease means it has deteriorated; and a ratio below 1 indicates financial risk.

The DSCR was not applicable to most properties before the start of RAD and was not useful for judging changes in financial condition over time. Instead, DSCR was calculated and reviewed for only RAD conversions with mortgage debt outstanding; the results were compared with industry standards. When debt is used to improve RAD properties, it has both positive and negative effects. On the positive side, debt can finance property improvements that should result in lower property operating costs and higher occupancy and revenue over the long term, enabling the property to meet its debt service obligations. Debt, however, generates a financial expense as principal and interest are repaid. The DSCR measures a property's ability to generate enough income to pay this expense from property operations. During loan origination, the minimum DSCRs for FHA 221(d)(4)-insured loans for multifamily properties range from 1.11 to 1.25, signifying that the property should have 111 percent to 125 percent available to fund the required annual debt payment. A DSCR below 1 indicates that the property is unable to meet its debt service out of current revenue, though it could have reserves able to cover the obligation.

Replacement reserves are also not used at public housing properties and therefore are not useful for judging changes in financial condition over time. For public housing properties, the replacement of capital items is funded annually through the Public Housing Capital Fund Program. RAD properties no longer receive separate Capital Fund Program payments because these payments are built into their contract rents. Instead, each converted property must set aside its own resources in the form of initial and annual deposits to replacement reserves to fund current and future capital expenditures. By allowing control of reserve funding at the property level, the use of replacement reserves should reduce capital funding uncertainty when compared with public housing.[138] Although all RAD properties have a required annual replacement reserve deposit amount, there is still risk that an underfunding of reserves or an error in forecasting future capital improvement requirements can potentially leave the property with insufficient funds to implement needed improvements. Econometrica compared replacement reserve funding levels at year-end 2017 with the Annual Deposit to Replacement Reserve (ADRR) calculated at closing as the key performance metric to determine whether RAD conversions were adequately funding their long-term capital needs. As a second performance metric, Econometrica also compared the replacement reserve funding levels to the revised reserve-for-replacement floor, as calculated using the long-term capital needs projected in the followup PCAs. These followup PCAs were specifically prepared for properties in our study sample and are not available for RAD properties in general.

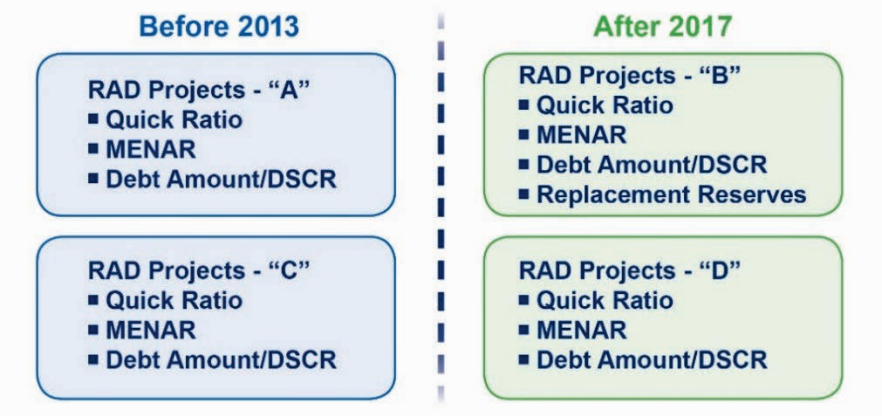
Analytical Framework

To address the research questions, Econometrica performed the following steps—

- Segmented the RAD (treatment group) project financial statements into "Before" (2013) and "After" (2017). Statements for the years from 2014 through 2016 were not used, as they contained RAD-related construction and rehabilitation costs that could have affected calculations and, due to possible vacancies, revenue may not have reflected stabilized occupancy levels.
- Segmented the non-RAD (control group) project financial statements into "Before" (2013) and "After" (2017). We assumed these projects did not engage in any substantial rehabilitation over this period that could have affected financial statements (Figure 2).

[138] The amount of Capital Fund payments to a PHA is determined annually and is not certain from year to year. Further, the PHA has discretion in the use of the funds across its entire portfolio. These two factors introduce uncertainty of Capital Fund amounts at the property level.

Figure 2. Data Segmentation



DSCR = Debt Service Coverage Ratio. MENAR = Months Expendable Net Asset Ratio.

"To what extent were financial conditions preserved or improved because of the conversion?"
To address this question, Econometrica performed the following steps—

- B-to-A comparison of the median Quick Ratio and median MENAR to determine the change of financial condition in RAD properties.
- Change in the median Quick Ratio and median MENAR (B - A) = Change in financial condition after conversion. An increase/decrease in the ratios means an improvement/deterioration in liquidity (for Quick Ratio) and financial viability (for MENAR) for RAD properties.

"What would have happened to these properties in the absence of RAD?"
To address the question, Econometrica performed the following steps—

- C-to-D comparison of the median Quick Ratio and median MENAR to determine the change of financial condition in non-RAD properties.
- Change in the median Quick Ratio and median MENAR (D - C) = Change in financial condition over the study period. An increase/decrease in the ratios means an improvement/deterioration in liquidity (for Quick Ratio) and financial viability (for MENAR) for non-RAD properties.

"To what extent do converted properties remain financially viable after conversion? What happens to properties that experience financial stress?"

- Any RAD property with a Quick Ratio or MENAR greater than or equal to 1 is considered viable in the Before period (A). HUD's PHAS methodology considers any property with a Quick Ratio or MENAR below 1 to be financially unacceptable; a property with a Quick Ratio below 1 has insufficient liquid assets available to pay current obligations, and a property with a MENAR below 1 has insufficient liquid assets available to pay an average month's operating expenses. A property with a Quick Ratio or MENAR below 1 in 2013 is considered at-risk in the Before period.

- Any property with a Quick Ratio or MENAR greater than or equal to 1 in 2017 is considered viable in the After period (B). A property with a Quick Ratio or MENAR below 1 in 2017 is considered at-risk in the After period.
- Reviewed all RAD properties that were considered viable or at-risk in the Before period (A) and calculated whether they were considered viable or at-risk in the After period (B). Assessed how properties considered at-risk may be affected by their financial position.
- Compared the replacement reserve funding levels at year-end 2017 in the After period (B) with the ADRR calculated for RAD closing and the reserve-for-replacement floor levels as calculated in the independent physical condition assessments (PCAs).
- Calculated the DSCR at year-end 2017 in the After period (B) for properties that assumed mortgage debt as part of the RAD conversion and compared it with the lowest acceptable level for the Federal Housing Administration's (FHA) 221(d)(4) program.

"Were the outcomes different based on the choice of PBRA or PBV, PHA size, or level of rehabilitation?"

- Reviewed the outcomes discussed in the previous questions for converted RAD properties using additional data indicators for PBV/PBRA, PHA size, and level of rehabilitation.

Data Compilation and Calculations

For data compilation, Econometrica performed the following steps—

- Collected FASS-PH 2013 data for 68 non-RAD (48) and RAD (20) properties. Three of our sample of 24 RAD properties did not have FASS-PH 2013 data, and 1 did not complete conversion, so its statements were not used.
- Collected FASS-PH 2017 data for 46 non-RAD properties. Two of our 48 non-RAD properties did not have 2017 data.
- Removed one RAD property because it had not converted as of August 2018.
- Collected FASS-MF 2017 data for nine RAD properties converting to PBRA.
- Collected the IDRR and ADRR, as calculated for RAD closings.
- Collected the replacement reserve floor amount, as calculated in the independent PCAs.
- Collected the mortgage debt levels assumed by nine properties at RAD closings. Originally, 10 properties had mortgage debt but 1 paid it off in full before 2017, leaving only 9 projects with mortgage debt outstanding.
- Collected financial statements from PHAs for 11 properties that converted to PBV and did not report data to FASS-MF 2017. In total, statements were collected for 14 properties. But for three of them, the PHAs did not provide project-specific 2017 financial statement data, so those properties had to be removed from the analysis.

These steps resulted in data for 11 RAD PBV and 7 RAD PBRA properties for calculations. This resulted in the ability to calculate metrics, as Table 52 presents.

Table 52. Count of Metrics Calculated

Performance Metric	RAD Conversions	Non-RAD Projects
Quick Ratio	18	46
MENAR	18	46
DSCR	9	0
Reserve-for-Replacement Funding Level	18	0

DSCR = Debt Service Coverage Ratio. MENAR = Months Expendable Net Asset Ratio.

For calculations, Econometrica performed the following steps—

- Calculated the Quick Ratio and MENAR for each property and the median Quick Ratio and median MENAR for each data segment. Median values were calculated because of the small sample size and range of values.
- Determined which properties would be categorized as financially at risk (a Quick Ratio or MENAR of less than 1).
- Calculated the difference between 2017 financial statement end-of-year replacement reserve balances and the Initial Deposit to the Replacement Reserves (IDRR) and ADRR provided by HUD for RAD conversions.
- Calculated the difference between 2017 financial statement end-of-year replacement reserve balances and the reserve-for-replacement floor value, as determined by the independent PCA after conversion for RAD properties.
- Calculated a DSCR for properties that assumed mortgage debt as part of the RAD conversion. Annual debt service amounts were collected from 2017 financial statements. Cashflow mortgages, which often included amounts due to the PHA or other partnership entities, were not included, as they do not have required annual payment amounts and are to be paid as available from future property cashflows.

Findings on Financial Condition

This section presents this study's findings on the effect of RAD on the financial condition of a sample of converted RAD projects (the treatment group) compared with the change in financial condition for a sample of non-RAD projects (the control group) over a comparable period.

Findings: Change in Financial Condition With RAD

This section addresses the research question:

"To what extent were financial conditions preserved or improved because of the conversion?"

To answer this question, the analysis considers the change in the financial condition of a sample of RAD projects before and after conversion to assess whether the financial condition improved, deteriorated, or remained the same. As measures of financial condition, it focuses on the Quick Ratio and MENAR.

Table 53 shows the change in the median Quick Ratio and median MENAR for RAD conversions between 2013, before RAD, and 2017, after projects had completed conversion and any construction (B-to-A comparison). The sample of 18 RAD conversions marginally increased their median Quick Ratio by 0.59 and their median MENAR by 0.61 after conversion, indicating a modest improvement in financial condition on average.

Table 53. RAD Conversions: Median Quick Ratio and Median MENAR, 2013 and 2017

RAD Conversions Before and After	Median Quick Ratio	Median MENAR
RAD Pre-Conversions, 2013	4.63	6.25
RAD Post-Conversions, 2017	5.22	6.86
Increase (decrease)	**0.59**	**0.61**

MENAR = Months Expendable Net Asset Ratio.
Note: Includes 18 RAD conversions; based on financial statements for 2013 and 2017.

Even though RAD conversions improved and stabilized their financial performance on average, the conversions did not resolve all projects' financial issues. Two RAD properties had MENAR values below 1 in 2013 (before conversion) and would have been classified as at risk. One of those properties continued to have a MENAR below 1 in 2017 (after conversion) and, although its financial issues appear unrelated to the RAD conversion, would still be classified as at-risk.[139] The Quick Ratio for that property was slightly above 1 before conversion and did improve after conversion. The property's audit report, however, listed that a deficiency in cashflow, related to healthcare service reimbursements and not to Section 8 rents under RAD, created uncertainty about the partnership's ability to continue as a going concern,[140] and the partnership listed an amount calculated as a necessary capital contribution to alleviate the uncertainty.

These results indicate that liquidity—as measured by the median Quick Ratio—and financial viability—as measured by the median MENAR—improved slightly for the RAD properties. Overall, RAD appears to have improved the financial performance of converted projects. Of the two properties classified as at-risk before conversion, one had improved to the point of no longer being at-risk while the other remained at-risk after conversion.

Findings: Change in Financial Condition Without RAD

This section addresses the research question:

"What would have happened to these properties in the absence of RAD?"

To answer this question, the analysis compares the change in the financial condition of a sample of non-RAD projects over a period comparable to that used to analyze RAD conversions. As measures of financial condition, the analysis focuses on the Quick Ratio and MENAR.

[139] According to the audit report, the financial issues were related to healthcare service reimbursements and not to Section 8 rents under RAD.
[140] Going concern is an accounting term for a company that has the resources needed to continue operating indefinitely until it provides evidence to the contrary. This term also refers to a company's ability to make enough money to stay afloat or avoid bankruptcy. If a business is not a going concern, it means it has gone bankrupt and its assets were liquidated.

Table 54 shows the change in the median Quick Ratio and median MENAR for non-RAD public housing projects between 2013 and 2017 (D-to-C comparison). The sample of 46 non-RAD public housing projects noticeably decreased their median Quick Ratio by 2.03 and their median MENAR by 1.28 during this period, indicating a deterioration in financial condition on average. Even though the two median ratios fell, non-RAD projects nonetheless remained liquid and financially viable on average.

Table 54. Non-RAD Projects: Median Quick Ratio and Median MENAR, 2013 and 2017

Non-RAD Projects Before and After	Median Quick Ratio	Median MENAR
Non-RAD Projects, 2013	5.92	5.65
Non-RAD Projects, 2017	3.89	4.37
Increase (Decrease)	**– 2.03**	**– 1.28**

MENAR = Months Expendable Net Asset Ratio.
Note: Includes 46 non-RAD projects; based on financial statements for 2013 and 2017.

Table 55 subtracts the change in the median Quick Ratio and median MENAR for non-RAD projects from the changes in the corresponding median ratios for RAD conversions to assess how much of the change in the median ratios for RAD conversions could be attributable to RAD. Because the median ratios increased for RAD conversions but fell for non-RAD properties, this analysis shows that the effect of RAD on the financial condition was greater than previously shown. RAD conversions were able to stabilize as well as improve their financial condition, on average.

Table 55. RAD Conversions and Non-RAD Projects: Change in Median Quick Ratio and Median MENAR

RAD Conversions and Non-RAD Projects	Change in Median Quick Ratio	Change in Median MENAR
RAD Conversions, Change (2013–2017)	0.59	0.61
Non-RAD Projects, Change (2013–2017)	– 2.03	– 1.28
RAD Less Non-RAD	**2.62**	**1.88**

MENAR = Months Expendable Net Asset Ratio.
Note: Includes 18 RAD conversions and 46 non-RAD projects; based on financial statements for 2013 and 2017.

In the absence of the RAD program, RAD properties would have seen a decrease in liquidity and viability, on average (that is, lower median Quick Ratio and median MENAR) compared with the increase that they had in 2017 after they converted. They likely would have still been viable on average (that is, would have had ratios greater than 1), however. Conversion under RAD improved their average viability but was not essential for them to maintain it.

So long as converted projects are paying required debt service and covering their reserves for replacement requirement, questions about the financial viability of RAD conversions and what the effect would have been in the absence of RAD can be reduced to the ability of converted projects to use current resources to meet current obligations, including mortgage debt service and payments to the reserves for replacement, relative to the ability of comparable projects that have not converted. These are the questions answered by the preceding analyses of the Quick Ratio and MENAR for RAD and non-RAD projects. The next section considers whether RAD

conversions are meeting obligations to fund reserves for replacement and cover debt payments for continued financial viability.

Findings: Continued Financial Viability for RAD Conversions

This section addresses the research question:

"To what extent do participating properties remain financially viable after conversion? What happens to properties that experience financial stress?"

To answer this question, the analysis examined project debt, the ability to cover that debt for Rental Assistance Demonstration conversions, and the adequacy of project reserves for replacement, which are used to meet the long-term capital needs of RAD conversions.

The RAD program creates two financial obligations on converted projects that do not exist for most public housing projects. Some RAD projects assume mortgage debt; all RAD projects are required to fund their reserves for replacement. Both obligations absorb project net operating income (NOI) that otherwise would have been available to the project for other purposes.

How did debt affect the continuing financial viability of RAD properties? As Table 56 shows, 16 of the 18 properties performed construction, with a median construction spending of $3.0 million. Nine of the 18 RAD conversions assumed mortgage debt, with a median mortgage amount of $3.6 million per project. Debt was an important source of financing for projects with greater construction needs. Of the nine properties with outstanding mortgages, two (of seven) performed shallow rehab, four (of six) performed moderate-to-deep rehab, and two (of three) performed new construction. One project with mortgage debt had no construction spending.[141]

Table 56. RAD Conversions With Construction Spending and Mortgage Debt

RAD Conversions	Median Value ($)	# Shallow Rehab	# Moderate-to-Deep Rehab	# New Construction	# Nonconstruction	# Total
With Construction Spending	3.0 million	7	6	3	0	16
With Mortgage Debt in 2017	3.6 million	2	4	2	1	9

Notes: Includes 16 RAD conversions with construction spending and 9 with outstanding mortgage debt based 2017 financial statements. Originally, 10 RAD conversions had mortgage debt at closing, but 1 of those had paid it off in full by 2017.

Econometrica calculated the DSCR for the nine RAD properties that had debt outstanding as part of the RAD conversion. As Table 57 shows, five were above 2.5, which demonstrates that the properties had more than 250 percent of the required debt payment available from annual net income. Two had a DSCR of less than 1.11, which is the lowest ratio in FHA's 221(d)(4) program. One of these had established significant operating reserves, which mitigates its debt service risk. The other had a DSCR of 1.09, and while the property has a debt service reserve,

[141] This was the same project considered at-risk based on its MENAR. Because it had no construction plan, HUD considered it a nonconstruction conversion; however, it did take out an FHA-insured loan at closing. According to the project's financial statements, the public housing authority (PHA) used the FHA-insured mortgage to refinance a prior non-FHA-insured mortgage on the property.

this is the property referred to earlier that was deemed at-risk based on its MENAR. Therefore, although one RAD property is classified as at-risk, all properties in the RAD sample that were financially viable in 2013 remained financially viable after RAD conversion.

Table 57. Debt Service Coverage Ratios (DSCR) for RAD Conversions With Mortgage Debt

RAD Conversions	DSCR < 1.11	1.11 < DSCR < 2.5	DSCR > 2.5
Number	2	2	5
Median 2017 mortgage debt ($)	3.5 million	3.3 million	4.0 million

Note: Includes nine RAD conversions with mortgage debt, based on financial statements for 2017.

All RAD properties are responsible for funding and managing replacement reserves for capital repairs after conversion. RAD properties no longer receive separate Capital Fund Program payments because these payments are incorporated into their contract rents. Instead, they must set aside their own resources in the form of initial and annual deposits to replacement reserves to fund capital expenditures. The amount of Capital Fund payments to a PHA is determined annually and is not certain from year to year. Furthermore, the PHA has discretion in the use of the funds across its entire portfolio. These two factors introduce uncertainty into the amount of Capital Fund amounts available at the property level. The use of replacement reserves reduces this uncertainty by allowing control of reserve funding to happen at the property level.

Table 58 shows that all 18 RAD conversions in our sample have deposited an IDRR and had positive balances in their Replacement Reserve Account.[142] In addition, all had reserve balances that were greater than or equal to the minimum floor, which is the average amount to be contributed annually to fund reserves for replacement over 20 years. On average, their replacement reserve balance was 363 percent of the floor. These findings suggest that conversion has enabled these properties to sustain or even improve their financial viability by reducing the uncertainty in funding for their future capital needs.

Table 58. Replacement Reserve Deposits and Balances for RAD Conversions

RAD Conversions	Required IDRR Payment	ADRR Payment	Replacement Reserve Balances	At or Above Minimum Floor
Number of RAD conversions	18	18	18	17[143]
Median Amount ($) or Percentage (%)	$123,000	$66,000	$240,000	363%

Note: Includes 18 RAD conversions; based on financial statements for 2017.

This analysis was unable to confirm that all properties have been making required replacement reserve contributions. It was able to identify replacement reserve balances on each property's 2017 fiscal year financial statement for all but one property, however. Three properties reported replacement reserve balances equal to their ADRR amount. This suggests that these properties

[142] Two properties had $0 IDRR. Technically, they met their deposit requirement but did not make an initial deposit.
[143] The one property with replacement reserves below the floor provided unaudited and incomplete financial statements, so it is possible that this result is due to incomplete information.

had used their initial deposit to replacement reserves or had not made all required reserve payments. One property also reported a replacement reserve balance of $2.07. This amount was presented on a financial schedule and not an audited financial statement and is not necessarily accurate.[144]

As noted in the Physical Condition chapter, an independent followup PCA was performed on the sample of RAD properties after conversion and construction. Although funds will flow into the reserve account annually and out of the reserve account as repairs are made, the independent followup PCA calculates an updated reserve-for-replacement floor based on an updated projection of capital needs over 20 years. In general, long-term capital needs were higher in the followup PCA than in the initial PCA. As a result, the revised reserve-for-replacement floor (estimated as the average annual capital need over 20 years) is higher than the original floor, which was set at conversion. Seven of the 18 RAD properties in the sample, including 5 of the PBV properties, had account balances below the minimum amount indicated by the independent followup PCA (Table 59). Although reserve account contribution levels may be expected to increase at these properties, this presents the possibility that some converted properties may not be funding replacement reserves to a level that would address all capital repairs required over the next 20 years. The minimum amount in the replacement reserve should not fall below the minimum annual contribution; ideally, it should be higher. At some point, those projects will need to reassess their long-term capital needs. Projects that did not have information available on their reserves for replacement also should prepare and monitor this information to ensure they can meet future obligations.

Table 59. Replacement Reserve Balances vs. Annual Funding Calculations for RAD Conversions

Reserve Balance vs. ADRR and Followup PCA Floor	# Below	# Equal	# Above	# Total
Reserve Balance vs. ADRR	1	3	14	18
Reserve Balance vs. Followup PCA Floor	7	0	11	18

ADRR = Annual Deposit to the Replacement Reserve. PCA = physical condition assessment.
Note: Includes 18 RAD conversions; based on financial statements for 2017 and followup PCAs.

One could say that without RAD, converted projects would not have had to cover fixed obligations for mortgage debt service and the annual payment to the reserves for replacement and therefore would have had more available cashflow (that is, would have been more financially viable). This conclusion, however, ignores the related effects of conversion under RAD that work in the opposite direction. RAD contract rents are based on prior public housing operating subsidies and an allocation of Capital Funds with a built-in increase through the Operating Cost Adjustment Factor (OCAF), plus tenant contribution. The Capital Fund component of RAD contract rents plus the OCAF give converted projects the additional cashflow to meet fixed obligations. In the absence of RAD, converted projects would not have had the certainty of the Capital Fund allocation or the likelihood of future increases through the OCAF, and they therefore could have had less cashflow and been less viable. The financial viability analysis of the effect of RAD needs to consider the net effects on both the revenue and expense sides.

[144] The PHA was unable to resolve this issue in time for the release of this report.

Findings: Effect of Different Factors on Financial Condition

This section addresses the research question:

"Were the outcomes different based on the choice of PBRA or PBV, PHA size, or level of rehabilitation?"

The analysis calculated the changes in median Quick Ratio and median Months Expendable Net Asset Ratio (MENAR) from 2013 to 2017 based on the PHA's choice of Project-Based Rental Assistance (PBRA) or Project-Based Voucher (PBV), PHA size (small, medium, or large), and level of construction (nonconstruction, shallow rehab, moderate-to-deep rehab, and new construction). Outcomes for the three calculations are presented below. Starting with a sample of only 18 projects with usable financial data, it is difficult to draw strong conclusions from analyses that look across subsets of the sample.

The changes in median Quick Ratio and median MENAR were calculated for the seven PBRA properties and the 11 PBV properties in the sample, as shown in Table 60. The median Quick Ratio and median MENAR increased more after conversion in the 7 PBRA properties (up 1.72 and 4.24) than in the 11 PBV properties (up 1.22 and 0.41); moreover, at least in the case of the median MENAR, the difference was large enough to indicate that the outcome was probably generally better for PBRA properties compared with PBV properties.

Table 60. Change in Median Quick Ratio and Median MENAR in RAD PBRA and PBV Conversions

Type of RAD Conversion	# RAD Conversions	Change in Median Quick Ratio	Change in Median MENAR
RAD PBRA Change, 2013–2017	7	1.72	4.24
RAD PBV Change, 2013–2017	11	1.22	0.41

MENAR = Months Expendable Net Asset Ratio. PBRA = Project-Based Rental Assistance.
PBV = Project-Based Voucher.
Note: Includes 18 RAD conversions; based on financial statements for 2013 and 2017.

Changes in median Quick Ratio and median MENAR were calculated for 4 small-PHA properties, 11 medium-PHA properties, and 3 large-PHA properties in the sample, as Table 61 shows. The median Quick Ratio and MENAR both increased by a larger amount in the four small PHA properties (up 3.87 and 5.09) than in the medium PHA properties (up 0.63 and 2.29) or large PHA properties (down 1.76 and up 0.41). For large PHA properties, the Quick Ratio fell on average. The small number of properties in two of these groups makes it difficult to draw conclusions.

Table 61. Change in Median Quick Ratio and Median MENAR (2013–2017) in RAD Conversions by PHA Size

PHA Size	# RAD Conversions	Change in Median Quick Ratio	Change in Median MENAR
Small PHA, Change over 2013–2017	4	3.87	5.09
Medium PHA, Change over 2013–2017	11	0.63	2.29
Large PHA, Change over 2013–2017	3	– 1.76	0.41

PHA = public housing authority. MENAR = Months Expendable Net Asset Ratio.
Notes: Large PHAs includes large and very large PHAs (1,250 and more units), medium PHAs includes high- and low-medium PHAs (250 to 1,249 units), and small PHAs includes small and very small PHAs (fewer than 250 units). Includes 18 RAD conversions; based on financial statements for 2013 and 2017.

The changes in median Quick Ratio and median MENAR were calculated for two nonconstruction properties, seven shallow rehab properties, six moderate-to-deep rehab properties, and three new construction properties, as shown in Table 62.[145] The median Quick Ratio and median MENAR both increased more in the seven shallow rehab (up 5.82 and 3.67) and the three new construction properties (up 2.15 and 7.63) than in properties undergoing other levels of construction. For the nonconstruction projects, the two median ratios declined (down 0.28 and 1.43). For the moderate-to-deep rehab properties, the median Quick Ratio declined by 2.07 while the median MENAR increased slightly by 0.31.

Table 62. Change in Median Quick Ratio and Median MENAR (2013–2017) in RAD Conversions by Level of Construction

Level of Construction for RAD Conversions	# RAD Conversions	Change in Median Quick Ratio	Change in Median MENAR
Nonconstruction, Change over 2013–2017	2	– 0.28	– 1.43
Shallow Rehab, Change over 2013–2017	7	5.82	3.67
Moderate-to-Deep Rehab, Change over 2013–2017	6	– 2.07	0.31
New Construction, Change over 2013–2017	3	2.15	7.63

MENAR = Months Expendable Net Asset Ratio.
Notes: Nonconstruction = project has no or only nominal construction. Shallow rehab = construction costs cover only marginally more than the project's rehabilitation needs, or the project has no rehabilitation needs and low construction costs per unit (less than $1,000). Moderate-to-deep rehab = construction costs cover more than 125 percent of the project's rehabilitation needs. New construction = new construction at the current site or new site. Includes 18 RAD conversions; based on financial statements for 2013 and 2017.

For replacement reserve balances, the four properties with 2017 ending balances at or below the Annual Deposit to Replacement Reserve (ADRR) amount were all PBV properties, and six of the seven properties with 2017 ending balances below the followup PCA floor amount were PBV properties (Table 63). This does not mean that reserves are underfunded but only that lower funding levels were reported in PBV properties. Mortgage debt appeared across all conversion types, PHA sizes, and rehab levels. They did not appear to be influencing factors, so the results are not shown.

[145] See the Physical Condition chapter for a more complete explanation of the terms "shallow rehab" and "moderate-to-deep rehab."

Table 63. Replacement Reserve Balances At or Below Annual Funding Calculations for RAD PBV and PBRA Conversions

Replacement Reserve Balance vs. ADRR and Followup PCA Floor	# PBV Conversions	# PBRA Conversions
Reserve Balance above ADRR	1	6
Reserve Balance at or below ADRR	4	0
Reserve Balance below Followup PCA Floor	6	1

ADRR = Annual Deposit to Replacement Reserve. PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher. PCA = physical condition assessment.
Note: Includes 18 RAD conversions; based on financial statements for 2017.

Conclusion

In addressing the overall research goal, the analysis shows that all 18 properties in the treatment group sample that were financially viable before conversion under RAD remained financially viable after conversion. The post-conversion properties displayed similar liquidity and viability measures both before and after conversion, all had reduced uncertainty in capital improvement funding by establishing replacement reserves, and 16 out of 18 properties had carried out some level of rehabilitation (2 properties were nonconstruction conversions). While the liquidity and viability measures of the RAD properties are similar over time, the properties now provide funding for replacement reserves and debt payments, which improves their financial potential. Over the same period, the 46 non-RAD properties in the control group sample showed decreases in liquidity and viability, with the median Quick Ratio decreasing from 5.92 to 3.89 and the median MENAR decreasing from 5.65 to 4.37.

Of the two properties classified as at-risk prior to conversion, one remained classified as at-risk after conversion. That property operates as an assisted living property whose audit reported that a deficiency in cashflow resulting from Medicaid reimbursement rates not covering the cost of housing Medicaid residents creates uncertainty about the partnership's ability to continue as a going concern. This description suggests that the RAD conversion did not mitigate the property's at-risk status but did not contribute to it either. No other properties in the study sample were classified as at-risk after conversion under RAD.

Regarding debt, after conversion, nine properties in the RAD sample had mortgage debt that they must service. Seven of the nine properties had strong Debt Service Coverage Ratios (DSCRs). For the other two, one had a low DSCR but had funds in reserve to mitigate the risk, and the remaining property was the at-risk property previously identified based on its MENAR below 1, which also had a DSCR below 1. All RAD properties appear to be able to sufficiently fund debt payments, except for the one property found to be at risk.

The RAD properties should benefit from the Section 8 revenue structure providing for both operations and capital repairs. The OCAF used in the Section 8 program has historically increased at a rate higher than the combined public housing operating funds and Capital Funds. The use of replacement reserves reduces the uncertainty of capital improvement funding inherent in HUD's Office of Public and Indian Housing (PIH) Capital Fund Program—in particular, the possibility of unexpected decreases in capital requirement financing—but it could also prove insufficient if reserved funds cannot address all long-term capital needs. The year-end

replacement reserve balances for 17 properties were equal to or above their ADRR, and therefore all properties, with one exception, were at least equal to their ADRR and are meeting the minimum requirement established at conversion. The reserve balances for six PBV properties and one PBRA property, however, were below the annual average contribution calculated using the capital needs projected in the followup physical condition assessments (PCAs). This finding presents the possibility that some RAD properties that are meeting their minimum requirements may not be adequately funding replacement reserve if their capital needs are higher than originally projected, based on the recent and independent followup PCAs conducted for this study.

