

## 1.1 Appendix. Market Characterization

### 1.1.1 Introduction

Within this section of the report, we characterize the multifamily housing market within AIC's service territory. Consistent with AIC's Multifamily Program, whenever possible we define multifamily as buildings containing three or more housing units. While the program targets "market rate" multifamily housing (i.e., not low-income), nearly all of the Census information provided applies to all multifamily housing units. In other words, the available Census data does not, in most cases, allow for the isolation of "market rate" multifamily units or occupants.

Following a description of the study methodology and an outline of key findings, the report presents detailed information about the number of multifamily buildings within AIC's service territory as well as their location. We also characterize the units within multifamily buildings, their occupants, and the property management firms that play a central role in energy-related decision making.

### 1.1.2 Methodology

In order to complete the characterization, we draw on multiple primary and secondary data sources. The principal source of secondary information is the 2009-2013 American Community Survey (Census data), though we also draw on AIC customer data. The Census data provides information on the number of units in multifamily structures, the year those units were built, as well as important socio-demographic data on unit occupants. Since Census data is collected at the individual unit (household) level, it provides a very limited amount of information about the associated building. In order to estimate the number of buildings within AIC's service territory, as well as their size (number of units) and location, the evaluation team applied a series of analysis steps to AIC customer data. This involved aggregating and compiling counts of AIC customer accounts that have the same street address (many of which also have apartment number designations) and then mapping that information through GIS.

This characterization also draws upon both participating and non-participating property manager surveys for information related to building ownership structure, how buildings are managed, and how key building upgrade decisions are made. We also use this survey information, in a limited number of situations, to supplement the characterization of buildings and their occupants that primarily draws upon Census data. While a full description of the methodology underlying the property manager surveys can be found in the full report, it is noteworthy that identifying the population of multifamily buildings and their associated property management firms is a very difficult task. And, therefore, it is difficult to know whether or not the information provided by these property managers is representative of the population of all property managers in AIC's service territory. Nevertheless, we believe these property managers, and the firms they represent, are indicative of the type of decision making processes that program staff will encounter during the process of implementing the program. There are a variety of multifamily building types and a variety of ways multifamily properties are managed and we are confident that the survey results cover the gamut/range of what program implementation staff will encounter in their daily activities.

Throughout this characterization we present, whenever possible, information specific to the multifamily sector. However, there are a number of situations where we do not have information that isolates multifamily and it is in these situation that we revert to "renters" as a proxy (all tables, figures, and written descriptions carefully denote this). The one caveat to this analysis path is that while it is true that nearly all multifamily units are occupied by renters (96.1%), there are still a significant number of single or two unit rental properties. In fact, over one-half of renters live in single or two unit

rental properties (including mobile homes). As a consequence, the “renter” information presented in this market characterization study should be viewed as “indicative” or “directional” in nature—meaning that when percentages pertaining to renters are given for various Census categories they should not be viewed as an absolute measure of the multifamily population. Rather, they should be viewed as suggestive of what we would expect to see if we could perfectly isolate multifamily units or occupants.

### **1.1.3 Key Findings**

#### **Number and Location of Multifamily Buildings**

- There are approximately 156,103 multifamily housing units in AIC’s service area. These units are located in approximately 15,167 buildings, almost 80% of which contain nine (9) or fewer units.
- Renters occupy 150,001 (96.1%) of the 156,103 units in 3+ unit buildings, meaning that very few units within multifamily buildings in AIC’s service area are owner occupied.
- The majority of multifamily buildings are located in the very largest urban areas, including: Peoria, Bloomington/Normal, Champaign, Springfield, and St. Louis. And, not surprisingly, nearly all of the very largest buildings (i.e., those with 20+ units) are located in these same metropolitan areas.
- Buildings targeted by the program (3+ units and market rate) tend to be both located on the outskirts of major metropolitan areas (i.e., the suburbs) or in more rural communities. They also tend to be smaller (i.e., contain 9 or fewer units).

#### **Characteristics of Units within Multifamily Buildings**

- Roughly 75 percent of multifamily housing units in AIC’s service area (here defined as 2+ units) were built after 1959.
- The average rental unit is about 4 rooms.
- According to participating property managers, electricity is the most common space heating (74%) and water heating (67%) fuel type in multifamily buildings within AIC’s service area.
- Participating property managers also report that the vast majority of multifamily units within AIC’s service area have either room or central air conditioning (85%) and nearly all tenants pay their own electricity (93%) and gas (89%) bills.

#### **Characteristics of Building Occupants**

- Minorities are significantly more likely than whites to be renters (63% of African Americans, for example, are renters compared to just 25% of whites).
- Occupants of multifamily dwellings are significantly younger than occupants of single family homes. Compared to single family dwellers, they are also more transient, more likely to be single or two-person households, and more likely to have incomes below \$50,000 annually.

#### **Characteristics of Multifamily Property Management Firms**

- Two-thirds (67%) of all multifamily units are managed by a small group of companies (12%)—suggesting a high concentration of the market.

- Property managers are most likely to consult with contractors and internal staff when making building improvement decisions. The property owner, however, is the ultimate decision maker in the vast majority of situations, with upfront costs and budget considerations as key inputs.
- Energy efficiency is a strong consideration in the decision-making process most of the time. However, relatively few firms have an energy policy or a staff member responsible for managing energy use.