These findings demonstrate that RAD conversions are achieving the goal of preserving and even improving their financial viability. The comparison of matched samples of RAD to non-RAD properties supports the inference that the observed results can be attributed to the likely effect of RAD and not to other factors that could have influenced the outcomes in both the treatment and control groups. An added value of these findings is to inform HUD about gaps in its access to and use of data on converted projects, particularly with respect to PBV conversions. Without this data, HUD does not have the ability to provide adequate monitoring of the financial performance of projects converted to project-based Section 8 assistance under RAD.

Additional Comments

- Because approved rent levels do not change during RAD conversion, the overall project revenue should be approximately equivalent after conversion, depending on how well the PHA or project manager performs at sustaining occupancy, keeping up with maintenance, and collecting tenant rents. Section 8 rent increases have historically been higher than public housing funding increases, however. Generally, this should lead to less risk for converted properties.
- RAD properties potentially could have had some low level of approved debt before conversion, but without significant default risk. Although mortgage debt acquired after conversion provided funds for capital improvements, it is now possible for a RAD property to be foreclosed on if it suffers from poor financial performance. This possibility introduces a new risk for converted properties with mortgage debt.
- RAD properties now have rents that incorporate funding for future capital repairs. Because public housing funding for capital repairs remains separate from operating funding, converted properties will have less risk of capital repair funding decreasing in the future.
- RAD properties are now responsible for managing replacement reserves for capital repairs. This responsibility introduces the risk that replacement reserve deposits may not be made or that deposit amounts may be insufficient for future capital needs, especially if those needs are higher than originally estimated and the project does not reassess them within a reasonable amount of time.

Recommendations

- **Project performance monitoring.** If HUD seeks to track the financial performance of RAD properties in the future, it should apply consistent reporting requirements across RAD conversions of all types. Currently, PBRA properties are required to submit financial statements with HUD via FASS-MF. The PBV properties have no requirement to prepare and submit to HUD financial statements according to public housing or multifamily accounting definitions.
- **Protect long-term viability.** HUD should consider recommending that PHAs with converted RAD properties periodically reevaluate the reserve-for-replacement floor, such as through an independent PCA or similar instrument, to ensure that reserves balances are adequate to meet the long-term capital needs of those projects.

Effect on Tenants

An important objective of the Rental Assistance Demonstration (RAD) program is to advance the living situation of public housing residents by improving the quality of the housing and offering Housing Choice Vouchers (HCVs) under the Choice Mobility option as an alternative. At the same time, HUD is concerned that the program may result in an inordinate level of disruption in the lives of tenants by causing them to relocate frequently or across great distances. The RAD program includes several tenant protection policies to mitigate the potential for harm, particularly considering the high proportion of vulnerable households served by public housing. This section of the study assesses the effect of the RAD program on residents through a survey of residents living in a sample of RAD properties after improvements were completed.

Summary

The survey of residents living in a sample of RAD projects revealed most tenants were generally satisfied with their PHA's communications about RAD and its management of the RAD process. Tenants thought that property maintenance and property management were as good as or better than before conversion. Of all respondents, 82 percent remained in the same property throughout the RAD conversion process, either because they never moved or because they moved to a different unit within the same property.[146] Most of the tenants who experienced relocation and moved to a different unit because of RAD received relocation assistance, and most tenants were satisfied with the relocation assistance they received. Moreover, most tenants were satisfied with their housing unit and development and thought they were better than before RAD. According to survey respondents, 75 percent were back in their original unit, 92 percent were in the original property, and almost 98 percent were receiving rental assistance of some kind (for example, HCVs). Just over 2 percent of respondents reported they had moved and were no longer in subsidized housing. A slight majority of tenants reported that they were not informed about the Choice Mobility option during the RAD process, although it was a required element of communication for the PHAs, and a slight majority would also prefer the Choice Mobility option to living in their current unit. The findings on how RAD might affect tenant well-being—employment, health, and perceptions of safety—are unclear. What is clear, however, is that most of the tenants we surveyed are vulnerable, with most cycling in and out of jobs and reporting fair or poor health, and a substantial minority reporting feeling unsafe, especially outside at night. These findings reinforce the importance of taking special care to ensure that PHAs make addressing tenants' needs a central part of their RAD planning.

Methodology

To gauge residents' experiences with the RAD program, this study undertook a survey of residents living in a sample of projects at the time of conversion under RAD. This sample was separate from the 24-project sample used in the physical and financial condition chapters of the evaluation, although there was some overlap. The study enrolled residents in RAD properties before they closed, enabling them to be tracked if and when they left the properties. Enrollment

[146] Percent derived from Table 73. To be precise: 82.3 = 63.4 (stayed in unit) + 6.5 (moved to different unit in same property) + 12.4 (moved to different unit in original property and returned to different unit in original property).

and tracking needed to begin as early as possible to ensure residents' contact information could be obtained before they left the property. To capture the full range of resident outcomes, the study surveyed residents regardless of where they lived after any construction or rehabilitation work under RAD had been completed; it was important to include former residents who did not return to converted units as well as those who did return. A representative sample of these affected residents was surveyed via mail, telephone, and direct contact, as needed, to determine experiences with property rehabilitation, communications from the PHA, and any relocation assistance. Administrative data and interviews with officials at selected PHAs supplemented this survey information.

Objectives

The goal of this section of the evaluation is to understand how tenants living in properties at the time of conversion under RAD were affected by the RAD process.

Research Questions

Table 64 summarizes research questions related to the study of tenant effects and corresponding data sources used to address each question.

Table 64. Research Questions and Data Sources

Topic	Research Questions	Data Sources
Relocation	• How many households were required to temporarily relocate because of conversion, and where did they relocate? • Were they provided with relocation support? • To what type of neighborhood did they relocate? • How likely were they to return to the property after conversion and rehabilitation?	• Phone interview. • HUD administrative data. • Enrollment data.
Resident Experience with RAD Implementation	• How did residents experience RAD? • Are they aware of the program, and do they understand how it affected the property? • Do they notice differences in the management and maintenance of the property because of RAD?	• Resident survey.
Resident Outcomes	• **How satisfied are residents with the condition of their housing unit and neighborhood after RAD?** • **Do residents have trouble with housing and utility costs?** • **How do residents fare on important outcomes related to health, employment, and education?**	• **Resident survey.**

Research questions were structured to capture information about the wide range of possible resident experiences with RAD conversions: some may have been able to stay in their current unit for the duration of any rehabilitation work; some may have had to relocate temporarily to a new unit within the same property, or to a different property, until the work was completed; and some may have permanently relocated to a new property. The survey was also designed to gather data on the different levels of information and support that PHAs provided to residents throughout the process.

Survey Methodology

The research team selected respondents for the tenant outcomes survey in two phases. In the first phase, researchers sampled a set of developments designed to be representative of the universe of the first round of 260 properties. In the second phase, researchers selected a sample of residents in those properties and invited them to participate in the study.

Development Selection

The team applied the stratification system used for properties for the other components of this evaluation, dividing PHAs into "large," "medium," and "small" and properties into "high," "standard," and "substandard" performance categories.[147] The study design included only properties where residents experienced RAD conversions. Because many properties failed to proceed to closing, properties became eligible for sampling only after receiving the RAD Conversion Commitment (RCC), after which they were likely to successfully proceed to closing. Because properties moved through the pipeline at different rates, sample selection took 9 months, from June 2015 through March 2016.

The prolonged process meant that the research team could not randomly select the sample from a pool of properties in the same stratum but instead, it selected properties for the sample as they become eligible. The development sample may therefore be biased in favor of projects and PHAs that moved through the pipeline more quickly, and one cannot be sure what effect that has had on the representativeness of the sample.

Using this process, analysts selected 19 properties.[148] Our original target was 24 developments, but too few properties became eligible to reach the target in every stratum before the development sampling phase ended. Analysts were able to draw a sufficient sample to include projects from all categories except for the large PHA and substandard property performance stratum (Table 65). The single property in the medium-sized PHA and substandard property score stratum never proceeded to closing, however, so residents from that property are not included in the analysis.

Table 65. Development Sample

PHA Size	Property Performance	Universe	%	Sample Design Target	%	Actual Sampled	Actual %
Large	High	27	10.4	3	12.5	2	10.5
	Standard	36	13.8	3	12.5	2	10.5
	Substandard	12	4.6	1	4.2	0	0
Medium	High	57	21.9	5	20.8	5	26.3
	Standard	72	27.7	6	25.0	4	21.1
	Substandard*	8	3.1	1	4.2	1	5.3
Small	High	23	8.8	2	8.3	2	10.5
	Standard	21	8.1	2	8.3	2	10.5

[147] This is the same methodology used to stratify the sample of RAD properties for the physical and financial condition component of this study.
[148] See appendix C for a list of these properties.

PHA Size	Property Performance	Universe	%	Sample Design Target	%	Actual Sampled	Actual %
	Substandard	4	1.5	1	4.2	1	5.3
	Total	**260**	**100**	**24**	**100**	**19**	**100**

PHA = public housing authority.
* Project dropped from the sample; did not proceed to closing.
Source: Urban Institute analysis of HUD administrative data.

Tenant Selection

For the 19 properties sampled, researchers drew a resident sample from each property designed to be representative of the total property population based on race/ethnicity, gender, elderly status, and disability status. Because properties were brought into the sample individually, and the study could not wait until the development sample was complete before enrolling tenants, researchers drew the resident sample as soon as they selected the property for the sample. The working assumption was that approximately 100 residents would have to be contacted in each property. Properties with fewer than 100 residents were sampled in their entirety.

The research team contracted with a survey research firm, SSRS, to contact and enroll residents from our sample. Of 2,548 tenants, 1,669 were invited to participate and 522 enrolled (31 percent). Of the 522 enrolled, 78 percent were in the same development, 17 percent were in a different development, and 5 percent had left assisted housing. Of the 522 enrollees, 318 completed the survey (a response rate of 61 percent); 298 completed responses were included in the analysis after dropping respondents from the project that did not complete conversion.

Tracking

Enrolled residents filled out forms with complete contact information, including phone numbers and alternate contacts, and granted consent for their inclusion in the study. They received a reminder postcard a year after enrollment with a request to update any information that had changed. Approximately 10 percent of enrollees provided updates.

For residents still living in assisted housing, survey staff updated addresses in early 2018 using HUD administrative data. Finally, SSRS confirmed updated addresses through national address services to reduce the possibility of losing enrollees who did not return to the original property or who moved after the last update was received.

Surveying

The team began the survey phase by contacting PHAs and ensuring that work on the property and any moves by residents back to the property were complete. As noted, one project had not completed conversion at this time. Survey staff also asked a few questions on the nature of the work and how it might have affected residents, to provide context that might be important for interpreting the resident survey results. All 522 enrollees were targeted for the survey. In one case, temporary relocation of residents within the property was still ongoing. While this did not affect our ability to locate enrollees, the timing may have affected those residents' perceptions of RAD.

Fielding the survey began on March 6, 2018, with a mailing to enrollees containing a small incentive ($5) and an offer of an additional incentive ($25) for completing the survey by calling a toll-free number. SSRS sent a second mailer if there was no response. Following the second mailer, the survey firm attempted telephone contact, with up to five attempts. Three weeks after fielding began, SSRS sent non-respondents a hardcopy version of the survey with instructions on how to mail it in or complete it by phone. A final round of telephone calls began on April 16, 2018, including attempted calls to secondary contacts named by the enrollee at the time of enrollment.

The team selected 10 sites for onsite fieldwork based on the sites' low response rate. SSRS sent field staff in late March through early April to encourage and facilitate completion of the phone-in survey. The Urban Institute contacted public housing authorities (PHAs) and property management before fielding to request cooperation; difficulties in arranging access to the development hampered in-person fielding at only one site. Although field teams never gained access to that site, the final response rate for the property was 58 percent, within a few percentage points of the survey average.

Final responses were 318 completes—209 by phone and 109 by mail. Eight enrollees were reported as deceased. Without eliminating invalid numbers or enrollees who moved and could not be located, the survey achieved a response rate of 61 percent. After eliminating the surveys completed by residents of the project that was dropped from the sample because it did not complete closing, 298 completed surveys remained.

Weights

Analysts tested the survey data to ensure that they were representative of the residents who live in RAD developments. They compared the characteristics of respondents completing surveys to the characteristics of all residents in the sampled properties and determined that weights were necessary to adjust the results.

Analysts calculated weights for this report based on the inverse of the probability of selection of the resident, adjusted for nonresponse, times the probability of selection of the development based on the sampling frame. Because the research team was unable to survey any residents from properties with substandard inspection scores in large- and medium-sized PHAs, the results are not representative of that population.

Weights were not adjusted for whether residents had moved during the RAD project or had left public housing since enrollment. Because information on nonrespondents is incomplete, we concluded it would not be possible to construct a robust stratification scheme to adjust the weights. Without this adjustment, nonresponse bias may affect the final sample. For instance, up to about 5 percent of all enrollees may have left subsidized housing; they were not in HUD administrative data at the time of surveying, and other address search methods did not locate them in known subsidized housing. Only 2.3 percent of those surveyed have left public housing; that group is too small to analyze separately.

Sampled Developments

The sampled and non-sampled projects were at different stages of the RAD conversion process. Table 66 shows the share of sampled and non-sampled projects that had been issued a RAD

Conversion Commitment (RCC) by HUD as of February 2018. Although the sample was selected based on a project being scheduled to receive an RCC within the sample selection timeframe, some of the projects in our sample were not issued the expected RCC. Receiving an RCC is the last step in the RAD conversion process before the PHA's property can move to RAD closing. A larger share of the sampled projects had received an RCC by February 2018 (94.7 percent, compared with 77.6 percent of the group not sampled). The one property in our original sample of 19 that did not go to closing is not included in the analysis, leaving a total sample of 18 developments.

Table 66. Issuance of an RCC by HUD

Region	Projects Sampled (N=19) (%)	Projects Not Sampled (N=241) (%)	Total Projects (%)
Not issued an RCC	5.3	22.4	21.2
Issued an RCC	94.7	77.6	78.9
Total	**100**	**100**	**100**

RCC = RAD Conversion Commitment.
Notes: Some numbers may not add to totals due to rounding. See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: Urban Institute analysis of HUD administrative data. RCC status as of February 2018.

As Table 67 shows, the 18 remaining sampled projects have a stronger representation in the South than the projects that were not sampled. Notably, the 18 projects have a strong representation in Alabama, with almost one-third of projects sampled coming from that state, compared with just 3 percent of the other 241 projects. This distribution reflects the early stages of the RAD program when the authorized units were disproportionately from the South, and it likely does not reflect the current universe of participants.

Table 67. Geographic Representation

Census Region	Projects Sampled (N=18) (%)	Projects Not Sampled (N=241) (%)	Total Projects (%)
Midwest	5.6	13.3	12.7
Northeast	5.6	9.1	8.9
South	83.3	64.3	65.8
West	5.6	13.3	12.7
Total	**100**	**100**	**100**

Notes: Some numbers may not add to totals due to rounding. See Appendix E: Glossary of Terms and Acronyms for the definition of the four statistical regions as defined by the U.S. Census Bureau.
Source: Urban Institute analysis of HUD administrative data.

The sampled and non-sampled projects correspond more closely to some characteristics. They have comparable inspection scores: the average inspection score for the 19 projects was 83, and the average inspection score for the 241 projects was 85. The average number of units is also similar between the two groups (145 units for the 19 projects and 129 for the 241 projects), although the 19 projects have a smaller spread in unit size. Both the sampled and non-sampled projects were slightly more likely to convert under the Project-Based Rental Assistance (PBRA) program than under the Project-Based Voucher (PBV) program (Table 68).

Table 68. Conversion to PBRA or PBV Under RAD

Conversion Type	Projects Sampled (N=18) (%)	Projects Not Sampled (N=241) (%)	Total Projects (%)
PBRA	55.6	56.0	56.0
PBV	44.4	44.0	44.0
Total	**100**	**100**	**100**

PBRA = Project-Based Rental Assistance. PBV = Project-Based Voucher.
Source: Urban Institute analysis of HUD administrative data

Conversations with representatives of the PHAs and property management conducted before surveying began indicated that despite the extended timeframe between when properties were sampled (presumably just before closing), work was still ongoing at three properties and had only recently been completed at four others. This is consistent with challenges identified in interviews that Econometrica conducted with external stakeholders, described earlier, citing delays caused by complications in coordinating tenant relocation and construction work.

Survey Instrument

Residents were surveyed at a single point in time after most RAD work was complete. Appendix B contains a copy of the survey instrument. Residents were reminded of the RAD program and their enrollment in the evaluation before taking the survey. When residents were first enrolled in the survey component of the evaluation effort, before RAD closed at their development, they received a letter that briefly described the RAD program and its possible effect on their housing. Invitations to participate in the survey, sent approximately 12 to 18 months later, and the survey introduction reminded recipients of RAD and the date that they enrolled in the study.

Because the survey included many questions about their experiences before the RAD program to compare to current attitudes and perceptions, and because the timeframes could be confusing, survey questions included a reference to the specific month and year the residents enrolled in the survey. Therefore, although the residents' memories may not be accurate, they did have a reference point for context.

Respondent Characteristics

The survey was completed by 298 residents in 18 properties undergoing RAD conversions.

Table 69 shows self-reported demographic characteristics of the respondents. Responses indicate that the residents in these 18 projects are more likely to be elderly, and slightly more likely to be disabled, than public housing residents in general (public housing residents are approximately 15 percent elderly and 36 percent disabled, overall).

Table 69. Survey Respondents (N = 298)

Response	Percent (%)
Male	20.7
Female	75.9
Working Age (18–62)	57.5
63 or Older	40.3
Disabled	45.0
Elderly or Disabled	72.5
Married/Living with Partner	8.9
Single	43.9
Widowed/Divorced/Separated	44.7
One-Person Household	62.7
Two-Person Household	16.6
Three+-Person Household	18.7
5 Years or Less in Assisted Housing	20.7
6 Years or More in Assisted Housing	74.4

Notes: Due to nonresponse, categories do not sum to 100 percent. Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.

Findings on Resident Effect

This section presents the findings on how RAD has affected residents. It covers effects of PHA communications, property maintenance and management, tenant relocation, quality of housing, improvements to original development, the Choice Mobility option, housing costs, employment and income, health, and safety.

Findings: PHA Communications

Overall, a substantial percentage of the residents expressed unfamiliarity with the RAD program. Although 69 percent of respondents had heard of the program, 29 percent said that they had not heard of it before it was described to them in the survey. The relatively high percentage of residents professing to be unfamiliar with RAD may be due to the length of time between initial RAD project communications and the survey or to communications that were unclear about the nature and scope of the RAD program when communicating with the residents about property conversions.

Residents were asked whether they were satisfied or not satisfied with how their PHA communicated with them about RAD and any changes they experienced as a result of the program (Table 70). They were also asked how they felt about the PHA's management of the RAD conversion; for instance, how long the work took, or whether the work made it difficult to navigate the property. Residents indicated a high level of satisfaction with the PHA for both questions, and responses did not vary significantly by PHA size or property inspection score

rating. Residents who had been in public housing for 6 years or more were slightly less likely to report satisfaction with overall communication about RAD than residents who had been in public housing for 5 years or less (78 percent compared to 86 percent). Residents who reported they had not heard of RAD before were slightly less likely to report satisfaction with the PHA's management of the RAD program than residents who were familiar with RAD (70 percent versus 77 percent).

Table 70. Satisfaction With PHA Communication About and Management of RAD

Response	PHA Communication About RAD (%)	PHA Management of RAD (%)
Very Satisfied or Somewhat Satisfied	79.2	75.6
Neither Satisfied or Dissatisfied	4.0	3.1
Very Dissatisfied or Somewhat Dissatisfied	15.9	17.6
Don't Know or Refused	1.6	2.3
Total	**100% (N = 298)**	**100% (N = 294)**

PHA = public housing authority.
Notes: Weighting for preliminary numbers in this report was calculated based on the inverse of the probability of selection, adjusted for nonresponse. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Findings: Property Maintenance and Management

Respondents were also asked to indicate how current property maintenance and management compare with property maintenance and management at the time that the RAD conversions occurred (Table 71). Most residents perceived no change in property maintenance (53.8 percent) and management (53.0 percent). Those that did notice a change were much more likely to say they were better than before (34.4 percent for property maintenance and 32.1 percent for property management); a smaller percentage said they were worse than before (9.2 percent for property maintenance and 12.3 percent for property management). Residents of developments in small PHAs were more likely than residents in medium and large PHAs to consider current management better than before (44.6 percent, compared to 34 percent and 25 percent, respectively), whereas residents in large PHAs were more likely to consider current management worse (21 percent for large, compared to 8 percent in medium PHAs and 5 percent in small PHAs). Respondents with a disability were also slightly more likely than respondents without one to report worse maintenance (13 percent versus 6 percent) and worse property management (18 percent versus 8 percent) since RAD was completed, as were residents in urban areas compared with residents in rural areas (11 percent versus 4 percent for maintenance and 14 percent versus 7 percent for property management). Most respondents (66 percent) had not noticed a change in the property management company since RAD.

Table 71. Property Maintenance and Property Management Since Completion of RAD Program

Response	Property Maintenance (%)	Property Management (%)
Better than Before	34.4	32.1
Worse than Before	9.2	12.3
About the Same as Before	53.8	53.0
Don't Know	1.1	0.7
Refused	1.4	1.9
Total (N = 294)	**100**	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Findings: Scale of Tenant Relocation

Tenants were asked whether they moved to a different unit because of the RAD conversion process (Table 72). Only about one-third of tenants moved to a different unit because of RAD changes, and the remaining two-thirds were able to remain in their units during changes. It would be useful to look at the full universe of RAD projects to try to determine whether the relatively low rate of relocation is typical.[149]

Table 72. Move to a Different Unit During RAD Changes

Response	Percent (%)
Yes	33.1
No	64.0
Refused	2.9
Total (N = 298)	**100**

Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.
Source: Urban Institute analysis of RAD survey data

Using other data sources, we can resolve most of the cases in Table 72 where information is missing. Linking survey responses to HUD administrative data and address change information, we developed a more complete picture of resident mobility during the RAD changes (Table 73). Note that these percentages are slightly different from the survey responses in Table 72 because they incorporate information about where the respondent was located when surveyed.

Of all respondents, 82 percent remained in the same property throughout the RAD conversion process, either because they never moved or because they moved within the same property. Of those who moved to a different unit because of the RAD changes, about 35 percent moved to a different property (13 percent of all respondents), while most of those remaining moved to a different unit in the same property—53 percent of movers, and another 5 percent for whom the location of the move is unknown but are now back in the original property. Just more than 2

[149] In a separate study, Econometrica used HUD's administrative data to analyze resident mobility patterns from public housing to other types of assisted housing, including Section 8, as well as to unassisted housing, and to compare that with resident mobility in all RAD conversions. Due to limitations in HUD's public housing and Section 8 housing data systems, however, this analysis did not yield fruitful results.

percent of respondents were no longer in subsidized housing. Including all movers and stayers, 75 percent were back in their original unit at the time of the survey, and 92 percent are in the original property.

Table 73. Types of Moves During RAD Changes

Response	Percent of all Respondents (%)	Percent of Movers (%)
Stayed in Unit	**63.4**	**-**
Moved, Returned to Original Unit	**10.3**	**29.1**
Moved to a Different Unit in the Original Property	6.5	18.3
Moved to a Different Unit in a Different Property	3.8	10.7
Moved, Did Not Return to Original Unit	**22.8**	**64.0**
Moved to a Different Unit in the Original Property, Returned to a Different Unit in the Original Property	12.4	34.8
Moved to a Different Unit in a Different Property, Returned to a Different Unit in Original Development	3.2	9.0
Moved to a Different Property Altogether, Did Not Return to the Original Development	5.5	15.4
Moved, Not Known If There Was an Intermediate Move, Now in a Different Unit at Original Property	1.8	5.1
Moved and No Longer in Assisted Housing	**2.3**	**6.5**
Move History Unknown, Now in Original Unit or Original Property	**1.2**	**0.5**
Do Not Know If Moved to a Different Unit during RAD, but in the Original Unit Now	1.0	-
Moved to a Different Unit but Do Not Know If Moved to a Different Property during RAD, Do Not Know If in Original Unit but Is in the Original Property	0.2	0.5
Total (N = 298)	100	100

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data.

Findings: Tenant Relocation Assistance

Tenants who moved to a different unit because of RAD changes were asked to indicate whether they received relocation assistance. The majority of residents said that they did receive help (Table 74), and almost all (90 percent) of those who received relocation assistance were either somewhat or very satisfied with the assistance they received.

Table 74. Help With Moving or With Moving Expenses

Response	Percent
Yes	77.1
No	22.4
Refused	0.6
Total (N = 105)	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Numbers do not add to total due to rounding.
Source: Urban Institute analysis of RAD survey data

Those who temporarily moved during RAD changes, returning to their original unit, were more likely to say they received help with moving or with moving expenses than those who permanently moved to a different unit and/or property (Table 75).

Table 75. Help With Moving or With Moving Expenses

Response	Temporary Mover (%)	Permanent Mover (%)
Yes	88.6	74.0
No	11.4	26.0
Total (N = 104)	**100 (N=33)**	**100 (N=71)**

Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.
Source: Urban Institute analysis of RAD survey data.

Findings: Quality of Housing

To gauge housing quality, tenants were asked to indicate their satisfaction with their current housing unit and development. Table 76 shows high levels of satisfaction with both. Housing unit satisfaction levels were higher for large PHAs (90 percent) compared with medium-sized (77 percent) and small PHAs (84 percent).

Table 76. Tenant Satisfaction With Current Housing Unit and Development

Response	Housing Unit (%)	Development (%)
Very Satisfied or Somewhat Satisfied	82.4	80.8
Neither Satisfied nor Dissatisfied	3.7	4.2
Very Dissatisfied or Somewhat Dissatisfied	11.7	12.8
Refused	2.2	2.2
Total (N = 294)	**100**	**100**

Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.
Source: Urban Institute analysis of RAD survey data

Tenants were also asked to compare the condition of their current housing and development with the condition of their housing before RAD closing (Table 77). High shares of tenants indicated their current housing and development were better than before. Women were less likely than men to report improvement in conditions, both for the condition of their housing unit (52 percent of women compared to 64 percent of men) and for the condition of their property (51 percent versus 78 percent). Large differences also exist when comparing residents who moved to a different unit during the RAD conversion to residents who did not. Those who moved were

significantly more likely to indicate better conditions, both for the housing unit (82 percent versus 43 percent) and the property (77 percent versus 48 percent). Most of the difference was due to a higher share of non-movers indicating that conditions were about the same; non-movers were only slightly more likely to indicate worse conditions. This difference makes intuitive sense as moves are likely to be more common when significant in-unit rehabilitation work is done. Residents in urban areas were also more likely to indicate improvement in property conditions than residents in rural areas (61 percent versus 37 percent).

Table 77. Housing Now Compared to Housing Before RAD

Response	Housing Unit (%)	Property (%)
Either Much Better or Somewhat Better	55.2	56.6
About the Same	35.3	36.1
Either Much Worse or Somewhat Worse	9.1	6.7
Refused	0.4	0.5
Total (N = 298)	**100**	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

When asked about specific housing problems in their current residence compared with their housing before RAD, residents identified no significant differences, either positive or negative (Table 78). It is important to note that these responses reflect what residents recalled about specific housing conditions more than a year previously. The similarity in perceptions of problems may also reflect the fact that for some RAD properties, work was on the building exteriors and systems, not individual units.

Residents reported problems for certain housing conditions at rates higher than public housing residents in the American Housing Survey (AHS), both before and after RAD conversion work. Respondents were more likely to report holes and cracks in the wall, peeling paint or broken plaster, and signs of mold compared with AHS respondents in public housing. Plumbing and heating issues and broken windows were not more prevalent in the RAD sample. The comparison indicates that both before and after conversion, units in RAD developments in the sample were rated as being in slightly worse condition than the universe of public housing units. We know, however, that our sample and the set of approved RAD projects it was drawn from are not representative of all public housing; differences in housing condition could be the result of selection bias in the RAD program.

Table 78. Housing Conditions (N = 298)

Housing Condition	Before RAD (%)	After RAD (%)	AHS (%)
Housing Unit (HU) Ever Uncomfortably Cold	13.5	12.8	12.5
HU Ever Completely without Running Water	7.1	9.0	5.0
All Toilets in HU Ever Unusable	8.8	8.6	4.0
Cracks or Holes in Wall of HU	11.6	15.0	7.9
Peeling Paint or Broken Plaster in HU	17.5	18.2	4.4
Signs of Mice or Rats in HU	14.1	10.7	10.1
Signs of Mold or Mildew in HU	20.6	14.5	8.2
Broken or Damaged Windows in HU	8.2	4.5	5.9
Broken or Damaged Doors in HU	8.4	8.4	N/A
Missing Door Locks in HU	2.4	4.0	N/A

AHS = American Housing Survey. N/A = data not available.
Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.
Sources: Urban Institute analysis of RAD survey data and the 2015 AHS

Findings: Improvements to Original Development

Tenants still in their original development were asked to indicate whether they had noticed specific changes to the indoor spaces, outdoor spaces, or the housing unit itself (Table 79). They were prompted with general descriptions of what was meant by each area but not given any detail of what changes might have been made. Most tenants said that they did not notice changes to indoor or outdoor spaces, whereas over one-half did notice changes to their own housing unit. (Note that some residents live in developments in which no improvements were made, or improvements had not yet been completed at the time of the survey.)

Table 79. Noticed Changes in Housing

Response	Noticed Changes to Indoor Spaces (%)	Noticed Changes to Outdoor Spaces (%)	Noticed Changes to Housing Unit (%)
Yes	41.6	46.9	56.0
No	53.5	49.9	40.2
Don't Know	1.1	0.6	0.8
Refused	3.8	2.6	3.1
Total (N = 252)	**100**	**100**	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Among residents who did notice differences, most agreed that conditions had improved (Table 80). Residents who had been in public housing for 5 years or less were more likely to think conditions had improved in common areas than longer term residents of 6 years or more, with 72 percent seeing improvement in common indoor spaces (compared with 62 percent for longer term residents) and 62 percent seeing improvement in common outdoor spaces (compared with 47 percent). Residents with 6 or more years in public housing were more likely to notice an improvement in their own unit (62 percent versus 56 percent). Residents at medium-sized PHAs were less likely (23 percent) to notice an improvement in common indoor spaces than residents

at small PHAs (32 percent) and large PHAs (66 percent). Overall, and both inside and outside the unit, few respondents thought that conditions had gotten worse (around 6 percent).

Table 80. Evaluation of Changes in Housing

Response	Noticed Changes to Indoor Spaces (%)	Noticed Changes to Outdoor Spaces (%)	Noticed Changes to Housing Unit (%)
Better Than Before	64.3	49.2	60.6
Worse Than Before	6.0	6.4	6.5
About the Same	25.1	40.1	31.4
Don't Know	1.8	0	0.2
Refused	2.8	4.3	1.2
Total	**100**	**100**	**100**
N	**135**	**149**	**171**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Findings: Choice Mobility Option

Roughly one-half of tenants reported that they were not informed about the option to receive a Housing Choice Voucher (HCV) under the Choice Mobility option in the future during the RAD process (Table 81). Residents in PBV conversions were more likely to have heard of the option (49 percent, compared with 44 percent for PBRA conversions). Elderly respondents were significantly more likely to report that they had not heard of the Choice Mobility option (66 percent) than working-age respondents (58 percent).

Table 81. Told About HCV Option

Response	Percent (%)
Yes	45.7
No	49.2
Don't Know	4.0
Refused	1.1
Total (N = 294)	**100**

HCV = Housing Choice Voucher.
Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing.
Source: Urban Institute analysis of RAD survey data

Tenants were also asked whether they would like to use an HCV under the Choice Mobility option rather than continue to stay in their current housing. As Table 82 shows, almost one-half said they would prefer the Choice Mobility option. Working-age respondents reported being interested in the option (62 percent), whereas elderly respondents were less likely to prefer the Choice Mobility option (32 percent were interested in using a voucher rather than staying in their current housing). Residents of properties in medium-sized PHAs were more likely to say yes (51 percent) than respondents in large (47 percent) or small PHAs (50 percent). Residents who had been in public housing for 5 years or less were also more likely to say yes (60 percent) than residents who had been in public housing for 6 or more years (47 percent).

Table 82. Prefer to Use HCV Under Choice Mobility Option Rather Than Stay in Current Housing

Response	Percent (%)
Yes	48.5
No	40.9
Don't Know	6.2
Refused	4.4
Total (N = 294)	**100**

HCV = Housing Choice Voucher.
Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Residents in two developments that had waived the Choice Mobility option are excluded.
Source: Urban Institute analysis of RAD survey data

Findings: Housing Costs

One-half of respondents indicated that the amount they paid for rent was currently higher than before RAD (Table 83). Most attributed the increase in rent to higher incomes (59 percent), although only 22 percent of respondents currently work for pay—about the same as before RAD. The average reported rent was $255. Respondents were not asked to recall the rent they were paying before RAD. Elderly residents were more likely to report paying more rent than working-age residents (57 percent, compared with 46 percent), as were men compared with women (67 percent, compared with 46 percent) and residents who had been in public housing for 5 years or less compared to residents who had been in public housing for 6 years or more (68 percent, versus 47 percent). Some respondents indicated problems with making rent payments, with 9 percent reporting that they had been more than 15 days late paying rent at least once in the past year.

About one-third of respondents (36 percent) also reported that utility costs went up. Residents were more likely to report higher utility costs at large PHAs (43 percent) and medium-sized PHAs (35 percent) than at small PHAs (25 percent). Fourteen percent of respondents reported late payment of utility bills in the previous year, although almost none have had utilities shut off for non-payment.

Table 83. Change in Housing Costs

Response	Rent (%)	Utilities (%)
Increased	50.1	36.1
Decreased	16.4	13.4
Same Amount, or About the Same	30.2	45.2
Don't Know	1.2	1.8
Refused	2.0	3.5
Total (N = 298)	**100**	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Findings: Employment and Income

Most assisted housing recipients nationwide are elderly and disabled (Mazzara and Sard, 2018); the RAD sample is younger and therefore possibly less likely to include disabled heads of household, although the presence of a disabled household member is slightly more likely in the RAD sample. Still, reported employment rates in the RAD sample are low even for working-age public housing tenants—nationally, 58 percent of working-age non-disabled tenants reported working in 2016, but just 32.9 percent of the RAD reported currently working for pay, and about the same proportion of tenants (34 percent) reported that they were not working during RAD. The analysis also compared the figures for the RAD sample to other research studies of public housing residents. The RAD sample is most similar to the baseline evaluation of Choice Neighborhoods, where just about 30 percent of the residents in four of the five developments in the study reported having income from wages (The Urban Institute, 2013). The HOPE VI Panel study tracked outcomes for residents in five developments slated for demolition from 2001 to 2005; across the five sites, just over one-half of the respondents in that study reported paid employment at all three waves of the study. The rates, however, were much lower for those who reported having fair or poor health—just 38 percent (Levy and Woolley, 2007). Likewise, a needs assessment of tenants in Washington, DC, in 2015 also found only about one-third reporting employment at the time of the survey (Scott et al., 2013). Not surprisingly, like the residents in the other studies of public housing tenants, RAD sample respondents also report very low incomes; total household income for respondents was under $15,000 in 2016 for three-fourths of respondents.

One cannot draw any conclusions from this survey about the effect of RAD on employment because too few employed residents experienced relocation. Other research on assisted tenants suggests that finding any effect, especially in the short run, is unlikely (Abt Associates, Inc., et al., 2006). Furthermore, the evidence we do have is mixed, from older studies of housing assistance that show a short-term work disincentive effect (for example, Abt Associates et al., 2006) to research on Moving to Opportunity that showed no effects on adult employment or income—although more recent research has found long-term effects for children who moved. The only studies of public housing tenants that show effects on employment are of programs that include work supports and services (for example, Jobs Plus, the Chicago Family Case Management Demonstration, HOST, enhanced FSS) (Popkin, 2018).

Findings: Health

One of the key questions about RAD—and one that concerns tenant advocates in particular—is how the redevelopment and potential relocation will affect residents' health and well-being. Public housing serves a very low-income and vulnerable population, including many residents who are seniors or who have disabilities that prevent them from working. As discussed in the previous section, the RAD development sample appears to have a higher proportion of tenants who are disconnected from the labor market than the general public-housing population. Additionally, the RAD sample appears to be more similar in terms of employment of tenants by housing authorities who serve high-need populations (for example, the DC Housing Authority) or to tenants from distressed developments targeted for redevelopment under the Choice Neighborhoods demonstration (Pendall et al., 2015). Our survey findings on self-reported health confirm that the RAD development sample is extremely vulnerable. More than 40 percent of survey respondents reported their current health as only fair or poor (Table 84), a figure far

higher than one would expect in a typical low-income population. These figures are comparable to those from the HOPE VI Panel Study, which focused on residents from five developments slated for demolition. That study noted how much higher those figures were than what national surveys show for other low-income populations and women and raised concerns about the potential negative effects of relocation for such a vulnerable population (Popkin and Davies, 2013).

In the RAD sample, respondents from large PHAs were the most likely to report being in fair or poor health (54 percent), although the figures for small PHAs (38 percent) were also very high. Of great concern, respondents reported that their health was worse after RAD, although only a small proportion of respondents attributed those changes to changes in their housing. There was little variation across groups; only those residents who report disability were more likely to report poor health than other respondents (60 percent versus 40 percent). The data about the health and vulnerability of residents of developments targeted for RAD underscores the need to provide support to residents throughout the process, especially those who may have to move to accommodate repairs or redevelopment.

Table 84. Health of the Respondent

Response	Before RAD (%)	Currently (%)
Excellent or Very Good	24.9	17.7
Good	32.1	32.8
Fair or Poor	41.9	48.8
Don't Know	0.5	0
Refused	0.6	0.8
Total (N = 298)	**100**	**100**

Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Findings: Safety

Nearly all respondents reported feeling very or somewhat safe in their homes and developments during the day (Table 85). A lower figure—about two-thirds—reported feeling safe outside at night. RAD seems to have had little effect on perceptions of safety (Table 86); about two-thirds said they feel about as safe as they did before RAD, with only about 1 in 5 saying that they feel safer and 1 in 10 reporting feeling less safe. There was relatively little variation across groups; not surprisingly, respondents who were 63 and older or disabled reported higher levels of fear than others. In the absence of contextual data about other changes in the community that may have affected perceptions of safety, however, these results do not allow us to draw any conclusions about how RAD may have affected this aspect of resident well-being.

Table 85. Perceptions of Safety

Response	Day		Night	
	In Unit (%)	Outside (%)	In Unit (%)	Outside (%)
Very Safe or Somewhat Safe	91.9	86.1	83.6	63.5
Very Unsafe or Somewhat Unsafe	6.3	11.9	14.6	32.9
Don't Know	0	0.2	0	1.9
Refused	1.9	1.9	1.9	1.7
Total (N = 252)	**100**	**100**	**100**	**100**

Notes: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Some numbers may not add to totals due to rounding.
Source: Urban Institute analysis of RAD survey data

Most respondents did not feel that there had been an overall change in safety since before RAD (Table 86). Approximately 22 percent did feel safer, however, whereas approximately 12 percent felt less safe. Respondents were not asked directly whether increases or decreases in safety were attributable to RAD. Open-ended comments from respondents tended to cite good neighbors and the proximity of police or security patrols as key factors in perceptions of safety. Twenty-four respondents cited building characteristics but did not connect those characteristics to RAD improvements, and only 14 of these respondents felt safer than before.

Table 86. Safety Compared to Before RAD

Response	Currently (%)
Safer	21.5
Less Safe	11.5
About as Safe as Before	64.7
Don't Know	0.6
Refused	1.7
Total (N = 298)	**100**

Note: Responses are weighted for probability of selection and to be representative of the first round of RAD projects proceeding to closing. Numbers do not add to total due to rounding.
Source: Urban Institute analysis of RAD survey data

Conclusion

In general, tenants living in projects during RAD conversion were satisfied with the conversion process itself as well as the outcomes of that process. They expressed general satisfaction with how the PHA communicated with them and managed the RAD process. A large majority of tenants thought that property maintenance and management were as good as or better than before conversion. Most tenants were very or somewhat satisfied with their housing unit and their housing development. Large percentages of tenants reported that they did not notice changes to the properties or the units they lived in after RAD conversion, however.

Most tenants in the properties that were surveyed did not have to relocate as a result of RAD. For every tenant that had to move, two tenants remained in their units during RAD conversion. Of those who moved because of RAD, the majority moved to a different unit in the same property they were living in when the RAD process began. In addition, most of the tenants who moved to

a different unit because of RAD received some type of relocation assistance, and almost all were satisfied with the assistance they received.

Regarding tenants' Choice Mobility options under RAD, about one-half of the tenants surveyed reported that they were not informed about the option during the RAD process, and about one-half indicated that they would prefer that option to living in their current unit. Future evaluations of RAD should continue to investigate whether this option is being properly communicated to affected residents.

Tenant responses to the health questions reflect the fragility of this population and highlight the need to ensure that relocation support is not taken lightly in RAD conversions.

Conclusion

This chapter summarizes the findings and recommendations on the evaluation of the Rental Assistance Demonstration (RAD) program presented in the preceding chapters. Overall, the report covers the second phase of the evaluation mandated in the authorizing statute for RAD: The Consolidated and Further Continuing Appropriations Act of 2012, as amended. It follows on the first phase of the RAD evaluation, which was published by HUD in September 2016 as the *Interim Report: Evaluation of HUD's Rental Assistance Demonstration (RAD)*. The current report—the *Final Report*—can be read in conjunction with the *Interim Report*, as it is in many respects a continuation of the analysis begun therein. The *Final Report* can also be read as an independent study, however, as it addresses research questions about the ability of the RAD program to meet its objectives that were not analyzed when the *Interim Report* was prepared.

Findings

This section provides an overview of the principal findings from this study of the effect of converting public housing into project-based Section 8 housing under RAD. These findings are mainly organized in line with the requirement in the authorizing statute that HUD evaluate the effect of RAD on the following—

1. The amount of private capital leveraged.
2. The preservation and improvement of former public housing units.
3. Residents living in the housing when it converted.

They also include other findings relevant to understanding the effect of RAD, including the views of public housing authorities (PHAs) and external stakeholders on how RAD has affected property management and PHA operations.

Project Financing and Leverage

The 956 public housing projects that had converted to project-based Section 8 under RAD through the end of October 2018 raised $12.6 billion in funding. This funding enabled PHAs to preserve 103,268 units of affordable housing. An average of $121,747 per unit in preservation dollars went toward construction costs to address rehabilitation and new construction needs, deposits to reserves for replacement to cover future capital needs, tenant relocation costs, and other conversion expenses.

Project financing under RAD came from many sources, including public housing appropriations, other federal appropriations, internal resources of the PHAs, other public sources, tax credit equity, private debt, and other private sector contributions. Different stakeholders have indicated interest in knowing the leverage generated by different contributory sources. Econometrica worked with HUD to develop the following five leverage ratios, representing a variety of ways to analyze the leverage question—[150]

[150] The leverage ratios were calculated for all 956 public housing conversions completed through October 2018 using funding sources as classified by HUD. The RAD statute, Pub.L.No.112-55, requires evaluation of the amount of private sector leveraging as a result of conversion. There is no commonly accepted definition of "private sector

- The Public Housing Appropriated Funds ratio shows that RAD conversions leveraged $9.66 for every dollar provided through HUD's public housing program appropriation.
- The Internal PHA Funds ratio shows that RAD conversions leveraged $7.47 in funding for every dollar that PHAs invested from their own resources.
- The Federal Appropriated Funds ratio shows that RAD conversions leveraged $8.34 for every dollar of spending paid for from federal appropriations.
- The Publicly Held Funds ratio is one of two ratios used to measure RAD's success at leveraging private sector funding. This ratio shows that RAD conversions leveraged $1.59 in privately held funding, including tax credits, for every dollar of publicly held funding invested in these projects.
- The second public-private leverage ratio is the Publicly Subsidized Funds ratio. It shows the fiscal effect of the RAD program, which leveraged $0.29 in private unsubsidized funding, which includes mortgage debt but not tax credits, for every dollar of publicly subsidized funding, which includes tax credits.[151]

Construction Costs and Rehabilitation Needs

By financing construction costs, RAD enables PHAs to address rehabilitation needs of their affordable housing. This study undertook an in-depth analysis of the effect of RAD on the rehabilitation needs and other capital needs of a sample of RAD conversions (the treatment group) relative to a comparable sample of nonparticipating public housing projects (the control group) over an approximately similar timeframe. The analysis used data from physical condition assessments (PCAs), which estimate a project's capital needs over 20 years based on an assessment of its physical condition and the cost of repairing deficiencies or replacing equipment,[152] and data provided by HUD on project financing and construction costs.

Using PCA data, the analysis divided the treatment group into "shallow rehab" (that is, those projects that could meet up to 115 percent of their rehabilitation needs) and "moderate-to-deep rehab" (that is, those projects that could meet more than 115 percent of their rehabilitation needs) based on the ratio of construction cost to rehabilitation needs. Although "moderate-to-deep rehab" projects had greater rehabilitation needs than "shallow rehab" projects, they also had greater financing and spent it on greater construction costs. Nonconstruction conversions had minimal rehabilitation needs and spent little on construction.

RAD is designed so that converted projects can meet rehabilitation needs while allowing projects that can raise significant financing to meet even more than that. The analysis confirmed this result. All rehabilitation projects were able to cover their rehabilitation needs; shallow rehab

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leveraging." The five leverage ratios all represent different potential calculations. The final two leverage ratios are the ones that the evaluator felt most closely aligned to the statutory requirement.

[151] The Publicly Held Funds ratio treats tax credits as private equity investment because the funds are from private sources. The Publicly Subsidized Funds ratio treats tax credits as public funds because tax credits are considered a tax expenditure under federal budget-scoring rules. FHA-insured loans are considered private unsubsidized funds because they have a zero or negative federal credit subsidy. See OMB, 2018.

[152] As defined in the PCA, rehabilitation needs represent the project's capital needs that should be addressed immediately, before the end of the first 12 months. Short-term capital needs are capital needs that should be addressed within the first 3 years, based on the project's physical condition.

projects covered an average of 109 percent of their rehab needs, whereas moderate-to-deep rehab projects covered 305 percent of their rehab needs. Nonconstruction conversions covered only a portion of their rehab needs (26 percent) but had raised more than enough in financing ($35,366 per unit) to cover their modest rehab needs ($434 per unit) had they wanted to do so up front.

Physical Condition and Short-term Capital Needs

By addressing their rehabilitation needs through RAD, PHAs can improve the quality of their housing stock. The findings from this evaluation clearly demonstrate that the RAD program helps converted projects reduce short-term capital needs[153] and therefore improve their physical condition. Moreover, in the absence of RAD, it seems likely that short-term capital needs would have increased, and their physical condition would have deteriorated. On average, RAD properties in the treatment group reduced their short-term capital needs from $12,981 per unit before conversion to $4,608 per unit after conversion—a reduction of $8,373 per unit, or 65 percent. In contrast, non-RAD projects in the control group experienced an increase in their short-term capital needs from $3,740 per unit on average to $8,710 per unit—an increase of $4,970 per unit, or 133 percent.

The reduction in short-term capital needs for RAD projects varied by the scope of construction—the greater the scope of construction, the greater the reduction in short-term capital needs and the more physical condition improved. Nonconstruction conversions, which had almost no construction, increased short-term capital needs per unit by $31, or 1 percent, from $3,133 to $3,164. Rehabilitation projects, which used project financing for substantial construction, reduced short-term capital needs per unit from $15,036 to $4,917—a reduction of $10,119, or 67 percent. After conversion, shallow rehab projects, which barely covered their rehabilitation needs, reduced their short-term capital needs per unit by $6,100, or 54 percent, from $11,392 to $5,292, whereas moderate-to-deep rehab projects reduced their short-term capital needs per unit by $17,354, or 80 percent, from $21,596 to $4,242.

Additional analysis examined those features of the physical condition of properties that were affected the most by RAD. It looked at the change in short-term capital needs per unit by 14 building components (for example, kitchens, bathrooms, building exteriors) before and after conversion for a sample of RAD projects. For RAD properties before conversion, the greatest deficiencies were in the following—

- Exterior of the building—the roof, outside doors and windows, and cladding.
- Building interiors—flooring, walls, and ceilings.
- Other costs (such as management offices and recycling bins).
- Heating and cooling.
- Kitchens.

Deficiencies in many of these components would have been noticeable (heating and cooling) or visible (interiors and kitchens) to tenants and some of them (roofs and windows) also would have affected energy consumption and operating costs. Almost all components (10 of 14) benefited from a significant reduction in capital needs after conversion. In other words, the physical

[153] For this analysis, short-term capital needs include rehabilitation needs plus the capital needs in the first 3 years of the project, as defined in the PCA.

condition of the buildings converted under RAD improved almost across the board and in areas likely to benefit tenants directly. The four components that had an increase in short-term capital needs per unit—including mechanical and electrical, common area, elevator, and water system—either had low capital needs to begin with or function behind the scenes, so tenants are less likely to notice them. In contrast, non-RAD properties experienced a significant deterioration in physical condition in all 14 building components.

For new construction projects, no data were available on capital needs before conversion. The analysis compared their short-term capital needs after conversion with the short-term capital needs of other RAD conversions and non-RAD projects. As expected, new construction conversions, which replace prior public housing with newly built housing, are in the best physical condition of all projects. Their short-term capital needs per unit of $229 is the lowest and is only 6 percent of the average of $3,951 for all RAD conversions. Among RAD conversions, shallow rehab has the highest level of short-term capital needs per unit—$5,292 or 134 percent of all RAD conversions. Non-RAD projects have the greatest short-term capital needs per unit—$8,710, or 220 percent of the average for RAD conversions.

Differences in short-term capital needs do not tell the whole story of RAD's effect on reducing projects' short-term capital needs before conversion. By comparing the estimated unscheduled capital needs after conversion with the initial short-term capital needs of RAD projects before conversion and for non-RAD projects at a comparable point, the analysis shows that RAD projects succeeded on average at addressing most of their prior short-term capital needs. In contrast, non-RAD projects experienced an increase in prior capital needs. RAD projects had initial short-term capital needs of $12,981 per unit on average; after conversion, their unscheduled capital needs were estimated to be $1,649 per unit—a reduction of $11,332 per unit, or 87 percent. In contrast, non-RAD projects had initial short-term capital needs of $3,740 per unit on average; after 3 years, their unscheduled capital needs were estimated to be $5,221 per unit—$1,481 per unit higher, or an increase of 40 percent. They failed to address prior capital needs and experienced an increase in capital needs probably as systems were considered more likely to need replacement earlier or as the cost of replacement increased. These results suggest that without RAD, converted projects would have been significantly less successful at addressing their prior capital needs.

Financial Viability and Long-Term Capital Needs

Another way in which RAD helps preserve affordable housing is by converting projects from a public housing funding model (short-term operating subsidies and declining Capital Funds under central PHA management) to a project-based Section 8 funding model (long-term subsidies and rising rents under decentralized property management), enabling converted housing to meet ongoing financial requirements. The mechanism for doing so is the reserve-for-replacement account, which is funded up front at closing and over time out of annual project funds and is used to cover the long-term capital needs of the project.

Most RAD projects in the treatment group had financial statements that included data on their replacement reserves. For those projects that could be analyzed, the analysis showed that all but one made the required initial deposit to their replacement reserves and the balance in the account was at or above the minimum floor, as set at closing. The followup PCAs conducted for the sample of RAD projects in this study shows, however, that long-term capital needs are higher

than estimated at closing. This finding suggests that the minimum floor for reserves for replacement used by the RAD sample could be too low. For some projects, PHAs should consider increasing their contribution to the reserves for replacement to meet their projects' possibly higher-than-expected long-term capital needs.

Conversion to a long-term funding stream via a Section 8 contract with built-in Operating Cost Adjustment Factors (OCAFs) also gives projects the resources and incentives to adopt commercial property management practices, which include continued property upkeep, attention to operating expenses, control over vacancies and revenues, and proper financial management. This study interviewed PHAs (the treatment group) to obtain information on their use of commercial property management practices and their views on their converted projects' financial performance. About one-fourth used private-sector property managers; the remaining three-fourths managed the property with their own staff. They said that they have changed their property management policies and procedures and recognized the challenges of hiring and training new staff and implementing new data systems, but otherwise, they expressed few concerns.

Most PHAs reported stable or improved financial results for their converted properties. They said project revenues were higher and project expenses were about the same or lower. They attributed the increased revenue to better rent collection processes and higher administrative fees. They felt that lower expenses arose from reduced utility, maintenance, and administrative costs. In addition, most PHAs said their properties were earning enough for operating expenses, scheduled reserved for replacement payments, and mortgage debt (where applicable) and were generating a positive net cashflow after meeting those obligations. One PHA said that revenues had declined, and another that expenses had increased. A few PHAs felt that their RAD rents were low and worried about long-term financial sustainability.

This study also examined the financial statements of the sample of RAD projects (the treatment group) before and after conversion to construct financial performance indicators used to measure if the projects had improved.[154] The results were compared with projects that did not participate in RAD (the control group) to assess what would have happened in the absence of RAD. The financial performance indicators included the Quick Ratio, Months Expendable Net Asset Ratio (MENAR), and Debt Service Coverage Ratio (DSCR). The Quick Ratio and MENAR indicate a project's liquidity and financial viability.[155] The DSCR measures the project's ability to meet its debt obligations if it has any mortgage debt.

On average, the sample of RAD conversions marginally increased their Quick Ratio and MENAR after conversion, indicating a modest improvement in financial condition. In contrast,

[154] Not all 23 RAD conversions and 48 non-RAD projects had all the financial statements required for all aspects of this analysis.

[155] A property with a Quick Ratio below 1 has insufficient liquid assets available to pay current obligations and would be illiquid. A property with a MENAR below 1 has insufficient liquid assets available to pay an average month's operating expenses and would be non-viable. A property with a Quick Ratio below 1 or a MENAR below 1 in 2013 is considered at risk. A property with a Quick Ratio equal to or above 1 or a MENAR equal to or above 1 is considered viable.

the sample of non-RAD public housing projects noticeably decreased their Quick Ratio and MENAR during this period, indicating a deterioration in financial condition.

All but one RAD property had a Quick Ratio and MENAR above 1, meaning they were liquid and viable. The single exception had a MENAR below 1 both before and after conversion and is classified as at-risk both before and after conversion. The Quick Ratio for that property was slightly above 1 before conversion and did improve after conversion. The property's audit report listed a deficiency in cashflow (related to healthcare service reimbursements and not to Section 8 rents under RAD) that created uncertainty about the partnership's ability to continue as a going concern,[156] however, and the partnership listed an amount calculated as a necessary capital contribution to alleviate the uncertainty.

Nine of the RAD conversions assumed mortgage debt, with a median mortgage amount of $3.6 million per project. Econometrica calculated the DSCR for these nine RAD properties: Five had a DSCR above 2.5, which demonstrates that the properties have more than 250 percent of the required debt payment available from annual net income. Two RAD properties had a DSCR of more than 1.11, which is the lowest ratio in FHA's 221(d)(4) program, but less than 2.5. The last two RAD properties had a DSCR of less than 1.11. One of the latter had established significant operating reserves, which mitigates its debt service risk. The other had a DSCR of 1.09. While the property has a debt service reserve, this is the property that was deemed at-risk based on its MENAR ratio.

Tenant Satisfaction

To assess the effect of RAD on tenants, this study surveyed a sample of 522 tenants from RAD properties that have converted. The survey showed that many if not most residents have witnessed improvements in housing quality and expressed overall satisfaction with how RAD was administered and its results. Most tenants were very or somewhat satisfied with their housing unit (82 percent) and development (81 percent). Higher shares of tenants indicated that their housing (91 percent) and development (93 percent) were either better or about the same as before. Moreover, over half (56 percent) said that they noticed changes inside their housing units, and slightly less than half (47 percent) noticed changes to the building exterior. Tenants also expressed satisfaction with property management. They generally thought that property maintenance (88 percent) and property management (85 percent) were as good as or better than before conversion. They were also generally satisfied with the PHAs' communications about RAD (79 percent very or somewhat satisfied) and its management of the RAD process (76 percent very or somewhat satisfied).

Tenant Relocation

Tenant relocation did not appear to be a problem for PHAs managing rehabilitation and new-construction projects. Construction phasing limited relocation needs, and adequate communications ensured the cooperation of the tenants. When they did relocate tenants, the PHAs claimed that most tenants returned; our survey of tenants confirmed similar results. About one-third of tenants moved to a different unit because of RAD, and the remaining two-thirds remained in their units. Of all respondents, 82 percent remained in the same property throughout

[156] The audit report attributed that deficiency to Medicaid reimbursement rates being insufficient to cover the cost of the property's healthcare-related services to its need population.

the RAD conversion process, either because they never moved or because they moved within the same property. Most tenants who moved received help, and almost all (90 percent) were very or somewhat satisfied with the assistance. Developers and lenders, on the other hand, mentioned project construction delays and other complications from tenant relocation for RAD projects; they cited coordination and sequencing problems and HUD program rules that restrict when PHAs can move tenants out.

Choice Mobility Option

Few of the PHAs interviewed displayed strong support for the Choice Mobility option. They appeared to do little to promote it and said that few residents were interested in Housing Choice Vouchers (HCVs) under Choice Mobility in nonconstruction conversions and only slightly more interested in rehabilitation and new-construction conversions. Our survey of tenants found that almost half (49 percent) of tenants reported they were not informed about the Choice Mobility option during the RAD process. At the same time, a large percentage of tenants (49 percent) indicated that they would prefer the Choice Mobility option to living in their current unit.

Project Management

For our sample of 24 RAD projects, 42 percent converted to Project-Based Rental Assistance (PBRA) and 58 percent converted to Project-Based Voucher (PBV). This breakdown closely matches the universe of closed transactions. The choice of PBV or PBRA influences how PHAs approach the management of their projects after conversion. PBV conversions are administered through HUD's Office of Public and Indian Housing (PIH), which means that the PHA manages them according to PIH rules, guidelines, and information systems. PBRAs, on the other hand, are administered by HUD's Office of Multifamily Housing, which is part of the Office of Housing. Those conversions follow the policies, procedures, and data systems of that office.

PHAs have implemented changes to their practices for managing converted projects by one of two routes: internal reorganization or outsourcing. Most (about three-fourths) have taken the former path, with a credible minority resorting to the use of private sector property managers. Those that choose to reorganize say they have instituted changes in their property management policies and procedures, such as using new leases and a new tenants' rights policy rather than the Admissions and Continued Occupancy Policy (ACOP). About three-fourths said the changes were neutral or beneficial, and one-fourth said they had concerns. The greatest concerns have been hiring or retraining staff and installing new data systems; another concern was aligning the PBV or PBRA requirements with other program requirements, such as those for Low-Income Housing Tax Credits (LIHTCs) or Federal Housing Administration (FHA)-insured mortgage debt. Although admitting that the process of making any organizational change can be stressful, they nonetheless voiced few serious reservations. It is possible that prior experience with mixed-financed projects had left many of them well-prepared.

Many PHAs have started to see the benefits of their new property management processes, such as improved maintenance, which they acknowledge can help sustain assets over time. When asked how property performance had changed in terms of specific metrics—such as vacancies, delinquencies, time on the market, and turnover—the majority of PHAs feel they are able to manage properties as well or better after conversion. A minority of PHAs has found collecting tenant rents and keeping units filled to be challenging, however.

Divergent experiences between the satisfied majority and the minority who are still struggling with the transition are revealed in their views about the financial performance of their properties. Most PHAs reported stable or improved financial results for their converted properties. They said that project revenues were higher and project expenses were the same or lower due to a combination of adequate-to-good contract rents, more effective rent collection processes, and higher administrative fees. They felt that expenses had fallen due to lower utility, maintenance, and administrative costs and said that they were covering their operating expenses, meeting reserve-for-replacement requirements, making mortgage payments, and generating positive net cashflow.

A small group painted a less rosy financial picture of their RAD conversions, however. One PHA said that revenues had declined, and another said that expenses had increased. Some PHAs felt that their RAD rents were low and worried about meeting future capital needs and sustaining the long-term financial viability of their projects. Several did not provide their views on this topic; it is therefore possible that more PHAs would have shared these concerns than this study can report.

Recommendations

This section presents recommendations that came directly from interviews with PHAs, lenders, developers, and HUD staff and those that came from the study authors. The PHAs and other stakeholders interviewed shared recommendations based on experiences with the RAD program. In some cases, those experiences date back to the early days of RAD. Given the growth in the program's size and changes in implementation since the study began, it is difficult to determine how strong a case to make for each comment or suggestion reported by the interviewees. It is possible that some recommendations stem from experiences that are now out of date or simply do not apply to how the program is currently administered. With that in mind, this report offers advice to HUD on areas in which the agency may want to undertake additional investigation—and gather more facts about the current or evolving situation—as it develops policies for RAD.

Improving Affordable Housing Preservation

Several stakeholders recommended the following changes to the RAD program to enable it to achieve its objective of preserving affordable housing by providing more resources—

- **Raise contract rents:** Several participants recommended that RAD use higher formula rents.[157] Higher rents would help projects with significant rehabilitation needs to finance a bigger mortgage and fund greater reserves for replacement, making more projects feasible. Of course, any changes to the "budget-neutral" nature of the RAD program, such as raising contract rents, would require Congressional action.
- **Promote more "rent bundling":** One recommendation for raising RAD rents that does not require statutory action is for HUD to increase the use of rent bundling, through which projects mix higher affordable rents (for example, up to 120 percent of market

[157] One respondent suggested that raising RAD contract rents by $40 to $70 per unit per month would greatly increase the amount of rehabilitation that could be financed. Another suggested increasing contract rents for buildings with high concentrations of efficiencies and one-bedroom units, because those units have lower operating subsides under public housing.

rents) with Section 8 contract rents, producing a higher rent base. Rent bundling has been permitted by the RAD program since 2013 and was recently extended in the RAD Supplemental Notice published in 2018. HUD's Office of Recapitalization could provide additional educational materials, such as case studies with financial examples, showing how rent bundling is done and what effect it has both on the donating property or properties and the receiving property or properties.

- **Offer capital grants:** Another recommendation is that HUD provides capital dollars to projects that are unable to meet their capital needs. Some participants noted that, unlike HOPE VI, HUD does not provide RAD projects with a greater amount of resources. Of course, RAD projects can compete for grant funding through Home Investment Partnership Program (HOME), Community Development Block Grant (CDBG), and other sources, and they can get access to tax credit equity, which accounts for a large proportion of project financing under RAD. Even with these grant or grant-like funding sources, as noted by some observers, RAD projects may require deeper subsidies to meet all their capital needs. Without those subsidies, PHAs will tend to carry out a shallow rehab or simply not participate at all in RAD. Of course, any capital funding would have to be authorized and appropriated by Congress.
- **Support LIHTC training:** An additional recommendation to increase the amount of capital available for RAD repositioning is for HUD to expand its educational outreach to PHAs, addressing concerns about tax credits and how to mitigate or deal with the necessary realities of using tax credits. Many PHAs resist bringing tax credits into their projects for a variety of reasons, including loss of control, the complexity of the financial transactions, and high transaction costs. The advantages of projects in terms of an increased level of rehabilitation and, in some cases, replacement with new construction are apparent.

This study found that rehab projects are generally able to reduce prior short-term capital needs after conversion to about the same level regardless of the depth of rehabilitation. Shallow rehab projects had short-term capital needs of $5,292 per unit and moderate-to-deep rehab projects had short-term capital needs of $4,242 per unit. The study did not conclude that RAD projects from the early years of the program are significantly under-investing int heir rehabilitation needs. The study did find, however, that shallow rehab projects had higher critical needs ($256 per unit) compared with moderate-to-deep rehab projects ($10 per unit) or new construction projects ($31 per unit), which indicates there may be some under-investment in shallow rehab projects. The research design used in this study was not able to address the questions of whether these projects would have been more successful at improving their physical condition if they had had higher rents or more grants, or whether. some projects are deterred from participating in RAD due to low rents and insufficient grant funds, as some stakeholders argue.

One project in our sample had difficulty meeting financial obligations, however, including covering debt service and funding reserves for replacement. Moreover, several PHAs that were interviewed expressed concern about the long-term viability of their projects due to low rents. Higher rents or grants would help these projects overcome their financial stress and alleviate the concerns of the PHAs. Over time, the OCAF could mitigate this problem but it may not be enough. At some point, HUD may need to identify tools for selectively assisting converted

projects that are at risk, such as adjusting project rents to market levels or restructuring project debt.[158]

Improving Program and Project Management

Several recommendations were made to improve general program management and project management—

- **Improve long-term project oversight:** HUD should continue to support the working group recently established to study how to fill the gaps in long-term project oversight for PBV conversions. From the beginning, PHAs have had the option of choosing between PBV or PBRA Section 8 contracts for their conversions. PBV contracts are administered by PIH as part of the HCV program, which also includes tenant-based Section 8.[159] PIH monitors public housing projects but not HCV contracts (only HCV units). When a public housing project converts to PBV, it loses project-level monitoring. If the same project converted to PBRA, it would move from PIH project monitoring to Office of Multifamily Housing project monitoring. Both PBV and PBRA conversions need to be monitored at the project level to assess whether they are meeting standards of sound financial management. Without such oversight, HUD runs the risk that more of its RAD conversions could fall into disrepair and fail to cover their financial obligations, undermining the affordable housing preservation objective of the program.
- **Develop more integrated data:** HUD should consider creating a taskforce or working group dedicated to a PIH–Multifamily Housing data integration effort that would identify current data capabilities, define future data needs, and devise a feasible strategy for modifying or adapting those capabilities to better match those needs. So long as public housing and project-based Section 8 remain separate and distinct programs under the administration of different offices in HUD, the different data requirements of each program have little practical consequence. By crossing the boundaries between these organizations and programs, however, RAD conversions have exposed a need for HUD to integrate more of the project- and tenant-level data. Better integrated project-level data will support improved project oversight. In addition, HUD currently has difficulty tracking tenants who leave public housing and enter project-based Section 8 housing, which is an inevitable outcome of RAD. Better integrated tenant-level data will help fill this gap.
- **Provide technical assistance (TA) to PHAs:** Many PHAs and stakeholders recommended more training and preparation for PHA staff, boards, and residents covering the start of the RAD process and including post-conversion management. Specific types of TA that they recommended include support with preparation for public meetings the PHA holds to ensure that residents are aware of the changes and how they will be affected; providing board and staff with training; providing a consultant or

[158] Like those tools used with PBRA projects in the past, viz., the Mark-to-Market program.

[159] Under HCV rules, PIH manages tenant eligibility and contract funding but has minimal direct involvement with the projects themselves. In contrast, PBRA contracts are administered by the Office of Multifamily Housing as part of that office's general oversight of FHA-funded multifamily rental housing. The Office of Multifamily Housing has created the administrative infrastructure for monitoring PBRA projects; PIH does not have the same level of project oversight. As an example, the Office of Multifamily Housing requires that PBRA projects submit annual financial statements in a prescribed format that facilitates the monitoring of those projects.

lawyer—even a relocation consultant—who understands the process; providing good asset and property management software; and providing augmented resources through the RAD Resource Desk, including additional guidebooks, factsheets, training workshops, and other means. Many PHAs have found PBRA conversions challenging because of differences in software and billing procedures, putting a burden on the Office of Multifamily Housing staff to provide proper training in these new systems. TA to PHAs to support this transition would help and could also be used to cover other post-conversion asset management topics that are new to many PHAs, such as how to manage replacement reserves.

- **Facilitate tenant relocation:** Several stakeholders recommended that HUD develop programmatic guidance, case studies, and other materials that lay out best practices in tenant relocation and related areas of the redevelopment process under RAD. Several stakeholders noted challenges with tenant relocation and the need for better sequencing of rehabilitation, demolition, new construction, and tenant moves. Specific recommendations included allowing PHAs to start moving tenants earlier, as needed, to avoid scheduling problems, such as those related to the start of the school year, and providing HUD staff with more training on logistics and potential complications of moving residents out of existing properties and into newly constructed buildings. Although there are several guidance documents related to tenant relocation, they are focused primarily on legal and regulatory constraints and procedures rather than practical advice.
- **Improve communication and transparency:** Several lenders and developers recommended more transparency in communications as properties move through the RAD conversion process. They argued for being included in more conference calls with HUD and others throughout conversion. One noted that PHAs had a portal at HUD where they could track the conversion process for their projects from the point when it receives a CHAP through completion of the RCC. They argued that giving lenders and developers access to such a portal for more real-time updates on their projects would help keep the closings on schedule. Currently, the RAD Resource Desk is flexible regarding who can be provided with access to a project's information. PHAs can provide access to their partners, including lenders. It may be that RAD could customize a "landing page" that is specific to lenders and investors, which would not include some of the more internal notes and discussions between the PHAs and HUD. In addition, there are monthly check-in calls originated by RAD's Readiness Transaction Managers, who are tasked with assisting the PHAs to prepare and submit their financing plans. PHAs can invite their lender and investor partners to participate in these calls.
- **Simplify closing process:** To accelerate the closing process, several observers recommended that HUD standardize the RAD closing documents and adopt a process that is closer to that used for a regular Section 8 HAP contract, which can be closed using fewer steps. Another observer felt that the closing process could be improved by better coordination from HUD to avoid an unnecessary rush at the end, perhaps by using more closing coordinators so that each coordinator manages fewer ongoing closings. A few lenders commented on the need for HUD to align FHA's financial loan closing process more closely with the RAD conversion process when a project uses FHA financing. HUD

has already instituted tighter alignment between FHA and RAD closings, however, so this issue may have been addressed.

Limitations

Since this study began, the RAD program has expanded and evolved. Changes in the mix of participating PHAs and projects has been one part of this evolution. Changes to program rules made by HUD to address challenges that have arisen and apply lessons that have been learned are another part of the evolution of RAD. This evolution is expected to continue. The RAD properties examined for this study represent the first cohort of RAD projects—the "early adopters"—before some of the recent changes in the program were made. As such, they could differ from properties currently going through RAD conversion. Some of these possible differences, such as the scope of rehabilitation and the type of RAD conversion (PBV or PBRA), should be considered in applying the lessons learned from this study. In addition, although the study collected and analyzed a large volume of data on a sample of projects, the sample size was limited, and data constraints further reduced the effective sample size for certain aspects of the analysis.

Appendix A: RAD PHA Survey/Interview Questions

Identifying Information

PHA Name and Code:

POC Name and Title:

Project Name and Code:

Interview Date and Time:

POC Contact Information:

Introduction

Hello. Thank you for agreeing to a follow-up interview as part of the U.S. Department of Housing and Urban Development's, or HUD's, Rental Assistance Demonstration, or RAD, program evaluation. My name is **[name]**, and I am joined by my colleague(s), **[name(s)]**; we work for Econometrica, Inc., a management and research firm selected by HUD to carry out this RAD program evaluation. Some of you may have been interviewed before about the RAD program. As was explained to you at the time of the first interview, your public housing authority, or PHA, **[name of PHA]**, was randomly selected to be part of HUD's evaluation of the RAD program. Can you confirm who is taking part in this interview from your PHA?

Our main goal with this interview is to explore your experiences with **[project name**] after it has been converted through RAD. We are asking you, as a key member of the PHA, to answer these questions to provide us with an accurate understanding of the implementation of RAD post-conversion. We will focus on several categories, including construction and/or rehabilitation, if applicable; administration; financial performance; property management; overall HUD implementation; and some general questions. These questions will explore how your project and your PHA has changed post-conversion and allow us to report to the HUD and Congress on your experience with RAD and, ultimately, on the successes and limitations of RAD.

This interview is solely for assessing the RAD program. It is not for monitoring or evaluating the performance of individual PHAs. All responses will be confidential and will not be attributed to you or your organization. We may use quotes but will avoid doing so in situations that could allow HUD or others to identify the source of the quote.

As part of our interview process, we would like your consent to record the conversation. This recording is to ensure we are accurately capturing your response and comments. It will not be shared with HUD and will be erased after the report is completed. Do we have your permission to record the conversation? **[Wait for the response. If the respondent(s) does not consent, inform the respondent(s) that at the end of the interview we may need to review some answers in order to ensure we have accurately captured responses.]**

RAD Conversion Type

1. To get started, did you use RAD for your project, **[project name]**, for (1) rehabilitation, (2) new construction, or (3) neither (in other words, nonconstruction conversion)?

[Interviewer: The next section is applicable to rehabilitation or new construction projects. Nonconstruction projects should skip to the following section. Please make sure to address the PHA's project as either a rehabilitation or a new construction project.]

Rehabilitation or New Construction Questions

2. The following questions are related to **[rehabilitation]** or **[new construction]** of properties. These questions will allow us to understand how RAD influenced your initiatives. Would this project have been undertaken without RAD? Why or why not?

3. Were you able to complete the rehabilitation/new construction activities proposed in your RAD application? **[Interviewer: If "yes," go to Question 6; if "no," go to Question 4.]**

4. If you were not able to complete the rehabilitation/new construction activities proposed in your RAD application, is your project ongoing or was it canceled? **[Interviewer: If the project is ongoing, ask Questions a, b, and c below; if it was canceled, skip to Question 5.]**
    a. Where in the process are you?
    b. What are the main reasons that the project is still ongoing and not complete?
    c. Do you have any other comments on the status of the project that would be relevant?

5. If the project was canceled, please explain the circumstances for its being canceled. **[Interviewer: Only ask this question if the answer to Question 4 is that the project was canceled.]**

6. **[Interviewer: Please ask either Question (a) or (b) depending on whether new construction/rehabilitation has been completed (a) or not completed (b). If the answer to Question 3 was "yes," then you will ask Question a. If the answer to Question 3 was "no" and to Question 4 was "project is ongoing," then you will ask Question b.]**
    a. If you completed rehabilitation/new construction, were you able to follow your rehabilitation/new construction plan, or did you have to make significant changes to your plan? If you did make significant changes, what was changed? Please describe and explain the reasons for making the changes. **[Interviewer: Skip to Question 7.]**

b. If you did not complete rehabilitation/new construction, have you been able to follow your rehabilitation/new construction plan, or have you had to make significant changes to your plan? If you had to make significant changes, what was changed? Please describe and explain the reasons for making the changes. **[Interviewer: Skip to Question 8.]**

7. If you completed rehabilitation or new construction, which, if any, issues have the RAD conversion addressed?
    a. All pre-conversion issues. Please elaborate on some of the issues.
    b. Accessibility requirements (Section 504).
    c. Lead-based hazards.
    d. Small units.
    e. Vandalism.
    f. Other. Please elaborate on what other issues you addressed.

8. Do you think that the RAD conversion has improved the physical condition of your property? Please describe the most significant improvements. Do you think the RAD project will be able to sustain the physical improvements over the long run out of future project income and reserves?

9. Have you been able to follow your planned schedule for completion, or have you experienced significant delays? If you have encountered significant delays, what factors have caused those delays? Note all that apply. Explain in detail delays that were unusual or were unique to the RAD program and the length of the delay (for example, a few weeks, a few months, or several months).
    a. Financing delays (for example, delays in lender approvals or release of funds).
    b. Planning and design delays (for example, delays due to changes in project scope).
    c. Construction delays (for example, delays due to ordering materials, labor shortages, and bad weather).
    d. Site development delays (for example, discovery of underground storage tanks, asbestos, or lead paint).
    e. Regulatory/permitting delays (for example, historic preservation, environmental).
    f. Inspection and Certificate of Occupancy delays (for example, delays due to difficulties with scheduling inspections).
    g. Administrative delays (for example, HUD-related delays such as slow approvals and responses to program questions).
    h. Other significant delays. Please explain and indicate if they were related to RAD.

10. If your project experienced significant delays, what would you have done differently to avoid schedule delays?

[Interviewer: The next question addresses efforts made by HUD or other sources of assistance.]

11. If your project experienced significant delays, what efforts did HUD or other sources make to prevent or correct schedule delays? In your opinion, are there additional efforts that HUD or other sources could have undertaken?

Administration, Management, and Financial Performance Questions

[Interviewer: Except for the PHA administrative questions, the other questions in this section do not apply if the respondent(s) answered "no" to Question 3 (that is, did not complete rehabilitation or new construction or project was canceled).]

Thank you for your responses to questions about new construction and or rehabilitation. We are now going to move to questions related to how conversion through RAD has affected your PHA in terms of administration, property management, and financial performance of the property.

PHA Administration Questions

I am going to ask a couple questions about the administration of your PHA.

12. Has RAD conversion affected the administration of your PHA? If so, describe these effects (for example, organizational structure, policies and procedures, reporting requirements, operations).

13. **[Interviewer: Only ask this question if the answer to Question 12 is "yes."]** If there have been any administrative changes as just discussed due to RAD conversion, have they been beneficial, a burden, or neutral to the PHA? Please give specific examples.

14. What have you done to communicate to residents their Choice Mobility Option and the Right to Return? Have you gotten any questions from tenants about either?

Property Management Questions

[Interviewer: Only ask property management questions if the PHA answered "yes" to Question 3 and is therefore done with conversion. If the PHA answered "no" to Question 3, skip to Question 28.]

15. We are now going to move to questions related to property management. Property management is the operation, control, and oversight of real estate. This does not refer to ownership. It includes activities such as onsite property management, leasing, maintenance, and/or administration. Does the PHA manage the property, or does a new entity manage the property?

16. Have property management policies and procedures changed since converting your property through RAD? Please explain how they have changed, why they have not changed, or if you are uncertain about any changes.

17. Do you have any concerns about how the property is being managed after conversion under RAD? Please explain why or why not.

18. Have you noticed any changes in the following measures—rental delinquency, occupancy/vacancy, turnover, or time on market—since conversion through RAD? Have they increased, decreased, stayed the same, or is it too soon to tell?
    a. If you experienced a change in the measures, which of the measures (delinquency, occupancy/vacancy, turnover, or time on market) have changed the most?
    b. Do you have details about that change? For instance, how much did it change?

19. Do you have properties that have not converted through RAD? If so, has RAD had any positive or negative effect on those properties in your portfolio that have remained as public housing?

Property Financial Performance Questions

[Interviewer: Only ask property financial performance questions if the PHA answered "yes" to Question 3 and is therefore done with conversion. If the PHA answered "no" to Question 3, skip to Question 28.]

We are now going to move on to property financial performance questions.

20. In your opinion, has the property reached stabilized occupancy since conversion? **[Interviewer: If yes, ask Question a; if no, ask Question b.]**
    a. If yes, how long did it take from the completion of conversion or rehabilitation/new construction to reach stabilized occupancy?
        i. Is the stabilized occupancy rate sufficient to meet rent revenue targets?
    b. If not, how long has it been since completion of conversion or rehabilitation/new construction and how much more time do you expect to need to achieve stabilized occupancy?
        i. Once you achieve stabilized occupancy, will it be enough to meet revenue targets?

21. Is your property currently earning more, as much, or less revenue (such as Housing Assistance Payments contract payment, tenant payment, and other revenues) than it received before conversion?

[Interviewer: The next three questions relate to operating expenses. To clarify, the definition of an operating expense is an expense incurred in carrying out a real estate project's day-to-day activities, including utilities, maintenance expenses, security, insurance, asset management, and other short-term costs.]

22. Is your property currently incurring greater, the same, or lower operating expenses than it was paying before conversion? Have there been any changes in expenditures for maintenance, utilities, security, or other property management items?

a. **[Interviewer: If the respondent answers "I don't know," please ask the following question.]** What limitations are you experiencing that cause you to be uncertain of the answer (for example, lack of data or staffing)?

23. Is your property currently earning enough revenue to meet all of its operating expenses? Its scheduled reserves for replacement payment? Its mortgage debt payment? Is it generating positive cashflow after meeting all of its scheduled obligations?

    a. **[Interviewer: If the respondent answers "I don't know," please ask the following question.]** What limitations are you experiencing that cause you to be uncertain of the answer (for example, lack of data or staffing)?

24. In the next 5 to 10 years, how do you expect this project to perform financially?

    a. Generate positive cashflow (in other words, revenues exceed expenses).
    b. Just break even.
    c. Generate negative cashflow (in other words, revenues insufficient to cover operating expenses, debt service, and reserves).
    d. Unsure or do not know.

25. If your project generates positive cashflow over the next 5 to 10 years, how do you think you would use that cashflow?

    a. Invest in the project. How?
    b. Invest in other projects. How?
    c. Spend on other affordable housing activities. Which ones?
    d. Not sure.

26. Has your project faced any of the following financial challenges? Note all that apply. Please provide specific examples for each challenge identified.

    a. Late payments on debt.
    b. Insufficient cashflow to fully fund reserves for replacement.
    c. Unexpected expenditures.
    d. Unexpected declines in revenue.
    e. Other challenges (please describe).

        i. **[Interviewer: If the respondent answered yes to any of the above examples, including other, please ask the following question.]** How did you manage these challenges, and what steps did you take to resolve the situation?

27. Have there been many households for which rent changed after RAD conversion? Are the rent increases being phased in over some time period?

28. In your opinion, why do you think rents did or did not change? Was it due to an increase in unit size? Differences in income eligibility requirements? Some other factors?

General Questions

We are now going to move on to the last section of the interview, which covers general questions. These questions were asked during the initial interview. Now that the conversion process is (mostly) complete, we would like to know your opinions on these same topics.

29. On a scale of 1 to 10 (1 being worst, 10 being best), how would you rate the conversion process under RAD?

30. What changes would you recommend HUD make to the RAD program?

31. Would you recommend RAD to other PHAs?

32. If you had the chance to do it again, would you still apply for RAD?

33. Are there any lessons learned that would be helpful for other projects preparing to go through a RAD conversion?

34. Did you build any new common areas in your project? If so, please describe them.

35. Is there anything else you would like to share that would help our understanding of the effect of RAD on public housing?

Appendix B: Resident Impact Survey Questionnaires

Version I: Resident Impact Survey (for Residents in Same Development as Pre-RAD)

Introduction

Hello, I'm **[name]** from SSRS, a research company. You may remember we contacted you some time ago and asked you to help us understand some changes planned for your housing. Around **[RAD closing month and year]**, your development became part of a HUD program called the Rental Assistance Demonstration, or RAD, program. Two research companies, the Urban Institute and SSRS, have been hired by HUD to conduct a survey to find out how residents feel about the RAD program. You may remember that someone from SSRS enrolled you in this study of RAD around **[month and year of enrollment]**, and you also should have received a letter from HUD about this survey. We are now asking for your help by taking part in this very important survey.

We would like to ask some questions about your housing experience since **[RAD closing month and year]**, to understand whether this program has helped you. This survey will help HUD, your housing authority, and Congress to understand what is working well and what may need to be improved, so your input may also help others. We are offering a $25 gift card as a thank you for completing the survey. The survey will take about 30 minutes.

Your participation is completely voluntary; that is, you can choose to take part in it or not, and you can skip questions you do not wish to answer or stop taking the survey after you begin. Your choice about participating will NOT affect your housing or any housing assistance or help you might be receiving in any way. Neither HUD nor your housing authority will know you participated in the survey or will see your responses to the questions.

Any information you give me will be confidential, and your name will not be kept with your responses. All of your responses to the questions will be combined with responses from other residents in your community and in other developments in the RAD program. These responses will only be used for research purposes and will not be published in any way that would identify you.

Do you have any questions before we begin?

Resident Awareness

1. During this survey, I'll refer to the RAD program and to any changes that might have been made to indoor and outdoor common spaces in your building or your housing unit that you lived in back in **[date of enrollment]**. Have you heard of the RAD program before?

   Yes 1
   No 2
   DON'T KNOW.....8
   REFUSED.....9

2. Thinking about the information you got from your housing authority about the RAD program, how satisfied are you with how they communicated to you about the program and any changes made under program? Would you say that you are:

   Very satisfied, ...1
   Somewhat satisfied, ...2
   Somewhat dissatisfied, or 3
   Very dissatisfied?.....4
   NEITHER SATISFIED NOR DISSATISFIED 5
   DON'T KNOW.....8
   REFUSED.....9

3. Did you have to move to a different unit while the RAD changes were being made?

   Yes 1
   No .....2 **[Skip to Question 5.]**
   DON'T KNOW.....8 **[Skip to Question 5.]**
   REFUSED.....9 **[Skip to Question 5.]**

4. Did you have to move to a different property while the RAD changes were being made?

   Yes 1
   No 2
   DON'T KNOW.....8
   REFUSED.....9

5. Are you living in the same unit as you were in **[date of enrollment]**?

   Yes .....1 **[Skip to Question 9.]**
   No 2
   DON'T KNOW.....8
   REFUSED.....9

6. Are you living in the same property as you were in **[date of enrollment]**?

   Yes .....1 **[Skip to Question 9.]**
   No .....2 **[Use Instrument 2.]**
   DON'T KNOW.....8
   REFUSED.....9

7. Why didn't you return to the property you lived in before RAD?

No longer receiving any rent assistance 1	
Still receiving assistance but chose to live elsewhere 2	**[Skip to Question 9.]**
Still receiving assistance, but PHA told me I couldn't return....3	**[Skip to Question 9.]**
Other (specify) 4	**[Skip to Question 9.]**
DON'T KNOW.....8	**[Skip to Question 9.]**
REFUSED.....9	**[Skip to Question 9.]**

8. People leave housing assistance/public housing for different reasons. What would you say was the main reason you left?

Income too high/over income/no longer eligible 1
Rent or utilities got too high 2
PHA told me I couldn't return 3
Had unpaid rent.....4
Had to relocate and landlord wouldn't take voucher 5
Had to relocate and didn't like options PHA gave me.....6
Other personal reasons.....7
Other (specify) 8
DON'T KNOW.....98
REFUSED.....99

Resident Satisfaction

[If Question 3 = 2, skip to Question 12.]

9. For about how long did you have to move out of the unit you lived in back in **[date of enrollment]**? In other words, how many weeks or months was it before you were able to move into your current unit?

Less than one month 1
One to six months 2
Six to twelve months.....3
More than twelve months.....4
DON'T KNOW.....8
REFUSED.....9

10. Did you receive help with moving expenses or receive other help when you had to move?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

11. How satisfied are you with the help you received when you had to move? Would you say you are:

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

12. Since your development became part of RAD in **[date]** have you noticed a different management company? For example, do you pay rent to a different organization or call a different organization for maintenance requests?

Yes 1
No 2
DON'T KNOW.....8
REFUSED 9

13. Part of RAD might have included changes to indoor or outdoor common spaces or changes in individual units or apartments. Have you noticed if…

	Yes	No	Don't know	Refused
…changes had been made to common indoor spaces in the building (elevators, hallways, stairwells, etc.)?	1	2	8	9
…changes had been made to outdoor spaces in the building (playgrounds, parking areas, exterior walls, roof replacement, etc.)?	1	2	8	9
…changes had been made to your housing unit?	1	2	8	9

[If respondent is not aware of changes to common indoor spaces, skip to Question 16.]

14. Thinking about the changes to the common indoor spaces—such as elevators, hallways, or stairwells—and comparing to how things used to be, would you say that overall, common indoor spaces are:

Better than before, ...1
Worse than before, or 2
About the same?.....3
DON'T KNOW.....8
REFUSED.....9

15. What would you say were the most important changes to common indoor spaces that you noticed?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…elevators	
…stairwells	
…flooring in halls or lobby	
…doors or locks	
…lighting in common areas	
…community rooms	
…other public areas like laundry rooms	
…some other change?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of changes to common outdoor spaces, skip to Question 18.]

16. Thinking about the changes to the common outdoor spaces—such as playgrounds, parking areas, exterior walls, or sidewalks—and comparing to how things used to be, would you say that overall, common outdoor spaces are:

Better than before, ...1
Worse than before, or 2
About the same?.....3
DON'T KNOW.....8
REFUSED.....9

17. What would you say were the most important changes to common outdoor spaces that you noticed?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…painting	
…sidewalks or outside stairways	
…outdoor lighting or security cameras	
…parking areas	
…playgrounds, lawns or plantings	
…some other change?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of changes to own housing unit, skip to Question 20.]

18. Thinking about the changes to your own housing unit, and comparing to how things used to be, would you say that overall, your unit is:

    Better than before, ...1
    Worse than before, or 2
    About the same?.....3
    DON'T KNOW.....8
    REFUSED.....9

19. What would you say were the most important changes to your housing unit that you noticed?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…new paint or wall repairs	
…new flooring or floor repairs	
…new or repaired electric wiring or outlets	
…kitchen plumbing, appliances or cabinets	
…bathroom plumbing or cabinets	
…new or repaired doors or locks	
…new or repaired windows	
…new or repaired heating or air conditioning	
…some other change?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of any changes to indoor or outdoor common areas, or housing unit, skip to Question 21.]

20. Thinking about all of the RAD changes made to the development and to your unit, would you say that overall things are:

    Better than before, ...1
    Worse than before, or 2
    About the same?.....3
    DON'T KNOW.....8
    REFUSED.....9

21. How satisfied are you with the way the housing authority managed the RAD program—for example, how long the work took, or whether any of the work made it hard to get around the property—from the time the work started to when the work was completed?

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

22. Would you say that maintenance is better, worse, or about the same since the RAD program was completed? For example, when you have a problem that needs to be fixed, like a broken window or appliance, does it get fixed faster?

Better 1
Worse, or.....2
About the same 3
DON'T KNOW.....8
REFUSED.....9

23. Would you say that the property is being managed better, worse, or about the same since the RAD program ended? For example, do you think they're doing a better job of enforcing rules fairly now?

Better 1
Worse, or.....2
About the same 3
DON'T KNOW.....8
REFUSED.....9

24. Have you been told by your property manager, property owner, or the PHA staff that after you live here for **[1 year/2 years (depending on property)]** you could use a Housing Choice Voucher—that is, to choose your own housing in the private rental market with a voucher from the housing authority?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

25. Do you think you would like to do that—that is, use a Housing Choice Voucher, rather than staying in your current housing?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

26. Overall, how satisfied are you with the housing unit where you live now? Would you say that you are:

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

27. Overall, how satisfied are you with the development where you live now? Would you say that you are:

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

Housing Conditions

Housing Quality and Problems

The next series of questions is about problems that some people have experienced with their homes. We are interested in knowing if you have experienced these types of problems in your current home since the RAD program was completed.

28. Since the RAD program was completed, for any reason, was your house or unit so cold during the winter for 24 hours or more that you or members of your household were uncomfortable?

Yes 1
No .....2 **[Skip to Question 30.]**
Was not in current unit during last winter .....3 **[Skip to Question 30.]**
DON'T KNOW.....8 **[Skip to Question 30.]**
REFUSED.....9 **[Skip to Question 30.]**

29. What was the reason? Was it:

Utility interruption because you did not pay your utility bill, ...1
Utility interruption for some other reason, ...2
Inadequate heating capacity, ...3
Inadequate insulation, ...4
Cost of heating, ...5
Heating equipment breakdown, or 6
Other? 7
DON'T KNOW.....8
REFUSED.....9

30. Was your unit ever COMPLETELY without running water in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

31. In the past 3 months, was there any time when ALL of your toilets were broken, or stopped up, or otherwise not working, so you couldn't use them?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

People sometimes have problems with cracks or holes in their floors, walls, or ceilings—not hairline cracks or nail holes, but OPEN cracks or holes.

32. In the inside walls or ceilings of your housing unit, are there any open holes or cracks wider than the edge of a dime?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

33. How about the floors in your housing unit—are any holes in the floors big enough for someone to catch their foot on? (About 4 inches across/about the height of a soup can.)

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

34. Does the inside of your housing unit have any areas of peeling paint or broken plaster?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

35. Have you seen signs of mice or rats INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

36. Have you seen signs of live or dead cockroaches INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

37. Have you seen signs of mildew or mold INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

38. Are any of the windows in your housing unit damaged or broken?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

39. Are any of the doors in your housing unit damaged or broken?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

40. Are locks missing from any of the doors in your housing unit?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Now we are interested in hearing about problems you may have had in your home before the RAD program—that is, before **[RAD closing month and year]**. We'll ask you to try to remember problems in your housing unit back then.

41. Thinking back to before {RAD closing month and year], for any reason, was your housing unit so cold during the winter for 24 hours or more that you or members of your household were uncomfortable?

Yes	1	
No	2	**[Skip to Question 43.]**
DON'T KNOW	8	**[Skip to Question 43.]**
REFUSED	9	**[Skip to Question 43.]**

42. What was the reason? Was it:

Utility interruption because you did not pay your utility bill,	1
Utility interruption for some other reason,	2
Inadequate heating capacity,	3
Inadequate insulation,	4
Cost of heating,	5
Heating equipment breakdown, or	6
Other?	7
DON'T KNOW	8
REFUSED	9

43. Thinking back to before **[RAD closing month and year]**, was your housing unit ever COMPLETELY without running water in the previous three months—that is, between **[RAD closing month and year – 3]** and **[RAD closing date]**?

Yes	1
No	2
DON'T KNOW	8
REFUSED	9

44. And, again thinking back to before **[RAD closing month and year]**, in the previous 3 months—that is, between **[RAD closing date – 3]** and **[RAD closing date]**—was there any time when ALL of your toilets were broken, or stopped up, or otherwise not working, so you couldn't use them?

Yes	1
No	2
DON'T KNOW	8
REFUSED	9

45. In your home in **[RAD closing month and year]**, in the inside walls or ceilings of your housing unit, were there any open holes or cracks wider than the edge of a dime?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

46. How about the floors in your housing unit in **[RAD closing month and year]**: Were any holes in the floors big enough for someone to catch their foot on? (About 4 inches across/about the height of a soup can.)

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

47. Did the inside of your housing unit have any areas of peeling paint or broken plaster in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

48. In your home in **[RAD closing month and year]**, did you see signs of mice or rats INSIDE your housing unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

49. In your home in **[RAD closing month and year]**, did you see signs of live or dead cockroaches INSIDE your housing unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

50. Did you see signs of mildew or mold INSIDE your housing unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

51. Were any of the windows in your housing unit damaged or broken in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

52. Were any of the doors in your housing unit in **[RAD closing month and year]** damaged or broken?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

53. Were locks missing from any of the doors in your housing unit in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

54. Thinking about the condition of your housing unit now and its condition before the RAD program—that is, before about **[date of closing]**—would you say the condition of your housing unit now is:

Much better, ...1
Somewhat better, ...2
About the same, ...3
Somewhat worse, or 4
Much worse? 5
DON'T KNOW.....8
REFUSED.....9

55. Thinking about the condition of the property/building you live in now and its condition before the RAD program—that is, before about **[date of closing]**—would you say the condition of your current building is:

Much better, ...1
Somewhat better, ...2
About the same, ...3
Somewhat worse, or 4
Much worse? 5
DON'T KNOW.....8
REFUSED.....9

Housing Costs

Now I have a few questions about housing costs.

56. In the month just passed, what did you pay in rent?

$_____ amount
DON'T KNOW.....9998
REFUSED.....9999

57. Would you say you are now paying more rent, less rent, or the same amount than since the RAD program began (that is, from about **[date of closing]**)?

More rent 1
Less rent .....2 **[Skip to Question 59.]**
Same amount .....3 **[Skip to Question 59.]**
DON'T KNOW.....8 **[Skip to Question 59.]**
REFUSED.....9 **[Skip to Question 59.]**

58. What would you say is the main reason your rent changed? Was it because:

Your income changed, ...1
You are in a larger or smaller unit, ...2
Housing in the area has gotten more or less expensive, ...3
[For rent increases] You were paying a flat rent before, and now are paying 30% of your income, or 4
Other? 5
DON'T KNOW.....8
REFUSED.....9

59. In the past 12 months, were you ever more than 15 days late paying your rent?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Now I have some questions about your utilities.

60. Do you pay for your own electricity, or is that included in the rent?

Pay own electricity 1
Included in rent 2
DON'T KNOW.....8
REFUSED.....9

61. Do you pay for your own gas, or is that included in the rent?

Pay own gas 1
Included in rent 2
Do not use gas.....3
DON'T KNOW.....8
REFUSED.....9

62. Do you pay for your own water, or is that included in the rent?

[Interviewer: Select "2" if Respondent does not pay water bill.]

Pay own water bill 1
Included in rent 2
DON'T KNOW.....8
REFUSED.....9

[If "no" to Questions 60, 61, and 62, skip to Question 64.]

63. Thinking about all your utility bills combined—that is, electric, gas, and water—how much were your total utility bills last month?

$_____ amount [Range: 0–9996]
DON'T KNOW.....8
REFUSED.....9

64. Thinking about what you now pay for rent and utilities combined, has the amount that you pay for rent and utilities changed since before the RAD program began (that is, before about **[date of closing]**)? Would you say you are paying more now to cover rent and utilities, less, or the same amount?

More 1
Less 2
About the same 3
DON'T KNOW.....8
REFUSED.....9

[Skip to Question 68 if Question 60 = 2, Question 61 = 2 or 3, and Question 62 = 2.]

65. People sometimes have trouble paying their utility bills on time. How many times in the last 12 months were you more than 15 days late paying your electric, gas, or water bill?

_____ times [Range: 0–40] **[If 0, skip to Question 68.]**
DON'T KNOW.....9998
REFUSED.....9999

66. Did you receive a notice that your gas, water, or electricity would be shut off if you did not pay your bill?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

67. In the past 12 months, was your gas, water, or electricity ever shut off for nonpayment?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Employment

Now I have a few questions about work.

68. Do you currently work for pay?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

69. Did you work for pay while the RAD program was going on?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

[Ask if Question 3 = 1 and Question 69 = 1, otherwise skip to Question 72.]

70. After you moved because of the RAD changes to your building, was getting to work:

More difficult, ...1
Less difficult, or .....2 **[Skip to Question 72.]**
About the same? .....3 **[Skip to Question 72.]**
Did not keep that job .....4 **[Skip to Question 72.]**
DON'T KNOW.....8 **[Skip to Question 72.]**
REFUSED.....9 **[Skip to Question 72.]**

71. Why was that?

Longer commute 1
No parking at that housing.....2
Difficulty accessing public transit 3
Other (specify) 4
DON'T KNOW.....8
REFUSED.....9

71a. Other: _____

72. Could you please tell me which category best estimates your total household income for 2016? Income includes all money earned from jobs, public assistance, or social security by all members of your household. (You can just tell me the number of the category if you like.)

Less than $5,000 1
$5,000 to $9,999 2
$10,000 to $14,999 3
$15,000 to $19,999 4
$20,000 to $29,999 5
$30,000 to $39,999 6
$40,000 or more 7
DON'T KNOW.....8
REFUSED.....9

73. In the past 12 months, have you or anyone in your household received disability pay such as Social Security Disability Insurance, or SSDI; a veteran's disability benefit; or workers compensation for a work-related injury?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Health

Next, I have a few questions about your health.

74. In general, would you say your health is:

Excellent, ...1
Very good, ...2
Good, ...3
Fair, or 4
Poor? 5
DON'T KNOW.....8
REFUSED.....9

75. Thinking back to before **[RAD closing month and year]**: In general, would you say your health back then was:

Excellent, ...1
Very good, ...2
Good, ...3
Fair, or 4
Poor? 5
DON'T KNOW.....8
REFUSED.....9

76. Thinking about the changes in your housing since **[RAD closing month and year]**, do you think these changes have had any effect on your health?

Yes 1
No .....2 **[Skip to Question 78.]**
DON'T KNOW.....8
REFUSED.....9

77. If yes, how did the changes affect your health now? Would you say it is:

A lot better, ...1
A little better, ...2
A little worse, or 3
A lot worse? 4
DON'T KNOW.....8
REFUSED.....9

Neighborhood Conditions and Safety

The next set of questions asks about what it's like to live in your current neighborhood.

Safety and Victimization

78. During the day, how safe do you feel or would you feel being out alone in the parking lots, lawns, street, or sidewalks right outside your building? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

79. At night, how safe do you feel or would you feel being out alone in the parking lots, lawns, street, or sidewalks right outside your building? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

80. During the day, how safe do you feel being alone inside your unit? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

81. At night, how safe do you feel being alone inside your unit? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

82. Overall, do you feel safer, less safe, or about as safe now as you did before the RAD program (that is, before about **[date of closing]**)?

Safer 1
Less safe 2
About as safe as before 3
DON'T KNOW.....8
REFUSED.....9

83. Why is that?

_____ **[Specify.]**
DON'T KNOW.....9998
REFUSED.....9999

Resident Characteristics and Household Composition

Please remember that the information you give me will not affect your housing status. In order to understand a little about your household, I would like to ask you about each of the people who are currently living in this household, including people who are not on the lease. We are asking for names, initials, or nicknames, just to help us keep track during our survey. As we said earlier, we will never connect your name with your answers.

84. How old are you?

_____ years old [Range = 1–100]
Greater than 100 years, elderly 999997
DON'T KNOW.....999998
REFUSED.....999999

85. Since you were 18 years old, how many years have you lived in public housing altogether?

_____ years [Range = 1–96]
Less than one year.....97
DON'T KNOW.....98
REFUSED.....99

86. How many people currently live in your household, including yourself?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

87. How many of the people currently living in your household are under the age of 18?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

88. How many of the people currently living in your household are over the age of 62?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

89. What is your marital status? Are you:

Now married, ...1
Not married, living with partner, ...2
Not married, not living with partner, ...3
Widowed, ...4
Divorced, or 5
Separated? 6
DON'T KNOW.....8
REFUSED.....9

90. What is the highest grade or level of regular school you have ever completed?

[Probe if answer is H.S. diploma:] "Do you have a high school diploma or a GED?"

8th grade or less 1
9th grade to 11th grade 2
12th grade 3
GED 4
High school diploma 5
Some voc/tech/business courses 6
Voc/tech/business certificate or diploma 7
Some college courses 8
Associate degree (A.A., A.S.) 9
Bachelor's degree (B.A., B.S.) 10
Some graduate/professional school courses 11
Graduate/professional degree 12
DON'T KNOW.....98
REFUSED.....99

Thank you for helping us with the survey, we appreciate the time you've taken. We'll be sending you the $25 gift card in the mail. The address we have for you is **[confirm contact information]**. Is that correct?

Yes 1
No.....2

[Record new address, if needed.]

_____
_____

Version II: Resident Impact Survey (for Residents in Different Development Post-RAD)

Introduction

Hello, I'm **[name]** from SSRS, a research company. You may remember that we contacted you some time ago and asked you to help us understand some changes planned for your housing. Around **[RAD closing month and year]**, your development became part of a HUD, program called the Rental Assistance Demonstration, or RAD, program. Two research companies, the Urban Institute and SSRS, have been hired by HUD to conduct a survey to find out how residents feel about the RAD program. You may remember that someone from SSRS enrolled you in this study of RAD around **[month and year of enrollment]**, and you also should have received a letter from HUD about this survey. We are now asking for your help by taking part in this very important survey.

We would like to ask some questions about your housing experience since **[RAD closing month and year]**, to understand whether this program has helped you. This survey will help HUD, your housing authority, and Congress to understand what is working well and what may need to be improved, so your input may also help others. We are offering a $25 gift card to thank you for completing the survey. The survey will take about 30 minutes.

Your participation is completely voluntary; that is, you can choose to take part in it or not, and you can skip questions you do not wish to answer or stop taking the survey after you begin. Your choice about participating will NOT affect your housing or any housing assistance or help you might be receiving in any way. Neither HUD nor your housing authority will know you participated in the survey or will see your responses to the questions.

Any information you give me will be confidential, and your name will not be kept with your responses. All of your responses to the questions will be combined with responses from other residents in your community and in other developments in the RAD program. These responses will only be used for research purposes and will not be published in any way that would identify you.

Do you have any questions before we begin?

Resident Awareness

1. During this survey, I'll refer to the RAD program and to any changes that might have been made to indoor and outdoor common spaces in your building or your housing unit that you lived in back in **[date of enrollment]**. Have you heard of the RAD program before?

   Yes 1
   No 2
   DON'T KNOW.....8
   REFUSED.....9

2. Thinking about the information you got from your housing authority about the RAD program, how satisfied are you with how they communicated to you about the program and any changes made under the program? Would you say that you are:

   Very satisfied, ...1
   Somewhat satisfied, ...2
   Somewhat dissatisfied, or 3
   Very dissatisfied?.....4
   NEITHER SATISFIED NOR DISSATISFIED 5
   DON'T KNOW.....8
   REFUSED.....9

3. Did you have to move to a different unit while the RAD changes were being made?

   Yes 1
   No .....2 **[Skip to Question 5.]**
   DON'T KNOW.....8 **[Skip to Question 5.]**
   REFUSED.....9 **[Skip to Question 5.]**

4. Did you have to move to a different property while the RAD changes were being made?

   Yes 1
   No 2
   DON'T KNOW.....8
   REFUSED.....9

5. Are you living in the same unit as you were in **[date of enrollment]**?

   Yes .....1 **[Use Instrument 1.] [Skip to Question 9.]**
   No 2
   DON'T KNOW.....8
   REFUSED.....9

6. Are you living in the same property as you were in **[date of enrollment]**?

   Yes .....1 **[Use Instrument 1.] [Skip to Question 9.]**
   No 2
   DON'T KNOW.....8
   REFUSED.....9

7. Why didn't you return to the property you lived in before RAD?

   No longer receiving any rent assistance .....1 **[Skip to Question 8.]**
   Still receiving assistance but chose to live elsewhere .....2 **[Skip to Question 9.]**
   Still receiving assistance, but PHA told me I couldn't return....3
   Other (specify) .....4 **[Skip to Question 9.]**
   DON'T KNOW.....8 **[Skip to Question 9.]**
   REFUSED.....9 **[Skip to Question 9.]**

7a. Why did the PHA tell you that you couldn't return to the property you lived in before RAD?

Property was demolished 1	**[Skip to Question 9.]**
Property had no units with the number of bedrooms needed 2	**[Skip to Question 9.]**
Other (specify) 3	**[Skip to Question 9.]**
DON'T KNOW....8	**[Skip to Question 9.]**
REFUSED....9	**[Skip to Question 9.]**

8. People leave housing assistance/public housing for different reasons. What would you say was the main reason you left?

Income too high/over-income/no longer eligible....1
Rent or utilities got too high 2
PHA told me I couldn't return 3
Had unpaid rent....4
Had to relocate and landlord wouldn't take voucher....5
Had to relocate and didn't like options PHA gave me....6
Other personal reasons....7
Other (specify) 8
DON'T KNOW....98
REFUSED....99

Resident Satisfaction

[If Question 3 = 2, skip to Question 13.]

9. For about how long did you have to move out of the unit you lived in back in **[date of enrollment]**? In other words, how many weeks or months was it before you were able to move into your current unit?

Less than one month 1
One to six months 2
Six to twelve months....3
More than twelve months....4
Moved only once, to current unit....5
DON'T KNOW....8
REFUSED....9

10. Did you receive help with moving expenses or receive other help when you had to move?

Yes 1	
No 2	**[Skip to Question 12.]**
DON'T KNOW....8	
REFUSED....9	

11. How satisfied are you with the help you received when you had to move? Would you say you are:

    Very satisfied, ...1
    Somewhat satisfied, ...2
    Somewhat dissatisfied, or 3
    Very dissatisfied?.....4
    NEITHER SATISFIED NOR DISSATISFIED 5
    DON'T KNOW.....8
    REFUSED.....9

[Skip to Question 28 if Question 7 = 1.]

12. Since moving into your current unit, have you noticed a different management company? For example, do you pay rent to a different organization or call a different organization for maintenance requests?

    Yes 1
    No 2
    DON'T KNOW.....8
    REFUSED 9

13. The next set of questions will ask you about differences between the building where you live now and the building you lived in before **[RAD closing month and year]**.

14. Thinking about the differences in the common indoor spaces—such as elevators, hallways, and stairwells—and comparing them to your old building, would you say that overall, common indoor spaces here are:

    Better than your old building, ...1
    Worse than your old building, or 2
    About the same? 3
    DON'T KNOW.....8
    REFUSED.....9

15. What would you say were the most important differences in common indoor spaces that you noticed ….?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…elevators	
…stairwells	
…flooring in halls or lobby	
…doors or locks	
…lighting in common areas	
…community rooms	
…other public areas like laundry rooms	
…some other difference?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of changes to common outdoor spaces, skip to Question 18.]

16. Thinking about the differences in the common outdoor spaces—such as playgrounds, parking areas, exterior walls, or sidewalks—and comparing to how things were in your old building, would you say that overall, common outdoor spaces here are:

Better than your old building, ...1
Worse than your old building, or 2
About the same? 3
DON'T KNOW.....8
REFUSED.....9

17. What would you say were the most important differences in common outdoor spaces that you noticed?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…painting	
…sidewalks or outside stairways	
…outdoor lighting or security cameras	
…parking areas	
…playgrounds, lawns or plantings	
…some other difference?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of changes to common outdoor spaces, skip to Question 20.]

18. Thinking about the differences in your own housing unit, and comparing to how things were in your old unit, would you say that overall, your current unit is:

Better than before, ...1
Worse than before, or 2
About the same? 3
DON'T KNOW.....8
REFUSED.....9

19. What would you say were the most important differences in your housing unit that you noticed?

[Interviewer: Do not read list; just check "yes" for those mentioned and record "other" items identified.]

	Yes
…paint or wall	
…flooring	
…improved electric wiring or outlets	
…kitchen plumbing, appliances or cabinets	
…bathroom plumbing or cabinets	
…improved doors or locks	
…improved windows	
…improved heating or air conditioning	
…some other difference?	
Other (specify)	
Don't know	
Refused	

[If respondent is not aware of any changes to indoor or outdoor common areas, or to the housing unit, skip to Question 21.]

20. Thinking about all of the differences between your old building and unit where you lived before **[RAD closing month and year]** and where you live now, would you say that overall things now are:

Better than before, ...1
Worse than before, or 2
About the same? 3
DON'T KNOW.....8
REFUSED.....9

21. How satisfied are you with the way the housing authority managed the RAD program—for example, how long the work took or whether any of the work made it hard to get around the property—from the time the work started to the time you left the property?

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

22. Compared to your old building, would you say that maintenance is better, worse, or about the same where you live now? For example, when you have a problem that needs to be fixed, like a broken window or appliance, does it get fixed faster?

Better 1
Worse, or.....2
About the same 3
DON'T KNOW.....8
REFUSED.....9

23. Would you say that the property where you live now is being managed better, worse, or about the same as the building you lived in before **[RAD closing month and year]**? For example, do you think they're doing a better job of enforcing rules fairly?

Better 1
Worse, or.....2
About the same 3
DON'T KNOW.....8
REFUSED.....9

24. Have you been told by your property manager, property owner, or the PHA staff that after you live here **for [1 year/2 years (depending on property)]** you could use a Housing Choice Voucher—that is, to choose your own housing in the private rental market with a voucher from the housing authority?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

25. Do you think you would like to do that—that is, use a Housing Choice Voucher, rather than staying in your current housing?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

26. Overall, how satisfied are you with the housing unit where you live now? Would you say that you are:

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

27. Overall, how satisfied are you with the development where you live now? Would you say that you are:

Very satisfied, ...1
Somewhat satisfied, ...2
Somewhat dissatisfied, or 3
Very dissatisfied?.....4
NEITHER SATISFIED NOR DISSATISFIED 5
DON'T KNOW.....8
REFUSED.....9

Housing Conditions

Housing Quality and Problems

The next series of questions is about problems that some people have experienced with their homes. We are interested in knowing if you have experienced these types of problems in your current home since the RAD program was completed.

28. Since moving to your current building, for any reason, was your unit so cold during the winter for 24 hours or more that you or members of your household were uncomfortable?

Yes 1
No .....2 **[Skip to Question 30.]**
Was not in current unit during last winter .....3 **[Skip to Question 30.]**
DON'T KNOW.....8 **[Skip to Question 30.]**
REFUSED.....9 **[Skip to Question 30.]**

29. What was the reason? Was it:

Utility interruption because you did not pay your utility bill, ...1
Utility interruption for some other reason, ...2
Inadequate heating capacity, ...3
Inadequate insulation, ...4
Cost of heating, ...5
Heating equipment breakdown, or 6
Other? 7
DON'T KNOW.....8
REFUSED.....9

30. Was your unit ever COMPLETELY without running water in the past three months—that is, since **[interview month – 3]**?

    Yes 1
    No 2
    DON'T KNOW.....8
    REFUSED.....9

31. In the past 3 months, was there any time when ALL of your toilets were broken, or stopped up, or otherwise not working, so you couldn't use them?

    Yes 1
    No 2
    DON'T KNOW.....8
    REFUSED.....9

People sometimes have problems with cracks or holes in their floors, walls, or ceilings—not hairline cracks or nail holes, but OPEN cracks or holes.

32. In the inside walls or ceilings of your housing unit, are there any open holes or cracks wider than the edge of a dime?

    Yes 1
    No 2
    DON'T KNOW..... 8
    REFUSED..... 9

33. How about the floors in your housing unit—are any holes in the floors big enough for someone to catch their foot on? (About 4 inches across/about the height of a soup can.)

    Yes 1
    No 2
    DON'T KNOW..... 8
    REFUSED..... 9

34. Does the inside of your housing unit have any areas of peeling paint or broken plaster?

    Yes 1
    No 2
    DON'T KNOW..... 8
    REFUSED..... 9

35. Have you seen signs of mice or rats INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

    Yes 1
    No 2
    DON'T KNOW..... 8
    REFUSED..... 9

36. Have you seen signs of live or dead cockroaches INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

37. Have you seen signs of mildew or mold INSIDE your housing unit in the past three months—that is, since **[interview month – 3]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

38. Are any of the windows in your housing unit damaged or broken?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

39. Are any of the doors in your housing unit damaged or broken?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

40. Are locks missing from any of the doors in your housing unit?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

Now we are interested in hearing about problems you may have had in your old building—that is, where you lived before **[RAD closing month and year]**. We'll ask you to try to remember problems in your housing back then.

41. Thinking back to before **[RAD closing month and year]**, for any reason, was your old unit so cold during the winter for 24 hours or more that you or members of your household were uncomfortable?

Yes 1
No ..... 2 **[Skip to Question 43.]**
DON'T KNOW ..... 8 **[Skip to Question 43.]**
REFUSED ..... 9 **[Skip to Question 43.]**

42. What was the reason? Was it:

Utility interruption because you did not pay your utility bill,..... 1
Utility interruption for some other reason, ... 2
Inadequate heating capacity, ... 3
Inadequate insulation, ... 4
Cost of heating, ... 5
Heating equipment breakdown, or 6
Other? 7
DON'T KNOW..... 8
REFUSED..... 9

43. Thinking back to your unit in your old building, was your old unit ever COMPLETELY without running water in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW..... 8
REFUSED..... 9

44. And again, thinking back to your unit in your old building, in the 3 months between **[RAD closing date – 3]** and **[RAD closing month and year]**, was there any time when ALL of your toilets were broken, or stopped up, or otherwise not working, so you couldn't use them?

Yes 1
No 2
DON'T KNOW..... 8
REFUSED..... 9

45. Again, thinking back to your unit in your old building, in **[RAD closing month and year]**, in the inside walls or ceilings of your unit, were there any open holes or cracks wider than the edge of a dime?

Yes 1
No 2
DON'T KNOW..... 8
REFUSED..... 9

46. How about the floors in your unit in your old building in **[RAD closing month and year]**: Were any holes in the floors big enough for someone to catch their foot on? (About 4 inches across/about the height of a soup can.)

Yes 1
No 2
DON'T KNOW..... 8
REFUSED..... 9

47. Did the inside of your unit in your building in **[RAD closing month and year]** have any areas of peeling paint or broken plaster?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

48. In your unit in your old building, did you see signs of mice or rats INSIDE your unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

49. In your unit in your old building, did you see signs of live or dead cockroaches INSIDE your unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

50. Did you see signs of mildew or mold INSIDE your old unit in the three months between **[RAD closing month and year – 3]** and **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

51. Were any of the windows in your unit in your old building damaged or broken in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

52. Were any of the doors in your unit in your old building damaged or broken in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

53. Were locks missing from any of the doors in your unit in your old building in **[RAD closing month and year]**?

Yes 1
No 2
DON'T KNOW 8
REFUSED 9

54. Thinking about the condition of your housing unit now and the unit you lived in before about **[date of closing]**, would you say the condition of your current unit is:

Much better, ... 1
Somewhat better, ... 2
About the same, ... 3
Somewhat worse, or 4
Much worse? 5
DON'T KNOW 8
REFUSED 9

55. Thinking about the condition of the property/building you live in now and the building you lived in before about **[date of closing]**, would you say the condition of your current building is:

Much better, ... 1
Somewhat better, ... 2
About the same, ... 3
Somewhat worse, or 4
Much worse? 5
DON'T KNOW 8
REFUSED 9

Housing Costs

Now I have a few questions about housing costs.

56. In the month just passed, what did you pay in rent?

$_____ amount
DON'T KNOW 9998
REFUSED 9999

57. Would you say you are now paying more rent, less rent, or the same amount as where you lived back in **[date of closing]**?

More rent 1
Less rent ..... 2 **[Skip to Question 59.]**
Same amount ..... 3 **[Skip to Question 59.]**
DON'T KNOW ..... 8 **[Skip to Question 59.]**
REFUSED ..... 9 **[Skip to Question 59.]**

58. What would you say is the main reason your rent increased? Was it because:

Your income increased, ...1
You are in a larger unit, ...2
Housing in the area has gotten more expensive, ...3
You were paying a flat rent before and now are paying
30% of your income, or 4
Other? 5
DON'T KNOW.....8
REFUSED.....9

59. In the past 12 months, were you ever more than 15 days late paying your rent?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Now I have some questions about your utilities.

60. Do you pay for your own electricity, or is that included in the rent?

Pay own electricity 1
Included in rent 2
DON'T KNOW.....8
REFUSED.....9

61. Do you pay for your own gas, or is that included in the rent?

Pay own gas 1
Included in rent 2
Do not use gas.....3
DON'T KNOW.....8
REFUSED.....9

62. Do you pay for your own water, or is that included in the rent?

[Interviewer: Select "2" is Respondent does not pay water bill.]

Pay own water bill 1
Included in rent 2
DON'T KNOW.....8
REFUSED.....9

[If "no" to Questions 60, 61, and 62, skip to Question 64.]

63. Thinking about all your utility bills combined—that is, electric, gas, and water—how much were your total utility bills last month?

$_____ amount [Range: 0–9996]
DON'T KNOW.....8
REFUSED.....9

64. Thinking about what you now pay for rent and utilities combined, has the amount that you pay for rent and utilities changed from what it was where you lived back in **[date of enrollment]**? Would you say you are paying more to cover rent and utilities, less, or the same amount?

More 1
Less 2
About the same 3
DON'T KNOW.....8
REFUSED.....9

[Skip to Question 68 if Question 60 = 2, Question 61 = 2 or 3, and Question 62 = 2.]

65. People sometimes have trouble paying their utility bills on time. How many times in the past 12 months were you more than 15 days late paying your electric, gas, or water bill?

_____ times [Range: 0–40] **[If 0, skip to Question 68.]**
DON'T KNOW.....9998
REFUSED.....9999

66. Did you receive a notice that your gas, water, or electricity would be shut off if you did not pay your bill?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

67. In the past 12 months, was your gas, water, or electricity ever shut off for nonpayment?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

Employment

Now, I have a few questions about work.

68. Do you currently work for pay?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

69. Did you work for pay back in **[date of enrollment]**?

Yes 1
No 2
DON'T KNOW.....8
REFUSED.....9

[Ask if Question 69 = 1, otherwise skip to Question 72.]

70. After you moved from your old building, was getting to work:

More difficult, ...1
Less difficult, or .....2 **[Skip to Question 72.]**
About the same? .....3 **[Skip to Question 72.]**
Did not keep that job .....4 **[Skip to Question 72.]**
DON'T KNOW.....8 **[Skip to Question 72.]**
REFUSED.....9 **[Skip to Question 72.]**

71. Why was that?

Longer commute 1
No parking at that housing.....2
Difficulty accessing public transit 3
Other 4
DON'T KNOW.....8
REFUSED.....9

71a. Other: _____

72. Could you please tell me which category best estimates your total household income for 2016? Income includes all money earned from jobs, public assistance, or social security by all members of your household. (You can just tell me the number of the category if you like.)

    Less than $5,000 1
    $5,000 to $9,999 2
    $10,000 to $14,999 3
    $15,000 to $19,999 4
    $20,000 to $29,999 5
    $30,000 to $39,999 6
    $40,000 or more 7
    DON'T KNOW.....8
    REFUSED.....9

73. In the past 12 months, have you or anyone in your household received disability pay such as Social Security Disability Insurance, or SSDI; a veteran's disability benefit; or workers compensation for a work-related injury?

    Yes 1
    No 2
    DON'T KNOW.....8
    REFUSED.....9

Health

Next, I have a few questions about your health.

74. In general, would you say your health is:

    Excellent, ...1
    Very good, ...2
    Good, ...3
    Fair, or 4
    Poor? 5
    DON'T KNOW.....8
    REFUSED.....9

75. Thinking back to before **[RAD closing month and year]**: In general, would you say your health back then was:

    Excellent, ...1
    Very good, ...2
    Good, ...3
    Fair, or 4
    Poor? 5
    DON'T KNOW.....8
    REFUSED.....9

76. Thinking about the changes in your housing since **[RAD closing month and year]**, do you think these changes have had any effect on your health?

Yes 1
No .....2 **[Skip to Question 78.]**
DON'T KNOW.....8
REFUSED.....9

77. If yes, how did the differences affect your health now? Would you say it is:

A lot better, ...1
A little better, ...2
A little worse, or 3
A lot worse? 4
DON'T KNOW.....8
REFUSED.....9

Neighborhood Conditions and Safety

The next set of questions asks about what it's like to live in your current neighborhood.

Safety and Victimization

78. During the day, how safe do you feel or would you feel being out alone in the parking lots, the lawns, the street, or sidewalks right outside your building? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

79. At night, how safe do you feel or would you feel being out alone in the parking lots, lawns, street, or sidewalks right outside your building? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

80. During the day, how safe do you feel being alone inside your unit? Do you feel:

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

81. At night, how safe do you feel being alone inside your unit? Do you feel…

Very safe, ...1
Somewhat safe, ...2
Somewhat unsafe, or 3
Very unsafe? 4
DON'T KNOW.....8
REFUSED.....9

82. Overall, since moving to your current unit, do you feel safer, less safe, or about as safe as you did before?

Safer 1
Less safe 2
About as safe as before 3
DON'T KNOW.....8
REFUSED.....9

83. Why is that?

_____ [Specify.]
DON'T KNOW.....999998
REFUSED.....999999

Resident Characteristics and Household Composition

Please remember that the information you give me will not affect your housing status. In order to understand a little about your household, I would like to ask you about each of the people who are currently living in this household, including people who are not on the lease. We are asking for names, initials, or nicknames, just to help us keep track during our survey. As we said earlier, we will never connect your name with your answers.

84. How old are you?

_____ years old [Range = 1–100]
Greater than 100 years, elderly 999997
DON'T KNOW.....999998
REFUSED.....999999

85. Since you were 18 years old, how many years have you lived in public housing altogether?

_____ years [Range = 1–96}
Less than one year.....97
DON'T KNOW.....98
REFUSED.....99

86. How many people currently live in your household, including yourself?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

87. How many of the people currently living in your household are under the age of 18?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

88. How many of the people currently living in your household are over the age of 62?

_____ number of people
DON'T KNOW.....9998
REFUSED.....9999

89. What is your marital status? Are you:

Now married, ...1
Not married, living with partner, ...2
Not married, not living with partner, ...3
Widowed, ...4
Divorced, or 5
Separated? 6
DON'T KNOW.....8
REFUSED.....9

90. What is the highest grade or level of regular school you have ever completed?

[Probe if answer is H.S. diploma:] "Do you have a high school diploma or a GED?"

8th grade or less 1
9th grade to 11th grade 2
12th grade 3
GED 4
High school diploma 5
Some voc/tech/business courses 6
Voc/tech/business certificate or diploma 7
Some college courses 8
Associate degree (A.A., A.S.) 9
Bachelor's degree (B.A., B.S.) 10
Some graduate/professional school courses 11
Graduate/professional degree 12
DON'T KNOW.....98
REFUSED.....99

Thank you for helping us with the survey, we appreciate the time you've taken. We'll be sending you the $25 gift card in the mail. The address we have for you is **[confirm contact information]**. Is that correct?

Yes 1
No.....2

[Record new address, if needed.]

_____

_____

Appendix C: Study Samples

Table C-1. RAD Projects in Sample for Tenant Impact Study

Project Name	PIC/RAD Development Number	PHA Name	PHA Code
Ridgecrest	AL050000001	Housing Authority of Auburn	AL050
Lyle Woods Apts.	AL069000001	Housing Authority of Leeds	AL069
Scott/Hunter Homes ADDN	AL099000001	Housing Authority of Scottsboro	AL099
Davis Heights/Asbury Howard	AL125000004	Housing Authority of Bessemer	AL125
Hilltop	AL159000003	Housing Authority of the City of Lafayette	AL159
Heritage Estates	AL169000001	The Housing Authority of the City of Prichard	AL169
Friendship Manor	CA010000003	City of Richmond Housing Authority	CA010
Pelfrey Pines	GA099000001/A	Housing Authority of the City of Roswell	GA099
Habersham	GA284000005	Northeast Georgia Housing Authority	GA284
George W. Buckner TWRs	IN016000067	Housing Authority of the City of Evansville	IN016
Wyman House	MD002000044	Housing Authority of Baltimore City	MD002
Waverly House	MD004511417	Housing Opportunity Commission of Montgomery County	MD004
Patuxent Woods	MD021000003	Housing Authority of St. Mary's County, MD	MD021
Bayview Place	MS005000008	The Housing Authority of the City of Biloxi	MS005
Hall Towers	NC011008035	Housing Authority of the City of Greensboro	NC011
Morreene Rd.	NC013000010	The Housing Authority of the City of Durham	NC013
Laurinburg Public Housing AMP 1	NC018000001	Housing Authority of the Town of Laurinburg	NC018
Lakeview	NY042000001	White Plains Housing Authority	NY042
Farrier Court	VA023000002	Staunton Redevelopment and Housing Authority	VA023

Table C-2. RAD Projects in Sample for Interviews and Physical and Financial Condition Study

Project Name	PIC/RAD Development Number	PHA Name	PHA Code
Davis Heights/Asbury Howard	AL125000004	Housing Authority of Bessemer	AL125
Heritage Estates	AL169000001	The Housing Authority of the City of Prichard	AL169
Nelson Hall Homes	AR003000003	The Housing Authority of the City of Fort Smith	AR003
Triangle Court	CA010000004	City of Richmond Housing Authority	CA010
Branson Walk	GA010000005	Housing Authority of the City of Marietta	GA010
Vandiver/Dansby Homes	GA094000001	Housing Authority of the City of Lavonia	GA094
Willingham Village	GA285400108	Northwest GA Housing Authority	GA285
Petersburg	IL028111111	Menard County Housing Authority	IL028
Central Park Towers	IL092000001	Housing Authority of Elgin	IL092
Pimlico Apts.	KY004000012	Housing Authority of Lexington	KY004
Lincoln Way	MA003000357	Cambridge Housing Authority	MA003
Tonquish Creek Manor	MI045000001	Plymouth Housing Commission	MI045
Creston Park	MI073000002	Grand Rapids Housing Commission	MI073
Jumper T/East HEI/JAC HEIWES WO/PW/BY/JY	MS006000015	Tennessee Valley Regional Housing Authority	MS006
Mimosa/Willow/Fort Robinett/Corinth Scat.	MS006000013	Tennessee Valley Regional Housing Authority	MS006
Magnolia HMs/Delta Apts.	MS063000001	The Housing Authority of the City of Yazoo City	MS063
Central Asheville	NC007000001	Housing Authority of the City of Asheville	NC007
Scattered Sites	NC048000001	Maxton Housing Authority	NC048
Liberty Gardens	NY034000006	Rome Housing Authority	NY034
Old Meadow	NY098000001	St. Johnsville Housing Authority	NY098
Parqwood Apts.	OH006000133	Lucas Metropolitan Housing Authority	OH006
Elderly AMP	VT001000001	Burlington Housing Authority	VT001
Grandview Homes	WA006000200	Housing Authority of the City of Everett	WA006
Arbor Ridge	WA008000512/A	Housing Authority of the City of Vancouver	WA008

Table C-3. Non-RAD Projects in Sample for Physical and Financial Condition Study

Project Name	PIC Development Number	PHA Name	PHA Code
Harris Apts.	AL063000001	Oneonta Housing Authority	AL063
Archer Village	AL068000002	Sheffield Housing Authority	AL068
Hay Court/Hay Court Annex	AL077000006	Tuscaloosa Housing Authority	AL077
Hubbard/Dunbar	AL177000001	Troy Housing Authority	AL177
Las Casitas	CA044000003	Yolo County Housing Authority	CA044
Sunnyside Village	CA053000001	Kings County Housing Authority	CA053
Valley View Village	CA053000002	Kings County Housing Authority	CA053
Smith HMs-Coleman CT	GA069000300	Dublin Housing Authority	GA069
Project Unnamed	GA086000001	Waynesboro Housing Authority	GA086
Summit Point Apts.	GA095000005	Newnan Housing Authority	GA095
Culavin Heights	IA029000001	Missouri Valley Housing Authority	IA029
Riverwest South Phase 2	IL003000009	Peoria Housing Authority	IL003
Streed Tower	IL010000007	GMAHA (Rock Island County)	IL010
Alex Long/Talmage Defrees Apts.	IL078000001	Bond County Housing Authority	IL078
Moon Towers	IL085000001	Knox County Housing Authority	IL085
Northwest Plaza	IN015000003	South Bend Housing Authority	IN015
Rosedale Hi-Rise	IN026000001	Elkhart Housing Authority	IN026
Deer Creek Village	KS002000003	Topeka Housing Authority	KS002
Tyler Towers	KS002000004	Topeka Housing Authority	KS002
Dosker Manor	KY001000012	Louisville Housing Authority	KY001
HOPE VI Scattered Sites	KY001000034	Louisville Housing Authority	KY001
Eastside Revitalization 3	KY002000013	Covington Housing Authority	KY002
Anderson Ct.	KY006000004	Paducah Housing Authority	KY006
Holly Ct-Davis Park	KY037000001	Hickman Housing Authority	KY037
North Gate	KY043000001	Fulton Housing Authority	KY043
Harlan HA	KY077000001	Harlan Housing Authority	KY077
Skyview Homes	KY079000001	Stanford Housing Authority	KY079
Washington Beech Phase 1	MA002002134	Boston Housing Authority	MA002
Old Colony Phase 1	MA002002138	Boston Housing Authority	MA002
Blake Street Towers	ME005000001	Lewiston Housing Authority	ME005
Shahan Blackstone North Apts.	MI038000003	Jackson Housing Commission	MI038
Lake Superior Village	MI070000002	Marquette Housing Commission	MI070
St. Cloud HRA	MN038000002	St. Cloud Housing and Redevelopment Authority	MN038
Henry Homes	MS107000100	Greenwood Housing Authority	MS107
Tudor Ct., Myers PK, Hilton Height	NC014000001	Lumberton Housing Authority	NC014

Project Name	PIC Development Number	PHA Name	PHA Code
Spruce Pine	NC033000001	Spruce Pine Housing Authority	NC033
Scattered Sites	NC066000001	Burlington Housing Authority	NC066
Scattered Sites	NC079000001	Dunn Housing Authority	NC079
Back Bay Gardens	NJ012000003	Bayonne Housing Authority	NJ012
Glendenning HMs	NJ032000010	Rahway Housing Authority	NJ032
Silverada Manor	NV001000103	Reno Housing Authority	NV001
Lavanburg Homes	NY005003100	New York City Housing Authority	NY005
Massapequa Fam/SNR CZN	NY055000004	Oyster Bay HA, Town of	NY055
Hudson Garden Apts.	NY062000022	Poughkeepsie HA	NY062
Jackson Park Homes	OH018000610	Stark Metro Housing Authority	OH018
Caldwell Station	PA006000803	Allegheny County Housing Authority	PA006
Scattered Sites	VA016000003	Charlottesville RHA	VA016
Elm Drive Apts. 1	WI025000001	Edgerton Housing Authority	WI025

Appendix D: RAD Program Description and Resources

This appendix describes the Rental Assistance Demonstration (RAD) program in detail, including its history and resources. Although this information is not necessary to understand the evaluation report, it provides additional context for all aspects of the RAD Program. It also covers the evolution of the RAD program following the time when the sample of 24 RAD projects (the treatment group) and the sample of 19 RAD properties (the resident sample) were selected for this evaluation.

The first section (Detailed Description of the RAD Program) delves deeper into the areas covered in the RAD Program Summary in the Introduction. The second section (RAD Program Guidance and Historical Changes) describes legislative and guidance changes over time. The final section (RAD Resources) discusses the resources developed by HUD.

Detailed Description of the RAD Program

The RAD program is complex and has evolved through multiple legislative actions, regulatory changes, and lessons learned as public housing authorities (PHAs) pursued RAD conversions. The program continues to develop; the following description is as of October 31, 2018. Although program changes are referenced throughout this section, section RAD Program Guidance and Historical Changes presents a complete list of legislative and guidance changes and summaries of major changes to the RAD program. The most up to date information on the RAD program is available from HUD at www.hud.gov/rad.

Summary of the RAD Program

Congress authorized the RAD program without providing additional appropriations for public housing or project-based Section 8. As a result, HUD is implementing RAD in a budget-neutral way and is not providing increased federal dollars to subsidize the capital or operating costs of RAD projects. This lack of incremental funds for RAD is consistent with the program's design, which is to provide a sustainable form of affordable housing by enabling public housing properties to access more flexible private funding sources to cover the immediate and long-term capital needs of the properties converted to Section 8 under RAD. As a demonstration program, the public housing component of RAD aims to test whether the conversion of public housing to project-based Section 8 enables PHAs to preserve and improve that housing better than other financing alternatives so that properties remain affordable and in good condition, tenant rights are protected, opportunity for mobility is enhanced, and public or nonprofit ownership or control is maintained.

RAD allows HUD to convert public housing properties from conventional public housing support, with traditional Capital Fund subsidies and operating fund subsidies,[160] to an assisted housing approach that uses Section 8 Project-Based Voucher (PBV) or Project-Based Rental Assistance (PBRA) as the long-term source of federal project subsidy. The ongoing Section 8

[160] These are the two streams of funding provided to PHAs that assist with making capital improvements and subsidize the management operations, respectively, of public housing units: capital funding is allocated based on the age, size, and estimated capital needs of each property, and operating funds are based on the PHA's approved budget, less the amount paid by the tenants.

subsidy to the properties is calculated based on the total amount of the capital and operating subsidies that the public housing program provides to each property, subsequently adjusted by an annual Operating Cost Adjustment Factor (OCAF). There are no additional subsidy dollars provided to projects by HUD under RAD. By leveraging their projects' PBV or PBRA subsidies after conversion, however, PHAs can finance debt and access other external funds, which could include grants and equity investment motivated by Low-Income Housing Tax Credits (LIHTCs). PHAs can then use those funds, in conjunction with internal resources such as "soft loans," to recapitalize and renovate or redevelop their projects.

RAD is governed by the RAD Statute (P.L. 112-55 as amended by P.L. 113-76, P.L. 113-235, P.L. 114-113, P.L. 115-31, and P.L. 115-141), and HUD guidance is consolidated in the RAD Notice. Congress authorized RAD in November 2011 and has amended the RAD Statute five times: in January 2014, December 2014, December 2015, May 2017, and March 2018. HUD has issued multiple RAD Notices that provide program instructions, eligibility and selection criteria, and implementation guidance. As of this report, the RAD program is governed by HUD Notice PIH-2012-32 (HA) H-2017-03, REV-3, issued on January 12, 2017 (the RAD Notice, third revision); HUD Notice H 2016-17 PIH 2016-17 (HA), issued November 10, 2016 (the Fair Housing, Civil Rights, and Relocation Notice); and the supplemental guidance in HUD Notice PIH-2018-11, H-2018-05, issued on July 2, 2018, and Federal Register Notice FR–6105–N–01, published on July 3, 2018. Both the RAD Statute and the RAD Notice can be found at https://www.hud.gov/RAD/library/notices, along with other RAD guidance and tools.

The RAD program has two components. The first, Public Housing and Section 8 Mod Rehab Housing (excluding single-room occupancy dwellings), or "RAD Public Housing," allows up to 455,000 units (the original cap was 60,000 units) of public housing and Section 8 Mod Rehab properties to convert to project-based Section 8 HAP contracts following an application and review process.[161] The second component—Rent Supp, Rental Assistance Payment (RAP), and Section 8 Mod Rehab Housing, or "RAD 2" (which is not part of this evaluation)—permits the conversion of properties supported through Rent Supplement (Rent Supp), RAP, Section 8 Mod Rehab, McKinney Vento Single Room Occupancy, and Section 202 Project Rental Assistance Contracts (PRAC) to project-based Section 8 Housing Assistance Payment (HAP) contracts. This evaluation focuses exclusively on the effects of the conversion of public housing units under RAD.

Participation in RAD is voluntary and determined by the PHA. Properties that convert to project-based Section 8 assistance are subject to long-term rental assistance contracts and use restrictions that survive any disposition of the property, including foreclosure or bankruptcy. RAD project-based Section 8 contracts also require properties to be owned or controlled by public or nonprofit entities, except if LIHTCs are used.[162]

[161] This evaluation focuses on public housing units. Mod Rehab projects converted to RAD under the first component, covering 410 units, will not be examined in this report. Since the cap was raised, 682 units of Mod Rehab have converted to RAD under the second component.

[162] LIHTC projects receive funding from private investors, who use tax credits to generate a return on their investment in the LIHTC project. To receive this private equity investment, the RAD LIHTC project will be owned by a limited liability company (LLC). For LIHTC projects, the PHA must demonstrate adequate control of the

Resident Protections

The RAD program includes significant protections for public housing residents, as well as Choice Mobility options for residents to voluntarily leave the RAD project by requesting tenant-based rental assistance from the PHA. These protections were put in place during the design of the RAD program to ensure that current residents benefit from the RAD conversion. As part of these protections, RAD requires that PHAs adhere to the following guidelines—

- PHAs must engage with residents at various stages of the conversion process, including pre-application.
    - The RAD plans must be described in the PHA's annual plan or in a significant amendment to the annual plan. Both the plan and the amendment are subject to consultation with the PHA's Resident Advisory Board and a public review and comment process.
    - A minimum of two resident meetings must be held before submitting the RAD application.
    - PHAs must send a RAD Information Notice (RIN) to all residents.
    - After a Commitment to enter into a Housing Assistance Payment (CHAP) is issued, the PHA must hold at least one more resident meeting, and communicate the status of the RAD conversion and effects of the conversion and related construction/rehab to all affected residents.
- Tenants cannot be rescreened as properties convert assistance or as temporarily relocated residents return to the property.
- Tenants will continue to pay no more than 30 percent of their adjusted income; tenants who were paying less than 30 percent of their adjusted income may have their rent increased, although increases of more than the greater of 10 percent or $25 will be phased in over 3 to 5 years, depending on the amount of the increase.
- All lease-compliant households have the right to remain in occupancy or, if temporary relocation is required to facilitate rehabilitation or conversion, the right to return to the RAD property.
    - All lease-compliant households must be offered a right to return to properties if they must be temporarily relocated to facilitate rehabilitation or construction; although project owners may adopt a preference (for example, for elderly households) after conversion, this preference can only be implemented if it is consistent with existing residents' right to return.
    - If relocation is required, the PHA must follow RAD requirements designed to ensure that residents are not relocated prematurely (for example, before the RAD conversion is reasonably assured to take place) or for unnecessarily long periods, that residents' elections are informed and voluntary, and that residents receive information regarding their relocation in excess of that required under the Uniform Relocation Act.

property, such as through ground leases, controlling participation in the ownership entity, or other options, as specified in the RAD Notice.

- PHAs face strict limits on any reduction in the number of units and any changes to the sizes of converted units. PHAs may propose a de minimis reduction of up to 5 percent of all Annual Contributions Contract (ACC) units or five units, whichever is larger, for each RAD project, but the de minimis reduction must be justified and approved by HUD. Units that have been vacant for more than 24 months at the time of RAD application are exempt from the de minimis limit, and PHAs can propose a reduction to better serve assisted households (for example, by combining two smaller units into one larger unit). Any reduction in units or changes in unit size must be approved by HUD and must meet Fair Housing, Civil Rights, and Relocation requirements. Although reductions in the number of units are permitted, this does not relieve the authority of its responsibility to offer all current residents a right to return.
- Once assisted under the Section 8 program, residents maintain most of the same rights they had as public housing residents, plus one significant new right that does not exist in the public housing program:
    - Residents are entitled to certain public housing grievance procedures and lease termination protections that are not applicable to other Section 8 residents.
    - Residents maintain a right to organize, and the ownership entity must provide legitimate resident organizations with funding pursuant to public housing requirements that are not applicable to other Section 8 residents.
    - Residents participating in the Resident Opportunities and Self Sufficiency Service Coordinators and Family Self-Sufficiency Programs will continue to have access to these resources after RAD conversion.
    - The new residents' right associated with RAD is called Choice Mobility. All properties that convert assistance must provide residents the choice to move with continuing tenant-based rental assistance within a reasonable time after conversion (Choice Mobility), which is 1 year if the project converts to PBV and 2 years if the project converts to PBRA.[163] Choice Mobility does not mean that a voucher will be received immediately upon request; rather, the household is placed at the top of the authority's Housing Choice Voucher (HCV) waiting list and will receive a voucher when one becomes available.

RAD Applications

HUD has simplified the RAD application while adjusting to the demand for RAD and the statutory cap on RAD units,[164] expanding its original statutory cap of 60,000 units to 455,000 units. During the initial RAD application period, HUD did not receive many applications and was able to accept all qualified applicants. The second RAD application period used a first-come, first-served basis to accept applications up to the original statutory cap of 60,000 units. HUD continued to accept applications on a waitlist on a first-come, first-served basis through the end of the second application period. On July 28, 2015, HUD opened the third RAD application period, which remains open as of this evaluation report. The third application period introduced Priority Categories, with applications accepted or, if the statutory cap had been reached,

[163] There are a limited number of good-cause exceptions for PHAs with insufficient vouchers to support this housing option.
[164] The RAD application and related materials are available at https://www.hud.gov/RAD/application-materials.

waitlisted on a first-come, first-served basis within each category. As of October 31, 2018, there is no longer any waitlist because there is enough RAD authority to meet the needs of all applications in hand or on the previous waitlist.

As the program grew, HUD added mechanisms to encourage multiphase and portfolio conversions. Multiphase conversions take place in phases, such as multiple phases of rehabilitation of large properties, or encompass a group of PHA properties that are presented in two groups, with one group receiving CHAPs in the first year and the second group receiving CHAPs after submitting applications within 365 days of receiving CHAPs for the first group. A portfolio conversion occurs when a PHA seeks to convert all its public housing to RAD. Multiphase and portfolio applicants can reserve units under the statutory cap and guarantee that RAD conversion units will be available as they work through their projects or phases.

As of May 2018, Congress has increased the statutory cap to 455,000 units—more than 40 percent of the total public housing inventory when RAD was launched. The cap increase has allowed HUD to approve and move forward on all qualified applications. HUD is now accepting new applications and will continue to do so until it reaches the 455,000-unit cap. HUD is prioritizing "High Investment Applications"—which include applications that will redevelop physically or functionally obsolete housing, applications that are part of a comprehensive neighborhood revitalization plan, and applications in danger of losing financing if they are not provided a CHAP—over "All Other Applications, Portfolio Awards, and Multiphase Awards." Once the statutory cap is reached, HUD will reopen the waitlist on a first-come, first-served basis under the two prioritization categories. To join the waitlist, PHAs can complete a RAD application or submit a Letter of Interest, with the understanding that, when notified by HUD, the PHA must submit a complete application within 60 days. Letters of Interest are treated as a lower priority, so a PHA with a qualifying project must complete an application to receive the higher prioritization on the waitlist.

On July 2, 2018, HUD issued supplementary guidance that reduced the application and conversion burden on qualified small PHAs. Qualified PHAs must have 50 or fewer public housing units at the time of application and intend to convert all public housing units to RAD; they must meet the overall Real Estate Assessment Center (REAC) score thresholds; the proposed conversion must not include construction, rehabilitation, relocation, or transfer of assistance; and PBV conversions must propose a Contract Administrator that currently administers at least 100 units.

Pre-Application

Before applying for RAD, a PHA must develop preliminary plans for its projects and make some fundamental choices in how to structure them. Basically, the PHA must determine its initial goals for the RAD conversion and identify potential and available resources for meeting its goals. Originally, the PHA also had to be prepared to describe how the property would be administered following RAD conversion, but that is no longer part of the RAD application. The planning begins with identifying projects for conversion, which includes considering whether to convert some or all the PHA's portfolio (a "portfolio application") and whether the PHA would like to proceed with conversion in phases (a "multiphase application"). A multiphase application involves converting an initial portion of a project in the first phase, then converting the remainder of the project in later phases.

The PHA must receive permission to submit a RAD application from its Board of Directors. It must also hold two resident meetings at each project included in a RAD application and publish and provide a RAD Information Notice to residents before the meetings.

Finally, the PHA will have to consider the future of converted units in terms of RAD and Section 8. The PHA will need to make a preliminary election between PBV and PBRA; consider future capital needs and how they will be addressed; and, for PBV conversions, determine how it will manage the new vouchers. The PHA should also consider the effect of conversion and any construction or replacement on current and future residents.

The choice of PBV versus PBRA is fundamental to the management of the project and units following RAD conversion, so the preliminary election is reviewed, and in some cases changed, before closing. In brief, a PHA controls PBVs that are administered through PIH, while PBRAs are provided to the project owner and administered by HUD's Office of Multifamily Housing, which is part of the Office of Housing. In both cases, the subsidy is tied to specific units and does not move with tenant households. Both PBVs and PBRAs are similar in design, but they are separate programs governed by separate regulations.

Although the choice of PBV or PBRA does not need to be finalized until the RAD Conversion Commitment (RCC) is issued, PBVs and PBRAs have different administrative requirements as part of the RAD conversion, and PHAs need to be working on these requirements before the RCC is issued in order to meet the subsequent deadline for closing. For example, the environmental report requirements and approval processes differ between the two programs, and PBRA conversions require the submittal of an Affirmative Fair Housing Marketing Plan, which is not required under PBV.

Note that the RAD application no longer requires financial information, such as sources and uses or operating pro formas. An outline of the financial aspects of the proposed conversion will help with planning and answering questions about project viability.

The RAD Application Process

The RAD application process is the stage during which the PHA submits a RAD application and HUD reviews and decides whether to accept or reject it. During this process, the PHA refines its proposed RAD project(s) and engages with residents and other stakeholders. Originally, the RAD application and supporting materials had to be comprehensive enough to demonstrate to HUD that the project would be viable after conversion, but, to simplify the application process, this is no longer required (it is required as part of the financing plan; see the following).

The RAD application itself is an Excel spreadsheet that gathers information about the properties or units proposed for conversion and the goals of the RAD conversion. The scope and contents of the application spreadsheet have changed over time, generally becoming simpler and more streamlined. Information collected in the application includes whether the proposed units are currently part of other HUD programs (for example, a HOPE VI development or an Energy Performance Contract), the proposed conversion type, and the proposed post-conversion unit bedroom distribution. Applicants also summarize the proposed conversion in a short narrative. There are additional forms for multiphase applications, portfolio applications, and applications that include units from multiple public housing developments.

The PHA also must provide a series of attachments with the completed application spreadsheet: approval of the Board of Directors and a summary of resident comments and the PHA's responses have always been required. Other requirements, such as financial pro formas and a Physical Condition Assessment (PCA) or Capital Needs Assessment (CNA), are no longer required as part of the application (they are completed after the CHAP award and before closing). The amount of HUD administrative data required in the RAD application has varied, but in general this information does not go beyond that available in a property's PIC development profile and summary. Additional attachments may be required for more complicated conversions.

The original RAD application included financial pro formas and an initial financing plan, including evidence that proposed funding sources would be amenable to inclusion in the RAD transaction; the PHA had to show that it has sufficiently considered the long-term preservation needs of the property and the means by which those needs will be financed. This is no longer required for the RAD application, however, although it is required as part of the financing plan.

Similarly, the RAD application may be accompanied by a CNA or PCA that describes the current and future capital needs of the proposed units and buildings, or the CNA or PCA may be provided along with the financing plan.[165] Although the RAD application no longer requires a detailed description of how the PHA plans on meeting the urgent and future capital needs of the project through conversion, the application should include a copy of tenant questions about the proposed RAD conversion and the PHA's responses to those questions.

On receipt of a RAD application, HUD reviews the application materials. Staff members check that all required documents and signatures are included and that the PHA has a plan to ensure choice mobility. Originally, HUD determined whether the financing plan was sound and capital needs were addressed, but this level of review is no longer needed in the application phase. After completing its review, HUD will decide whether to request clarifications or changes, reject, or accept the application. If the application is accepted, HUD will issue a CHAP or place the application on the waitlist if no RAD authority is currently available.

Determining RAD Rents

All RAD applications, including applications for portfolio or multiphase awards, will have initial contract rents based on the project's subsidy under the public housing program during its "RAD rent base year."[166] The project's subsidy is the sum of its operating and capital funding plus any adjusted formula income under the Operating Fund program. For the most part, the base year

[165] A CNA will be required on most units. HUD has the discretion to waive the CNA requirement for projects built in the past 5 years, new construction or "substantial rehabilitation," projects financed by LIHTCs, and projects where the number of RAD-assisted units is less than 20 percent of the total units at the project. HUD has also introduced a CNA e-Tool to standardize submissions. When replacing existing units with new construction, the replacement reserve deposit for those units shall not be less than FHA standards.

[166] Previously, the RAD application automatically populated the RAD contract rents once the PHA entered the project's PIC number, but this no longer occurs. Instead, HUD has published a separate listing of all RAD contract rents (initial) based on the current base year. As of October 31, 2018, this is called the Modified 2016 Contract Rents schedule.

rents are adjusted annually by a HUD-established OCAF.[167] PHAs do have some options to adjust contract rents for converted units, but those options are limited to the specific circumstances described below. RAD rents are subject to various rent caps, such as Rent Reasonableness, 110 percent of fair market rents (FMRs) for PBV, and 120 percent of FMRs for PBRA. PBRA contract rents are not affected by Rent Reasonableness.

CHAPs awarded under the original 60,000-unit cap have initial contract rents based on fiscal year (FY) 2012 funding levels ("FY 12 RAD rent base year"), whereas CHAPs awarded above HUD's original 60,000-unit cap but under the 185,000-unit cap have initial contract rents based on FY 2014 funding levels ("FY 14 RAD rent base year"). CHAPs awarded above the 185,000-unit cap and below the 225,000-unit cap have initial contract rents based on FY 2016 funding levels ("FY 16 RAD rent base year"). Replacement awards because of revocations or withdrawals have a RAD rent base year determined by the date of the replacement award, as described in the RAD Notice.

The RAD rent base year determination for CHAPs awarded above the 225,000-unit cap and below the 455,000-unit cap is more complex. CHAPs awarded before January 1, 2019, have a blended base year: the base RAD rent is the sum of the FY 2016 operating subsidy and the FY 2018 Capital Fund grant plus the tenant contribution. CHAPs awarded on or after January 1, 2019, will have initial contract rents based on FY 2018 subsidy funding levels ("FY 18 RAD rent base year"). As previously noted, for the 2018 rents, the 2016 Capital Fund amount is replaced by the 2018 Capital Fund amount, and the operating subsidy and the tenant portion remain the same as 2016 without application of an OCAF.

As described in the RAD Notice, RAD rents are initially set in the CHAP based on when the CHAP is awarded and under what statutory cap. RAD rents are the sum of public housing subsidies in the corresponding RAD rent base year, adjusted by the OCAF, and limited by rent caps based on published FMRs. For example, a CHAP awarded in 2015 under the 185,000-unit cap will have a RAD rent of its 2014 public housing subsidy multiplied by HUD's 2015 OCAF.

Depending on the characteristics of the converting property, PHAs may have the option to adjust RAD rents. Projects with master-metered utilities and tenant utility allowances can add utility allowance overages to the RAD Contract Rent because it is part of the PHAs operating subsidy (UEL) that is not captured in the baseline RAD contract operating subsidy number. Moving to Work (MTW) agencies may supplement their initial RAD rents using fungibility of their MTW block grant; this will require an approved change to the PHA's MTW Plan. PHAs converting multiple projects may adjust RAD rents through "rent bundling," wherein rent adjustments in one project are offset by adjustments in another converting project. PHAs can also use future Replacement Housing Factor (RHF) or Demolition Disposition Transition Funding (DDTF) to

[167] There was no OCAF for 2013, which affects CHAPs awarded under the original 60,000-unit cap. There was an annual OCAF adjustment for RAD rents beginning in 2014. The 2018 rents, however, are based on the 2016 Contract Rents, with one exception: the 2018 Capital Fund amount replaces the 2016 Capital Fund amount. The operating subsidy and the tenant portion remain the same as 2016, and no OCAFs are applied to get from 2016 to 2018. Starting in 2019, however, OCAFs will again apply. Also, after January 1, 2019, new 2018 baseline contract rents will be published, and those projects that already have 2016 modified contract rents will be able to opt to change to the new 2018 baseline rents.

offset an increase in RAD rents, and they can adjust rents based on documented expected utility savings due to "green" construction measures and appliances.[168]

PHAs that receive a CHAP around the same time as a change in the RAD Statute or the RAD Notice can petition HUD to change the version of the Statute or Notice under which its RAD rents are calculated (HUD does not have to agree to this petition).

As of July 2, 2018, PHAs can withdraw an existing CHAP and request a new CHAP within 1 month without submitting a new RAD application in order to obtain the new Modified 2016 Contract Rents. Provided that HUD has authority to issue the new CHAP under the 455,000-unit statutory cap, the new CHAP will establish RAD rents using the RAD rent base year corresponding to the issue date of the new CHAP. Except for the rents, this action leaves all other terms (for example, milestone dates, conversion status) the same as before the swap. This scenario is not the same as when a PHA has not been able to meet their milestone deadlines and needs to "start over" with a new application.

RAD rents are finalized in the HAP contract and increase annually based on HUD's OCAF. OCAF's were first applied in 2014 to projects that closed in 2013.

The RAD Conversion Process

A successful RAD applicant that has received a CHAP will then navigate through the RAD conversion process. This is a series of milestones that includes finalizing financing and implementing administrative changes necessary to complete the conversion to PBV or PBRA. HUD has developed a RAD conversion schedule for nonconstruction or debt-only transactions designed to complete closing and issue a HAP within 1 year of receipt of the CHAP award. For tax credit projects and FHA-insurance projects, the timelines of those processes govern, although CNAs should be completed in all cases within 180 days. Also, the complexity of many RAD projects can lead to delays, some of which are independent of HUD or the PHA, such as an unexpected delay in receiving an LIHTC award.

Following HUD's schedule, as described in detail in the RAD Notice, the PHA has three major document milestones and two major administrative milestones.[169] Within 180 days of the CHAP award, the PHA should submit a final financing plan that includes firm commitments for financing from all sources, a final sources and uses of funds table, a CNA (using the new CNA e-Tool), and other associated documents (for example, environmental reviews, if applicable). The financing plan deadline is flexible for LIHTC projects to better fit tax credit funding cycles, and HUD will establish the deadline in the CHAP. Once HUD approves the financing plan, it will issue an RCC to the PHA.

The RCC should be executed by the PHA within 30 days of issuance by HUD. The RCC contains or references final versions of all applicable agreements, including the unexecuted HAP,

[168] HUD prefers that projects convert with the utility allowance rates at the time of conversion and that PHAs apply for changes based on energy cost savings 1 year after rehab or construction is completed. For new construction, third-party report may be needed to support tenant utility rates, unless the PHA will be using its voucher program rates (PBV only).

[169] As of July 2, 2018, certain qualified small PHAs have reduced CNA, financing plan, and environmental review requirements.

and defines the scope of work that will be completed after conversion. It is difficult for the PHA or other stakeholders to make changes to the scope of the RAD project after the RCC is completed, although HUD reports that such changes do occur.

The RAD project should close, and a HAP contract should be executed within 90 days of RCC issuance by HUD. Typically, any delays at this point in the conversion process revolve around finalization of financial arrangements and the timing of funding awards. In some cases, closing occurs within 1 week of the RCC, whereas in other cases there can be a significant gap (at least 3 months) between the RCC and closing.

HUD tracks the progress of each RAD project, from the CHAP issuance date through the financing plan submission, the issuance of the RCC, and the closing date. In addition to actual dates, HUD tracks expected dates based on the schedule and deadlines described earlier.

On average, RAD conversions that have closed did so 681 days after receiving a CHAP (median of 645 days). The longest delays occurred between issuance of the CHAP and submission of the financing plan, which took 462 days on average (median of 420 days). Once PHAs submitted the financing plan, the RCC was issued in 87 days, on average (median of 71 days). RCC issuance to closing took an average of 132 days (median of 106 days). Although HUD has set deadlines for each of the milestones—180 days from CHAP to submission of the financing plan, and 90 to 120 days from RCC issuance to closing[170]—HUD made allowances, based on the complexity of the transaction and other factors, that extended the milestone deadlines for at least 75 percent of RAD transactions.[171]

Withdrawn and Revoked CHAPs

RAD may not be appropriate for all developments or PHAs. HUD established eligibility requirements in the RAD Notice that generally limit RAD to PHAs that are Standard or High Performers, are in substantial compliance with HUD reporting and programmatic requirements, and are in good legal standing.[172] PHAs must also consider the programmatic, administrative, and management effects of RAD, as well as their capacity for carrying out a RAD conversion. When HUD determines that a PHA cannot carry out a RAD conversion or is ineligible, it will revoke the CHAP. Similarly, PHAs can withdraw from the CHAP, either to abandon the RAD conversion or to modify the RAD project.

[170] HUD issues the RCC after approving the financing plan, and there are no published deadlines for HUD's review.
[171] Although we have data on the expected and actual milestone dates, we do not have data on whether or why extensions were granted. These timelines are affected using LIHTC. In general, 9-percent LIHTCs have a date for submission of the application set by the Housing Finance Agency, whereas 4-percent LIHTCs in most states can be submitted on a rolling basis, and debt-only or nonconstruction transactions have fewer constraints. Therefore, 9-percent LIHTC projects should take the longest to close. For example, if a CHAP is received in April of year 1, and the first round of 9-percent LIHTCs after 90 days after the CHAP is February 15 of year 2, then the PHA will not receive a CHAP award until late in the second year. If HUD provides 180 days for submission of the financing plan, followed by 90 more days for RCC issuance and 90 days after that for closing, then the total application cycle will be 2.5 years, versus the typical 1 year for nonconstruction transactions. FHA has its own timelines, as well.
[172] The RAD Notice includes provisions for PHAs that do not meet these requirements but are interested in pursuing a RAD conversion. These PHAs will be assessed on a case-by-case basis and will typically have additional requirements and scrutiny applied to their proposed RAD projects.

Revocations are rare, as HUD will work directly with a PHA to address challenges and move the RAD transaction towards closing. There are revocations for cause, such as when HUD determines that a financing source has fallen through and cannot be replaced in a timely manner, or when a PHA is unable or unwilling to actively advance their RAD conversion transaction. There are also revocations due to the expiration of the RCC and failure to close the RAD transaction.

Withdrawals are more common than revocations, as significant modifications to a RAD transaction (for example, changing the number of units converting) require withdrawal and re-issue of the CHAP. HUD does not require PHAs to submit an explanation for their withdrawal, and tracking withdrawals is further complicated by their role in changes of scope, specifically the separation of a larger project into multiple projects (or phases) and the consolidation of multiple projects. As noted above, as of July 2, 2018, PHAs can also withdraw and request a new CHAP to facilitate changing the RAD rent base year.

What PHAs Do With RAD

The Rental Assistance Demonstration program gives public housing authorities significant flexibility to reposition their public housing properties. PHAs must demonstrate an approach that provides for the preservation of the property for the life of the Section 8 HAP contract and follows the RAD requirements described in the RAD Notice (for example, tenants' right to return). Within those parameters, RAD permits access to a variety of approaches to the RAD conversion, including the following—

- **Capital repairs with debt only:** If the financial analysis demonstrates that the project can support the proposed amount of debt while meeting the capital needs determined by the capital needs assessment, then a PHA can pursue a debt-only RAD conversion. The debt can be either conventional or FHA-insured.
- **Capital repairs, or demolition and new construction, with debt and tax credit equity:** If debt alone is insufficient to meet the capital needs, or if the PHA is pursuing extensive rehabilitation or redevelopment, then the PHA's approach can include tax credit equity through either tax-exempt financing and 4-percent LIHTCs or competitive 9-percent LIHTCs.
- **Conversion to achieve financial stability** (sometimes referred to as paper conversions when there is no physical construction): When the financial analysis demonstrates that the post-RAD conversion property will accumulate sufficient reserves to meet the capital needs of the project, as determined by the CNA, the PHA can complete the RAD conversion without using debt financing or tax credit equity. Debt financing must be repaid out of project dollars. Tax credit equity may be difficult to obtain and, once obtained, has long-term compliance requirements to which the project must adhere. This is therefore an important option for properties that have recently undergone repairs but are at risk of falling into disrepair without a commitment of ongoing resources for future capital repairs and replacement. RAD provides an option to place the property on a stable financial footing to ensure long-term affordability.
- **Transfer of rental assistance.** PHAs can propose to apply for RAD for a given property and then transfer the RAD project-based assistance to a different project. This option is important for properties that are not appropriately situated today. An example is a project

located in a 100-year flood plain, in which the RAD conversion would not provide enough capital funding to elevate the units above the flood plain or to demolish and rebuild the property in a different location. In this case, the PHA can acquire and rehabilitate an existing property and then transfer the RAD vouchers to that property. HUD will assess that the transfer does not occur in neighborhoods with highly concentrated poverty based on the criteria formulated for transfers under Section 8(bb) of the U.S. Housing Act of 1937,[173] and that the project meets the requirements of Section 5.5 of the RAD Fair Housing, Civil Rights, and Relocation Notice (Notice H 2016-17/PIH 2016-17 (HA)). HUD will also assess the economic viability of the transfer and the effect on residents.

RAD Financing

Through the Rental Assistance Demonstration (RAD), Congress has authorized HUD to convert public housing properties from conventional public housing support to an assisted housing approach that uses Section 8 PBVs or PBRAs as the long-term source of federal project subsidy. The ongoing Section 8 subsidy to the properties is supported by a long-term Section 8 HAP contract, hence these subsidies can be leveraged to finance debt. PHAs can also use other external funds, grants, LIHTCs, and other internal resources contributed by the PHA to recapitalize and renovate or redevelop projects.

PHAs that apply to RAD can use a wide range of options—many of which are commonly available in the affordable housing industry—to finance the rehabilitation of their projects, and they are encouraged to explore new alternatives. Examples of possible financing options include the following—

- Mortgage debt financing at a fixed rate and for a fixed term through public or private lenders. This includes FHA-insured mortgage loan financing[174] and risk-sharing programs offered through state agencies, Fannie Mae, or Freddie Mac.
- Four-percent or 9-percent LIHTCs,[175] which provide a tax credit that private investors earn in return for providing funds to build or renovate low-income housing.
- Public Housing Operating Reserves, which are funds accumulated through the operation of public housing.

[173] Section VIII B.1 of H-2015-03, "Transferring Budget Authority of Project-Based Section 8 Housing Assistance Payments Contract under Section 8(bb)(1) of the United States Housing Act."

[174] HUD's Multifamily Program offers insurance through Federal Housing Administration (FHA) for multifamily loans originated by FHA-approved lenders for construction, substantial rehabilitation, and acquisition and refinancing of nonluxury apartments. If the scope of required property repairs indicates that "substantial rehabilitation" is needed, then the appropriate FHA-insured financing would be Section 221(d)(4) of the National Housing Act. FHA's Section 221(d)(4) program provides a combined construction and permanent loan under one commitment for mortgage insurance and permits extensive rehabilitation. For less extensive repairs, FHA's 223(f) program is often more appropriate.

[175] The Tax Cuts and Jobs Act of 2017 will affect the demand for LIHTCs, but the extent of the effect is unclear at this time and may be mitigated through additional legislation or modifications to state-level tax credit programs. The indirect effect on future RAD conversions is also unclear and assessing such effect is beyond the scope and timeframe of this evaluation.

- RHF funds, DDTF,[176] and/or unobligated Capital Funds that are a part of a PHA's available public housing funding.
- Deferred developer fees, which are the portion of the developer fee that is not payable before occupancy.
- Seller take-back financing, which is typically part of an LIHTC transaction, where the PHA lends the value of the property transferred to the new ownership entity back to the LLC.
- Other public housing and PHA funds, including cash on hand and proceeds from the disposition of public housing properties.
- Different forms of grant funding or soft loans, including the HOME Investment Partnership Program, Community Development Block Grant (CDBG), Affordable Housing Program (AHP) grants through the Federal Home Loan Banks, state or local government grants, and private funds.
- Other forms of debt, including "soft loans" or "cashflow" loans, that are usually provided by the PHA or state or local governments.

The RAD data available for this evaluation include financing sources for each active (proposed financing) and closed (actual financing) RAD project.

After RAD Projects Close

The RAD Conversion Commitment (RCC) sets out the requirements for PHAs to prepare to close a RAD project. These pre-closing requirements include completing closing checklists and submitting a closing package to HUD for review and approval before closing. Other programs or funding sources may have their own preclosing and closing requirements (for example, those listed in the Multifamily Accelerated Processing Guide for FHA-insured projects).

Administratively, the PHA must amend its annual and 5-year plans before closing to reflect the proposed RAD conversion. It must also request that the converted units be removed from PIC by submitting a Form-50058 End of Participation for every resident at the converting project. The PHA will carry out a series of steps to prepare the units to leave the public housing program. Of note, PHAs will need to terminate public housing leases and replace them with Section 8 leases, which involves communicating the changes to residents per HUD regulations and local laws. The PHA will submit data to HUD to remove the converting units from HUD's inventory. PHAs will also have to manage their operating and Capital Funds. They will have to set aside the necessary subsidies within the PHA's current "year of closing" budgets so that they are available for payment of HAP vouchers during the balance of the year of closing. This is identified in the "Initial Year of Funding tool," which is one of the financing plan submittal documents. (See section 1.13 of the RAD Notice for details.)

At RAD closing, the HAP contract is executed, and other HUD offices assume the function of program oversight and monitoring (Project-Based Voucher projects are overseen by HUD's

[176] RHF and DDTF are used interchangeably in this report, since RHF is transitioning to DDTF and in the future will be collectively referred to as DDTF. Some RAD projects have used RHF funds, which are provided in two 5-year increments. More recent RAD projects will only be able to use DDTF from the outset, which are limited to 5 years.

Office of Public and Indian Housing; Project-Based Rental Assistance projects are overseen by HUD's Office of Multifamily Housing). The PHA can begin RAD-related construction (if applicable) after closing and in accordance with its resident relocation plan. Following the terms of the HAP contract, payments to the PHA will shift from the capital and operating fund accounts to either PBV or PBRA accounts. The PHA or ownership entity is responsible for completing any construction activities and certifying that construction is complete, conforming to the requirements of other funding sources, making any debt payments on the terms prescribed in loan agreements, and preserving the converted units as affordable housing. PHAs that are converting all their Annual Contributions Contract units to RAD will also need to close out their public housing program. The RAD Notice includes some guidance on this process and on funding closeout.

Following RAD closing, the units are governed by the PBV or PBRA program regulations. These programs have requirements, such as new Section 8 leases and submission of new admissions records (form 50058 for PBV and form 50059 for PBRA) to HUD, that must be completed within 30 days after closing. PHAs must plan to avoid a potential interruption in subsidy, as they will have to rely on their operating subsidy and Capital Funds for the remainder of the year to make their Housing Assistance Payment (HAP) payments;[177] PBV or PBRA subsidies begin in the first full year after closing.[178]

PHAs (or designated post-closing entities) will also have to manage choice mobility following RAD closing and in accordance with the type of conversion (PBV or PBRA). After conversion, a tenant who lives in a PBV RAD unit for 1 year (2 years for PBRA RAD units) may request tenant-based rental assistance from the RAD PHA. The PHA will place the household at the top of the authority's HCV waiting list. The tenants may have to wait until HCV turnover results in an available voucher.

RAD Program Guidance and Historical Changes

HUD has issued multiple RAD Notices that provide program instructions, eligibility and selection criteria, and implementation guidance. As of this report, the RAD program is governed by HUD Notice PIH-2012-32 (HA) H-2017-03, REV-3, issued on January 12, 2017 (the RAD Notice, third revision) and HUD Notice H 2016-17 PIH 2016-17 (HA), issued on November 10, 2016 (the Fair Housing, Civil Rights, and Relocation Notice), with supplemental guidance issued on July 2 and 3, 2018 (HUD Notice PIH-2018-11, H-2018-05 and Federal Register Notice FR–6105–N–01).

The RAD Statute and the RAD Notice

RAD's legislative history began with program authorization in the Consolidated and Further Continuing Appropriations Act of 2012 (Pub. L. No. 112-55, approved November 18, 2011), and it has been amended five times by the following—

[177] See RAD Notice, Section 1.13.B.5, for a detailed discussion of funding on closing.
[178] Although many PHAs would consider this a reason to plan to close near the end of the year, HUD staff does have to review and approve closing documents. The closer to the end of the year, the more likely it is that there will be delays in closing that will push the closing date into the next year (and delay PBV or PBRA subsidy payments until the following year).

- Consolidated Appropriations Act of 2014 (Pub. L. No. 113-76, approved January 17, 2014).
- Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. No. 113-235, approved December 16, 2014).
- Division L, Title II, Section 237 of the Consolidated Appropriations Act, 2016 (Pub. L. No. 114-113, approved December 18, 2015).
- Consolidated Appropriations Act of 2017 (Pub. L. No. 115-31, approved May 5, 2017).
- Consolidated Appropriations Act of 2018 (Pub. L. No. 115-141, approved March 23, 2018).

Collectively, the program authorization and its amendments are known as the RAD Statute.

To implement the RAD program, HUD has issued a series of Notices and Revised Notices. On March 8, 2012, HUD issued PIH Notice 2012-18, "Rental Assistance Demonstration – Partial Implementation and Request for Comments," which included Rent Supp and Rental Assistance Payment (RAP) conversion criteria and instructions that were effective on publication. PIH Notice 2012-32 (July 26, 2012) is referred to as the original RAD Notice, and it has been revised three times (on July 2, 2013; June 15, 2015; and January 12, 2017) to reflect changes in eligibility and selection criteria and clarifications of existing instructions. On November 10, 2016, HUD issued Notice H 2016-17 PIH 2016-17 (HA), "Rental Assistance Demonstration (RAD) Notice Regarding Fair Housing and Civil Rights Requirements and Relocation Requirements Applicable to RAD First Component – Public Housing Conversions." Supplemental guidance was issued on July 2, 2018 (HUD Notice PIH-2018-11, H-2018-05), and published in the Federal Register on July 3, 2018 (Federal Register Notice FR–6105–N–01).

Generally, public housing projects that convert assistance under RAD will be bound by the terms of the RAD Notice in effect at the time of closing; Mod Rehab projects that initiated processing under the first component have the option to be grandfathered under provisions of Revision 1 of the RAD Notice. For all conversion types, HUD reserves the right, in its sole discretion, to apply provisions from previous versions of this notice to program participants that are near conversion.

Significant Changes in the RAD Statute and RAD Notice

HUD has changed the RAD program in response to legislation to streamline the conversion process based on the experiences of early projects as well as to address issues identified as RAD encompassed more and more-varied projects.

The most prominent change has been the steady increase in the statutory cap on the number of units that can be converted. As a demonstration, RAD was initially limited to 60,000 units. Based on the apparent success of early conversions and growing demand by PHAs, Congress raised the cap to 185,000 units in December 2014 and again to 225,000 units in May 2017. The 2017 cap increase allowed all eligible projects on the RAD waitlist to move forward and extended the program authorization for public housing conversions to 2020. The Consolidated Appropriations Act of 2018 further increased the statutory cap to 455,000 units (almost one-half of HUD's public housing inventory) and extended program authorization to 2024.

Alongside the increases in the statutory cap, HUD has updated the initial base-year contract rents for RAD projects based on the award date relative to the unit cap. Specifically, all awards made under the original 60,000-unit cap use FY 2012 funding levels to calculate initial contract rents. In the second revision to the RAD Notice (after the unit cap was raised to 185,000), HUD set base-year contract rents to be based on FY 2014 funding levels. The RAD Notice, second revision, also allowed an OCAF to be applied to the initial contract rents based on the year that an award is made. In the third revision to the RAD Notice, HUD reserved the authority to determine which year's funding levels will be used to calculate initial contract rents for units awarded beyond the 185,000 cap. When the cap was raised to 225,000 in May 2017, HUD determined that initial contract rents for awards made covering the 185,001 to 225,000 RAD units would be based on FY 2016 funding levels. The same day that the revised RAD Notice was issued, HUD published the list of Modified 2016 Contract Rents, which applies to this group of CHAPs. That Notice also allows PHAs with preexisting active CHAPs to request CHAP amendments to use the new Modified 2016 Contract Rents. At the start of 2019, HUD will issue the 2018 Contract Rents, which will be the base year for all CHAPs after that. PHAs with existing CHAPs based on the Modified 2016 level will then be able to request another CHAP revision to adopt the 2018 Contract Rents. The PHAs will have to take the initiative to request the final 2018 RAD Contract Rents.

The following are notable changes to the RAD first component (covering public housing and the subject of this evaluation) made by revisions to the RAD Notice. These revisions also included changes to eligibility and clarification of instructions for the RAD second component, which are not discussed here.[179]

- RAD Notice, First Revision (Notice PIH-2012-32 (HA), REV-1, issued July 2, 2013; Technical Correction issued February 6, 2014)—
    - Provided for multiphase and portfolio RAD awards to allow PHAs to reserve RAD conversion authority while assembling financing or converting the PHA's entire public housing portfolio.
    - Modified contract rent levels for applicants and allowed PHAs to adjust subsidy and contract rents across multiple projects in a budget-neutral manner (also known as "bundling").
    - Exempted awarded RAD projects from scoring under the Public Housing Assessment System (PHAS).
    - Integrated RAD with Moving to Work by allowing PHAs to use their MTW block grant to set initial RAD rents; with HOPE VI by expanding the eligibility of these projects for RAD; and with Choice Neighborhoods by allowing for joint Choice Neighborhoods/RAD awards.
- RAD Notice, Second Revision (Notice PIH-2012-32 (HA), REV-2, issued June 15, 2015)—

[179] Many of these changes either mirror the changes in the first component, such as allowing for phased and portfolio conversions, or bring the second component more in line with the first component, such as allowing for both PBV and PBRA conversions. There are also technical corrections based on the structure of the Mod Rehab, Rent Supp, and RAP programs.

  - Introduced Priority Categories for RAD applications beginning with the Third Application Period, which opened on July 28, 2015.
  - Modified contract rent levels for projects closing after issuance of the revised Notice.
  - Streamlined the RAD conversion process by eliminating some interim program milestones and allowing more time for multiphase and tax credit transactions to facilitate securing funding and synchronizing with other funding source cycles.
  - Adjusted tenant protection, choice mobility, nondiscrimination, and equal opportunity requirements to ensure that residents retain their rights under RAD and HUD regulations.
  - Transitioned from the physical condition assessment to the capital needs assessment for determining critical repair needs, short- and long-term rehabilitation needs, market comparable improvements, energy efficiency, unmet physical accessibility requirements, and environmental concerns.
  - Revised eligibility requirements and site selection guidance to address non-dwelling units, transferring assistance to new sites, and site/neighborhood standards for new construction.
  - Encouraged energy conservation measures by allowing contract rents to increase by a percentage of estimated savings in tenant utility allowance.
  - Allowed Section 8 assistance to "float" within certain mixed-income properties, so the subsidy is tied to a specific type of unit within the property but not to a specific unit (for example, units 12A and 12D are identical so the Section 8 assistance can be transferred from 12A to 12D, rather than be permanently tied to unit 12A).
  - Clarified that the project owner can operate a PBRA waitlist separate from the PHA's PBV or HCV waitlist.

- RAD Fair Housing, Civil Rights, and Relocation Notice (Notice H 2016-17 PIH 2016-17 (HA), issued November 10, 2016)—
  - Provided guidance for RAD public housing conversions to conform to existing fair housing and civil rights requirements and regulations. This Notice summarized key provisions of existing law applicable to RAD conversions.
  - Described relocation requirements under RAD and provided guidance regarding key relocation statutory and regulatory requirements.
  - Described when HUD requires front-end fair housing, other civil rights, and relocation reviews; detailed the procedures for HUD's front-end review and the type of information that must be submitted for these reviews; and listed the timeframes for these reviews.
  - Prohibited the marketing or leasing of PBRA units (except to households with a right to return) until HUD has approved the Affirmative Fair Housing Marketing Plan (AFHMP).

  - Required all conversions with permanent relocation or temporary relocation lasting more than 12 months to prepare a written relocation plan.
  - Moved the date before which PHAs are prohibited from beginning any physical relocation earlier in the conversion process (specifically, from the date of Closing to the later of the effective date of the RCC and the expiration of the 30- or 90-day RAD Notice of Relocation period, as applicable).
  - Provided enhanced guidance on the right to return requirements, any offers of alternative housing options, and the documentation that must be retained when tenants choose an alternative housing option and decline their right to return.
  - Required PHAs to maintain detailed data regarding each household that will be relocated, with key dates of notices and moves.

- RAD Notice, Third Revision (Notice PIH-2012-32 (HA) H-2017-03, REV-3, issued January 12, 2017)—
  - Consolidated Priority Categories into "High Investment Applications and Multi-Phase Applications" and "All Other Applications, Portfolio Awards, and Multi-Phase Awards."
  - Allowed PHAs to submit a Letter of Intent rather than a complete RAD application once a waitlist has formed. When a Letter of Intent moves off the waitlist, the PHA will have 60 days to complete the RAD application.
  - Eliminated the cap on the number of PBV units in each project.
  - Expanded resident notification requirements, including the issuance of a RIN before the first of the two required resident meetings.
  - Expanded tenant protections, including no rescreening of tenants upon conversion and expansion of the right to return to cover non-RAD PBV or PBRA units.
  - Provided guidance on detecting and mitigating lead-based paint hazards in RAD projects.
  - Allowed PHAs to receive cash acquisition proceeds (that must be used for affordable housing activities) and added limits on nondeferred developer fees under certain circumstances.
  - Described how PHAs converting all ACC units can fund public housing closeout costs.
  - Described how HOME funds can be used on a RAD project, provided that all public housing restrictions have been removed from the property.
  - Clarified HOPE VI and RAD, the CNA, utility baseline exceptions, de minimis units, assistance transfer at and after conversion, demolition/Section 18 and RAD, and options for creating and managing a waitlist after conversion.

- Supplemental Guidance (Notice PIH-2018-11, H-2018-05, issued July 2, 2018; and Federal Register Notice FR–6105–N–01, published July 3, 2018)—

- Established new RAD rent base years for CHAPs issued under the 455,000-unit cap and created a mechanism for PHAs to voluntarily withdraw a CHAP and request a new one that will have a RAD rent base year corresponding to the issue date of the new CHAP. This could lead to an increase in RAD rents, depending on the subsidy for the RAD rent base year and the OCAF applied under the original CHAP.
- Streamlined the application and conversion process for qualified small PHAs.

HUD also published a second version of the RAD Notice, Third Revision, that incorporates the supplemental guidance issued in July 2018 into the RAD Notice text. This second version has an identical header to the first version (with the same Notice Number and publication date); the second version has the footer "PIH-2012-32 (HA)/H-2017-03, REV-3 Rental Assistance Demonstration – Final Implementation, As amended by PIH-2018-11/H-2018-05 Rental Assistance Demonstration (RAD) – Supplemental Guidance" on each page. HUD made at least one additional change to the RAD Notice in this second version that was not included in the supplemental guidance: HUD further clarified the two priority categories for RAD applications.

As of October 31, 2018, HUD has not yet issued guidance that addresses how RAD will work for the approximately 120,000 units in Section 202 properties with Project Rental Assistance Contracts (PRACs). RAD conversions for Section 202 PRAC units were authorized in the Consolidated Appropriations Act of 2018, which did not provide any incremental funding for such conversions. HUD will either issue a fourth revision of the RAD Notice or publish separate guidance for PRACs.

RAD Resources

To supplement the RAD Statute and RAD Notice, HUD has produced a variety of resources for RAD applicants, public housing residents, the public, and elected officials. Many of these resources are consolidated on the RAD Resource Desk (http://radresource.net/index.cfm), which is also the portal for PHAs to submit and track RAD conversion documents. Access for PHAs to submit and track their documents is password protected, whereas the resources section is open to public access.

In addition to the RAD Statute, copies of the relevant sections of Public Laws, and the RAD Notice (and all revisions), the RAD Resource Desk includes the following—

- Webinars.
- RAD documents and templates.
- The CNA e-Tool.
- Quick reference guides for both PBV and PBRA conversions.
- Tax credit fast-track materials and guidance.
- The RAD Capital Marketplace, which facilitates contact and information sharing between PHAs and lenders, developers, consultants, and other service providers.
- FAQs and an online "ask a question" interface.

The RAD Resource Desk also has publicly accessible downloadable data for RAD projects nationally, by state, and by PHA.

HUD's RAD website (https://www.hud.gov/RAD) includes additional resources and application instructions and materials and templates for RAD documents, such as the HAP and RIN. Case studies and email newsletters can also be found in the RAD Press Room on HUD's RAD website.

HUD sends regular email newsletters, called "RADTalk," to interested parties. The newsletters are targeted to PHAs, multifamily owners, lenders, and development partners. They generally include sections on program news, statistics, new resources, and spotlights on successful conversions and the positive effects that RAD has had on communities. As the program has matured, the frequency of newsletters has decreased, with the most recent newsletter dated January 2018.

HUD also sends "RADBlasts" via e-mail to a listserv. As of October 31, 2018, interested parties, including members of the public, can sign up for RADBlasts at https://www.hud.gov/subscribe/signup?listname=Rental%20Assistance%20Demonstration&list=RAD-L. Past RADBlasts are not published on any of HUD's RAD websites, but they are available by request from RAD@hud.gov.

HUD conducted and published 18 short case studies covering a wide range of RAD conversions. The case studies describe the PHA, give insight into why the PHA chose to pursue RAD, and focus on one or two aspects of the RAD conversion. Topics covered include combining RAD with other programs and funding sources, smaller PHAs handling complex RAD transactions, resident outreach, and relocation planning. Sixteen of the case studies cover first component conversions, while only two are for second component Rent Supp conversions. Only four case studies include financing information (sources and uses tables or pro formas), although some RAD newsletters also include this information for highlighted projects. The case studies lean toward covering small- or low-medium-sized PHAs, typically with full portfolio conversions. Some larger PHAs and single-project case studies are also included. HUD compiled the case studies in 2016 with a smaller pool of completed conversions, so although there is diversity in the projects covered, they are not necessarily representative of all RAD projects. In addition, HUD has added a new "Curb Appeal" page to the RAD website (https://www.hud.gov/rad/pha-curbappeal) that provides examples of PHAs that have been able to demonstrate good practices of using RAD to improve the visual attractiveness, or "curb appeal," of their projects.

In 2017 and 2018, HUD published six RAD photo essays that document resident experience for properties that go through a RAD conversion.

Appendix E: Glossary of Terms and Acronyms

Term	Definition
ACC	**Annual Contributions Contract**, a contract between HUD and a public housing authority under which HUD agrees to provide funding for a program (for example, public housing or Housing Choice Voucher) under the Act, and the public housing authority agrees to comply with HUD requirements for the programs.
ACOP	**Admissions and Continued Occupancy Policy** is a policy required by HUD and adopted by PHAs to govern how tenants are managed.
ADA	**Americans With Disabilities Act of 1990** is a civil rights law that prohibits discrimination against individuals with disabilities in all areas of public life, including jobs, schools, transportation, and all public and private places that are open to the general public.
AHP	**Affordable Housing Program** grants are awarded by Federal Home Loan Banks through a competitive application process to bank members working with housing developers or community organizations to create rental or homeownership opportunities for lower-income households.
AMP	**Asset Management Project**, a group of public housing developments designated by a public housing authority as an operating affinity group.
ASTM	**American Section of the International Association for Testing Materials** is a nonprofit organization devoted to the development of international standards.
Cashflow	Cash that property investors or owners receive after deducting operating expenses, replacement reserve deposits, and debt service payments from the Effective Gross Income for a rental property.
Capital Fund	Program administered by HUD's Office of Public and Indian Housing that provides annual grants via formula to all public housing authorities for public housing development, financing, modernization, and management improvements. High-performing public housing authorities receive a bonus under the formula.
Capital Improvements	Refer to an outlay of funds for the improvement of a fixed asset that extends the life or increases the productivity of the asset. In the context of a building, capital improvements typically refer to the replacement of major structural elements and mechanical equipment.
Capital Repairs	Repairs made to a building system during its useful life to extend its useful life, improve its efficiency, or cure a maintenance issue.
CDBG	**Community Development Block Grant** program, a flexible program administered by HUD that provides communities with resources to address a wide range of unique community development needs.
CFFP	**Capital Fund Financing Program**, an initiative of HUD's Office of Public and Indian Housing that allows a public housing authority to borrow private capital (through a bond or conventional bank loan) to make improvements to its public housing in return for pledging, subject to appropriations, a portion of its future-year annual Capital Funds for debt-service payments.

Term	Definition
CHAP	**Commitment to Enter into a Housing Assistance Payment** contract, a document executed by HUD and the public housing authority or owner for projects that have been selected during the Rental Assistance Demonstration competition under the first component of the Demonstration. The CHAP describes the terms under which HUD will enter into a housing assistance payment (contract). This could also be understood as HUD's authorization to the public housing authority to continue with their plan to convert one or more projects or asset management projects from public housing to project-based Section 8 assisted housing.
Closing	The step in the transaction during which any converting units are released from legacy contracts (for example, the public housing Annual Contributions Contract), the new project-based rental assistance (PBRA) or project-based voucher (PBV) contract and RAD Use Agreement are executed, any debt and/or equity financing agreement is entered into, and the terms and conditions of the RAD Conversion Commitment are recorded. The closing is the event at which conversion of subsidy takes place; "conversion" has not occurred until the completion of closing.
CNA	**Capital Needs Assessment**, the name given to physical needs assessments as used by HUD's Rental Assistance Demonstration program.
CNI	**Choice Neighborhood Implementation**, a program administered by HUD to fund local collaborative initiatives to transform high-poverty areas into mixed-income neighborhoods.
Contract Rent	The total amount of rent specified in the Housing Assistance Payment contract as payable to the owner for a unit occupied by an eligible family.
DSCR	**Debt Service Coverage Ratio**, the ratio of net operating income (NOI) to the payment of interest and principal on a debt (such as a mortgage), typically made on a monthly basis.
Declaration of Trust	The restrictive covenant on projects assisted through a public housing Annual Contributions Contract (ACC) that obligates public housing authorities to operate developments in accordance with the ACC, the National Housing Act, and HUD regulations and requirements.
DDTF	**Demolition and Disposition Transitional Funding**, a program administered by HUD to replace the Replacement Housing Factor (RHF) program that provides 5 years of funding for units removed from a public housing authority's inventory due to demolition or disposition on or after October 1, 2013. This funding is included in the public housing authority's annual Capital Fund grant and follows the same obligation and expenditure requirements as that program. See RHF.
DSCR	**Debt Service Coverage Ratio**, a measure of the cashflow available to pay current debt obligations, measured as the ratio of net operating income to total debt service.
EUL	**Expected Useful Life** is the estimated lifespan of a depreciable fixed asset, during which it can be expected to contribute to operations.
FASS	**Financial Assessment Subsystem**, the information management system used by HUD to collect and report data from public housing authorities on their performance, including the physical and financing performance of public housing projects collected by the Real Estate Assessment Center.
FDS	**Financial Data Schedule** was created to standardize the financial information reported by Public Housing Authorities to HUD's Real Estate Assessment Center (REAC). REAC uses the FDS to analyze PHA financial data in conjunction with other performance measurements to help ensure the success of PHA programs.

Term	Definition
FHA	**Federal Housing Administration**, a HUD agency that insures single-family, healthcare, and multifamily mortgage loans originated by FHA-approved lenders. Multifamily loans can be used for construction, rehabilitation, acquisition, and refinancing of non-luxury apartments.
FHEO	**Office of Fair Housing and Equal Opportunity**, the HUD office responsible for investigating housing discrimination complaints filed under the Fair Housing Act and overseeing compliance of HUD recipients with various nondiscrimination and equal opportunity authorities, including, but not limited to, Title VI of the Civil Rights Act, Section 504 of the Rehabilitation Act, Section 109 of the Housing and Community Development Act, the Age Discrimination Act, and Title II of the Americans with Disabilities Act (ADA).
FHLB	**Federal Home Loan Bank**; the FHLB system consists of 11 FHLBs, which are Government-sponsored enterprises involved in housing and community economic development.
FHLMC	**Federal Home Loan Mortgage Corporation**, also known as Freddie Mac, is a Government-Sponsored Enterprise that issues mortgage-backed securities and related financial products.
FO	**Field Office** is the lowest administrative level in HUD and other agencies and is typically the locus of direct contact for the agency's program participants.
FMR	**Fair Market Rent**, the rent in a particular housing market area needed to obtain privately owned, decent, safe, and sanitary housing. HUD establishes and publishes in the Federal Register separate FMRs for dwelling units of varying sizes for each metropolitan area. FMRs are gross rent estimates; that is, they include the cost of tenant-paid utilities.
FNMA	**Federal National Mortgage Association**, also known as Fannie Mae, is a Government-Sponsored Enterprise that issues mortgage-backed securities and related financial products.
FY	**Fiscal Year** for the federal government runs from October 1 of 1 year to September 30 of the following year.
Gap Financing	Also known as soft funding; refers to funding in the form of subsidies from federal, state, and local governments. Affordable housing providers often rely on these subsidies to fill in the funding gaps that appear for the majority of transactions.
GNMA	**Government National Mortgage Association**, also known as Ginnie Mae, is a wholly owned Government corporation and part of HUD. Created by Congress in 1968, Ginnie Mae's mission is to support expanded affordable housing in America by providing an efficient Government-guaranteed secondary market vehicle linking the global capital markets with the domestic housing market. It does this by facilitating secondary market activities for packaged residential mortgages, principally those that are insured or guaranteed by a federal government agency such as the Federal Housing Administration, the U.S. Department of Veterans Affairs, or the U.S. Department of Agriculture.
Green Building	An approach to building, rehabilitation, repairs, maintenance, and property operations that is more sustainable than traditional approaches to such activities and results in a project that is more energy efficient, costs less to operate, has better indoor air quality, and reduces its overall effect on the environment.
Gross Income	The total income derived from the operation of a property, calculated before deducting costs such as routine maintenance and debt service.
Gross Potential Income	The total rental income that a property would generate if all units were occupied, all residents were charged the maximum scheduled rent, and all rent was collected.

Term	Definition
Gross Rent	The Contract Rent plus any tenant-paid utility allowance.
HAP	**Housing Assistance Payment** contract, which is used in the Section 8 voucher program and constitutes the legal agreement between a Section 8 project's ownership entity and either HUD or the public housing authority that manages the Section 8 vouchers to provide housing assistance payments on behalf of eligible tenant households. The HAP contract specifies the number and bedroom count of covered units as well as the terms and procedures by which HUD subsidy payments are made to the property.
HCV	**Housing Choice Voucher**, a program of the Office of Public and Indian Housing through which public housing authorities receive federal funds from HUD to administer HCVs locally. A family that is issued a housing voucher is responsible for finding a suitable housing unit of the family's choice where the owner agrees to rent under the program. This unit may include the family's present residence. Rental units must meet minimum standards of health and safety, as determined by the public housing authority. Maximum rents are set by HUD and the public housing authorities, and tenants pay 30 percent of the adjusted income.
HOME	Home Investment Partnership Program, administered by HUD's Office of Community Planning and Development to provide housing funds to units of general local governments and states for new construction, rehabilitation, acquisition of standard housing, assistance to homebuyers, and tenant-based rental assistance.
Housing Finance Agency	A state or local organization that provides housing assistance through low-interest mortgage loans, financed by the issuance of tax-exempt agency bonds, or low-income housing tax credits, based on their allocation by the U.S. Department of the Treasury.
HOPE VI	HUD program administered by the Office of Public and Indian Housing to provide HOPE VI Revitalization grants to public housing authorities to fund capital costs of major rehabilitation, new construction, and other physical improvements; demolition of severely distressed public housing; acquisition of sites for offsite construction; and community and supportive-service programs for residents, including those relocated as a result of revitalization efforts. The Office of Public and Indian Housing is no longer providing new HOPE VI grants.
HQS	**Housing Quality Standards** as defined in the Housing Choice Voucher program regulations at 24 CFR Part 982 set forth basic housing quality standards that all units must meet before assistance can be paid on behalf of a family and at least annually throughout the term of the assisted tenancy. HQS define "standard housing" and establish the minimum criteria for the health and safety of program participants.
HU	**Housing Unit** is a residential unit.
HUD	**U.S. Department of Housing and Urban Development**, the primary federal agency responsible for administering programs to support affordable housing, fair housing, homeownership, and community development nationally and on Native American lands, as well as research on housing and development issues.
HVAC	**Heating, Ventilation, and Air Conditioning** is the technology of indoor and vehicular environmental comfort.

Term	Definition
LIHTC	**Low-Income Housing Tax Credit**, a program established in Section 42 of the Internal Revenue Service Code that allows projects to receive a credit against federal tax owed. Project owners bring in investors as limited partners in return for the investor(s) providing funds to the owners to help build or renovate housing that will be rented to lower income households for a minimum period of years. There are two types of credits, both of which are available over a 10-year period: a 9-percent credit on construction and rehabilitation costs, and a 4-percent credit on acquisition costs and all development costs partially using below-market financing.
LLC	**Limited Liability Company** is a private limited company formed as a business structure that can combine the pass-through taxation of a partnership or sole proprietorship with the limited liability of a corporation. An LLC is not a corporation but a legal form of a company that provides limited liability to its owners in many jurisdictions.
LP	**Limited Partnership** (also called a limited liability partnership) exists when two or more partners unite to conduct a business in which one or more of the partners is liable only to the extent of the amount of money that partner has invested. Limited partners do not receive dividends but enjoy direct access to the flow of income and expenses. The owners are typically not liable for the company's debts.
LTV	**Loan to Value**, calculated as the ratio of the balance of a loan divided by the value of the collateral, which is usually the appraised fair market value of the property for an acquisition loan, the improved value of the property for a rehabilitation loan, and the total cost of construction for a new construction loan.
MAP	**Multifamily Accelerated Processing** is a processing system introduced in 2000 to facilitate the accelerated processing of loan applications for FHA multifamily mortgage insurance, which generally involves the refinance, purchase, new construction, or rehabilitation of multifamily properties.
MENAR	**Months Expendable Net Assets Ratio** measures a project's ability to operate using its available, unrestricted net resources without relying on additional funding. It compares the net available unrestricted resources to the average monthly operating expenses and shows how many months of operating expenses can be covered with the currently available unrestricted resources.
Mixed-Finance Project	A public housing project that has been developed with a combination of private financing and public housing development funds in accordance with 24 CFR Part 941 (Subpart F).
Mod Rehab	Section 8 Moderate Rehabilitation program administered by public housing authorities to provide project-based rental assistance to low-income families living in privately owned rental properties previously rehabilitated pursuant to a Housing Assistance Payment contract between the owner and the public housing authority. The conversion of Mod Rehab projects to the Rental Assistance Demonstration is part of the second component of the program and is not part of this study.
MTW	**Moving to Work**, a demonstration program administered by the Office of Public and Indian Housing that provides public housing authorities with the opportunity to design and test innovative, locally designed strategies that use federal dollars more efficiently, help residents find employment and become self-sufficient, and increase housing choices for low-income families. MTW gives public housing authorities exemptions from many existing public housing and voucher rules and more flexibility with how they use their federal funds. MTW public housing authorities are expected to use the opportunities presented by MTW to inform HUD about ways to better address local community needs.

Term	Definition
NOI	**Net Operating Income**, which equals all revenue from the property minus all reasonably necessary operating expenses.
NSP	**Neighborhood Stabilization Program**, a grant program administered by HUD's Office of Community Planning and Development for the purpose of stabilizing communities that have suffered from housing foreclosures and residential property abandonment. The program works by purchasing and redeveloping foreclosed and abandoned homes and residential properties.
OCAF	**Operating Cost Adjustment Factor**, established by HUD and applied to the existing contract rent, less the portion of the rent paid for debt service. The OCAF may not be negative. This is also known as the annual rate of increase in Section 8 housing contract rents as determined and published by HUD.
Operating Expense	An expense incurred in carrying out a real estate project's day-to-day activities, including utilities, maintenance expenses, security, insurance, asset management, and other short-term costs.
OFFP	**Operating Fund Financing Program**, administered by the Office of Public and Indian Housing to allow public housing authorities to borrow private capital to finance development and modernization of public housing communities by using a portion of their Operating Fund reserve balances to collateralize financing and pay debt service and customary financing costs where the financing is used for public housing development or modernization (including public housing mixed-finance developments). Under certain circumstances, this program can help finance the development of administrative facilities for public housing authorities.
OMB	**U.S. Office of Management and Budget**, which oversees the management of the federal budget.
Operating Fund	Established for the purposes of the operation and management of public housing. Additionally, all maintenance activities specifically listed in Section 9(e) of the 1937 Act are eligible Operating Fund activities. Public housing authorities may also use operating funds for unforeseeable and unpreventable emergencies that include damage to the physical structure of the public housing authority's housing stock, such as damage as a result of a natural occurrence such as a windstorm or flood. Although damages caused by unforeseen emergencies may eventually be covered under a warranty, with insurance proceeds, or through disaster funds, public housing authorities may use operating funds to cover the expenses incurred prior to receipt of warranty, insurance, or disaster proceeds. After receipt of warranty, insurance, or disaster proceeds, the public housing authority must reimburse their operating account for any expenses that were initially covered with operating funds up to the amount received.
Operating Fund Reserves	Consist of the balance of surplus funds accumulated through the operation of public housing, assistance from the Operating Fund, and operating receipts as defined in the Annual Contributions Contract.

Term	Definition
PBRA	**Project-Based Rental Assistance**, a Section 8 program administered by HUD's Office of Multifamily Housing. Under the terms of a PBRA contract between HUD and a project owner, HUD provides a housing assistance subsidy that makes up the difference between what an eligible tenant household can afford, and the approved contract rent for an adequate housing unit in a multifamily project. Eligible tenants must pay the highest of 30 percent of adjusted income, 10 percent of gross income, the portion of welfare assistance designated for housing, or the minimum rent established by HUD. PBRA contracts are attached to specific housing units and are not portable for the tenant. Public housing authorities are not party to a PBRA contract unless the authority is a project owner.
PBV	**Project-Based Vouchers**, Section 8 vouchers that are attached to specific housing units and administered as part of a public housing authority's Housing Choice Voucher program. Under the PBV program, a public housing authority enters into an assistance contract with the project owner for a specified number of units and for a specified length of time. The public housing authority refers families to the project owner to fill project vacancies. Because PBV assistance is tied to the unit, when a family moves from the PBV unit, the assistance remains with the unit.
PCA	**Physical Condition Assessment**, an instrument that HUD uses to capture data on the physical condition of public housing properties in order to project a project's future capital investment needs in the short and long terms. Submitting a PCA is required for the Rental Assistance Demonstration, except where new construction is proposed. See PNA.
PD&R	**Office of Policy Development & Research** serves as a research, survey, study, and analysis support system for HUD.
PHA	**Public Housing Authority**, a public housing agency (which can be any state, county, municipality, or other governmental entity or public body) that administers programs under the Public Housing Act, which could include public housing and housing choice vouchers. It should be noted that many PHAs also act as local Redevelopment Authorities and are then referred to as Redevelopment and Housing Authorities.
PHAS	**Public Housing Assessment System**, the HUD system to measure the performance of all public housing authorities administering the public housing program, per 24 CFR Part 902. It includes components for assessing the physical, financial, and management performance of each public housing authority.
PIC	**PIH Information Center**, an online data-tracking system.
PIH	**Office of Public and Indian Housing**, a HUD office responsible for the development and maintenance of public housing and Native American housing programs.
PILOT	**Payment in Lieu of Taxes** are usually federal payments to local governments that help offset losses in property taxes due to non-taxable federal lands within their boundaries.
PNA	**Physical Needs Assessment**, an instrument that HUD uses to capture data on the physical condition of public housing properties in order to project a project's future capital investment needs in the short and long terms. See PCA and CNA.
PRAC	**Project Rental Assistance Contract** is a subsidy contract for properties developed using Section 202 or 811 capital advances that covers the difference between the HUD-approved operating cost of the project and the amount the residents pay (usually 30 percent of adjusted income).

Term	Definition
Public Housing	A type of housing assistance administered by the Office of Public and Indian Housing that was established to provide decent and safe rental housing for eligible low-income families, the elderly, and persons with disabilities. Public housing comes in all sizes and types, from scattered single-family houses to high-rise apartments for elderly families. Approximately 1.2 million households live in public housing units, managed by some 3,300 public housing authorities that manage the housing for low-income residents at rents they can afford. HUD furnishes technical and professional assistance in planning, developing, and managing these developments.
RAD	**Rental Assistance Demonstration**: established under the Consolidated and Further Continuing Appropriations Act of 2012 to stem the potential loss of public housing and other subsidized housing units due to the growing backlog of unfunded capital needs. The program has two components: the first component focuses on the conversion of existing public housing to project-based Section 8 assistance, and the second component focuses on existing Section 8 projects that are being phased out.
RAD Use Agreement	The document specifying the affordability and use restrictions on the covered project, which will be coterminous with the Housing Assistance Payment contract and will be recorded prior to the lien of the first mortgage and structured to survive foreclosure. The RAD Use Agreement is used only in connection with public housing conversions under RAD.
RAP	**Rental Assistance Payment**, a housing assistance program that preceded and is similar to the Section 8 housing assistance program and the Rent Supp program. The conversion of RAP projects to the Rental Assistance Demonstration is part of the second component of the program and is not part of this study.
RCC	**RAD Conversion Commitment**, a commitment provided by HUD to an active RAD project to officially convert the public housing to Section 8 under the RAD program. The RCC is provided when HUD completes its underwriting of the project and approves the conversion's financing plan.
REAC	**Real Estate Assessment Center**, a HUD office that conducts inspections of properties that are owned, insured, or subsidized by HUD, including public housing and multifamily assisted housing, to determine whether the affordable housing stock is meeting the standard of being decent, safe, sanitary, and in good repair. REAC Inspection Scores range from 0 to 100 points. REAC also reviews the financial performance of the projects and provides Financial Assessment Subsystem scores.
Census Region	The four statistical regions defined by the U.S. Census Bureau are: Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont); Midwest (Illinois, Iowa, Kansas, Indiana, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin); South (Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia); and West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). U.S. territories are not part of a census region and have been assigned as follows: the U.S. Virgin Islands and Puerto Rico to the South, and Guam to the West.

Term	Definition
Rent Supp	**Rent Supplement**, a program similar to Rental Assistance Payment and Section 8 in which HUD makes payments to owners of private housing on behalf of qualified low-income tenants. The conversion of Rent Supp projects to the Rental Assistance Demonstration is part of the second component of the program and is not part of this study.
RFP	**Request for Proposals,** sometimes called an RFQ ("request for quotation"), is a document issued to buy a product or service from the public.
RHF	**Replacement Housing Factor** funds are Capital Fund grants in two 5-year increments that are awarded by HUD to public housing authorities that have removed units from inventory for the sole purpose of developing new public housing units. RHF is being replaced by the Demolition and Disposition Transitional Funding (DDTF) program. See DDTF.
RIN	**RAD Information Notice** refers to technical notices issued by HUD to implement the Rental Assistance Demonstration.
RUL	**Remaining Useful Life** is a subjective estimate of the number of remaining years that an item, component, or system is estimated to be able to function in accordance with its intended purpose before warranting replacement. The remaining useful life is estimated based on observations; or average estimates of similar items, components, or systems; or a combination thereof.
Section 8 Housing Assistance	The "Section 8" Housing Choice Voucher and Project-Based Rental Assistance Program is the federal government's major program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. In both types of Section 8 programs, rental units must meet minimum standards of health and safety. A housing subsidy is paid directly to the landlord on behalf of the participating family. The family then pays the difference between the actual rent charged by the landlord and the amount subsidized by the program. See HCV and PBRA.
Section 18 Demolition/ Disposition	A management strategy option for public housing developments that have difficulties associated with physical deterioration or the overall deterioration of the surrounding community, or that were built to a standard that is no longer acceptable for the general public.
Section 221 (d)(4)	Section 221(d)(4) of the National Housing Act is a Federal Housing Administration program that insures lenders against loss on mortgage defaults. This program assists private industry in the construction or rehabilitation of rental and cooperative housing for moderate-income and displaced families by making capital more readily available. The program allows for long-term mortgages (up to 40 years) that can be financed with Government National Mortgage Association Mortgage-Backed Securities.
SEMAP	**Section Eight Management Assessment Program**, the system used to measure the performance of public housing authorities administering the Section 8 Housing Choice Voucher Program, per 24 CFR Part 985.
TA	Technical assistance.
Take-Back Financing	Also known as "seller take-back financing"; in Rental Assistance Demonstration and other public housing mixed-finance transactions, this is a cashflow loan used to generate additional tax credit equity in rehabilitation transactions by enabling the taxable entity that receives the property from the public housing authority to declare the as-is value of the public housing authority's contributed property for tax purposes.
TOA	**Transfer of Assistance** is an option under RAD through which a PHA can transfer the Section 8 contract to another project if HUD approves.

Term	Definition
Total Development Cost	Generally, the total development cost per a development project's sources and uses budget. In the case of HUD-funded development projects, HUD determines the total development cost for a public housing project based on unit construction costs (as listed in nationally recognized residential construction cost indices), bedroom size, and structure types for all of the public housing units in the project. HUD also sets a maximum total development cost that restricts the amount of HUD funding that can be contributed to a unit (but other funding can be added from private sources).
Total Tenant Payment	The minimum amount that a family must contribute toward rent and utilities.
UPCS	**Uniform Physical Condition Standards**, Public Housing Assessment System standards used to measure the physical condition of public and assisted housing.
URA	**Uniform Relocation Act** (full title: Uniform Relocation Assistance and Real Property Acquisition Policies Act) is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property or displace persons from their homes, businesses, or farms. Its protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects.
USDA	**U.S. Department of Agriculture** is the department responsible for developing and executing federal laws related to farming, forestry, and food. It aims to meet the needs of farmers and ranchers, promotes agricultural trade and production, works to assure food safety, protect natural resources, foster rural communities, and end hunger in the United States and globally.
Utility Allowance	Estimate of utility costs (except cable television and telephone) for an average family occupying a unit of a particular size in a specified geographic area. Utility allowances apply to HUD-assisted multifamily rental housing that receives rental subsidy assistance, where all or some of the utilities are paid directly by the resident. In HUD-assisted multifamily rentals with Section 8 contracts, the residents in units assisted with Section 8 may pay no more than 30 percent of their adjusted gross monthly income toward rent and utilities. The balance is covered by the Section 8 payment.

References

Abt Associates Inc. 2010. *Capital needs in the public housing program: Revised final report*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

Abt Associates Inc., Gregory Mills, Daniel Gubits, Larry Orr, David Long, Judie Feins, Bulbul Kaul, Michelle Wood, Amy Jones & Associates, Cloudburst Consulting, and The QED Group. 2006. *Effects of Housing Vouchers on Welfare Families.* Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

ASTM International. 2015. *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process,* E2018–15. West Conshohocken, PA: ASTM International.

Levy, Diane K., and Mark Woolley. 2007. *Relocation Is Not Enough: Employment Barriers Among HOPE VI Families* (Issue Brief No. 6). Washington, DC: The Urban Institute.

Mazzara, Alicia, and Barbara Sard. 2018. *Chart Book: Employment and Earnings for Households Receiving Federal Rental Assistance.* Washington, DC: Center on Budget and Policy Priorities.

U.S. Office of Management and Budget. 2018. *Federal Credit Supplement. Budget of the United States. FY 2018*. Washington, DC: Government Printing Office.

Popkin, Susan. 2018. "The limits of housing revitalization as a platform for improving residents' economic well-being: Lessons from the U.S.," *International Journal of Urban Sciences* 22 (4): 461–472.

Popkin, Susan, and Elizabeth Davies. 2013. *Improving the Lives of Public Housing's Most Vulnerable Families* (Issue Brief No. 4). Washington, DC: The Urban Institute.

Sanbonmatsu, Lisa, Jordan Marvakov, Nicholas A. Potter, Fanghua Yang, Emma Adam, William J. Congdon, Greg J. Duncan, Lisa A. Gennetian, Lawrence F. Katz, Jeffrey R. Kling, Ronald C. Kessler, Stacy Tessler Lindau, Jens Ludwig, and Thomas W. McDade. 2012. "The long-term effects of Moving to Opportunity on adult health and economic self-sufficiency," *Cityscape* 14 (2): 109–136.

Pendall, Rolf, Leah Hendey, David Greenberg, Kathryn L.S. Pettit, Diane K. Levy, Amy Khare, Megan Gallagher, Mark Joseph, Alex Curley, Aesha Rasheed, Nancy Latham, Audra Brecher, and Chantal Hailey. 2015. *Choice Neighborhoods: Baseline Conditions and Early Progress*. Washington, DC: U.S. Department of Housing and Urban Development.

Scott, Molly M., Susan Popkin, Marla McDaniel, Priya Saxena, and Reed Jordan. 2013. *Serving HOST Families: The Challenges to Overcome* (Issue Brief No. 3). Washington, DC: The Urban Institute.

Stout, Dennis, David Ruiz, and Christine Herlihy. 2017. "Use of genetic matching in program evaluation: The case of RAD," *Cityscape* 19 (2): 337–349.

The Urban Institute. 2013. *Developing Choice Neighborhoods: An Early Look at Implementation in Five Sites.* Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research.

U.S. Government Accountability Office (GAO). 2018. *Rental Assistance Demonstration: HUD Needs to Take Action to Improve Metrics and Ongoing Oversight.* GAO 18-123. Washington, DC: GAO.

U.S. Department of Housing and Urban Development (HUD). 2018. *CNA e-Tool Estimated Useful Life Table.* Washington, DC: U.S. Department of Housing and Urban Development, Office of Housing.

———. 2012. RAD Physical Condition Assessment (RPCA) Statement of Work and Contractor Qualifications, Version 1, October 2012. Washington, DC: U.S. Department of Housing and Urban Development, Office of Housing.

———. 2011. *Financial Indicator Methodology and Analysis Guide*. Washington, DC: U.S. Department of Housing and Urban Development, Office of Public and Indian Housing, Real Estate Assessment Center.

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