## 1.1.4 Detailed Findings

### Number of Multifamily Buildings & Units

The combination of Census and AIC customer data provides a fairly comprehensive picture of the number of multifamily housing units (and buildings) located in AIC’s service territory. As illustrated in Table 1, there are approximately 156,103 multifamily housing units in AIC’s service territory, representing about 13% of all housing units.<sup>1</sup> These 156,103 units are located within approximately 15,167 buildings<sup>2</sup>, almost 80 percent of which contain 9 or fewer units.

**Table 1. Number of Housing Units and Buildings in AIC Service Territory**

Building Size	Number of Units			Number of Buildings	% of All Owned Units (N=6,102)	% of All Rented Units (N=150,001)
	Total	Owner	Renter			
1 & 2 Units, Mobile Homes	1,042,681	848,232	194,449	885,265	99%	56%
3 or 4 Units	40,229	1,877	38,352	7,104	0.2%	11%
5 to 9 Units	39,752	1,802	37,950	4,699	0.2%	11%
10 to 19 Units	33,545	997	32,548	2,378	0.1%	9%
20 to 49 Units	18,688	814	17,874	723	0.1%	5%
50 or More Units	23,889	612	23,277	263	0.1%	7%
<b>Total Multifamily (3+ Units)</b>	<b>156,103</b>	<b>6,102</b>	<b>150,001</b>	<b>15,167</b>	<b>100%</b>	<b>100%</b>

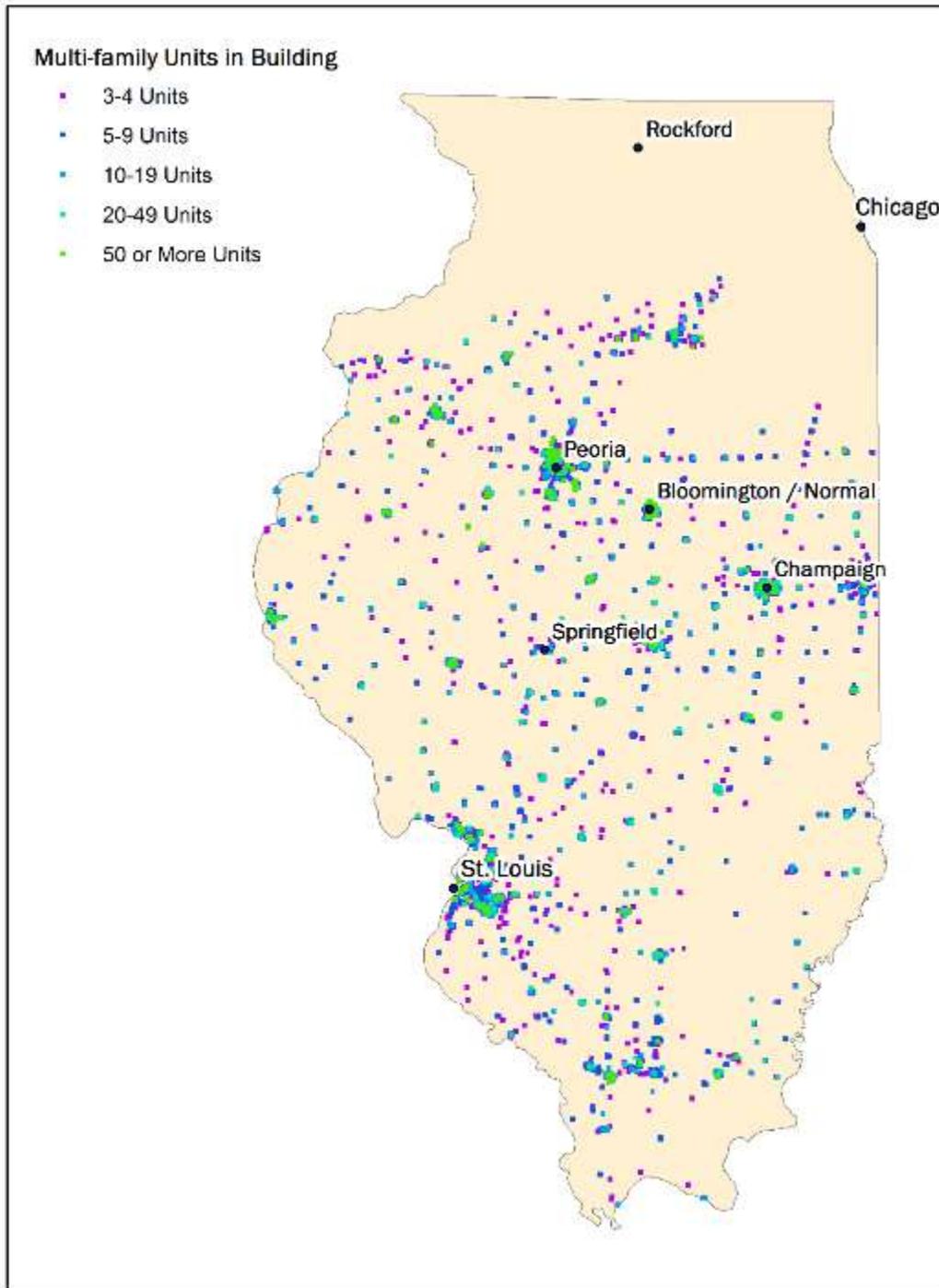
### Location of Multifamily Buildings

AIC’s customer data was used to estimate the number of multifamily buildings within the service territory and their location because Census data does not provide information at the building level. Figure 1 provides a graphical display of where these buildings (N=15,167) are located, as well as their size in terms of the number of units. Not surprisingly, the majority of these buildings are located in the very largest urban areas, including Peoria, Bloomington/Normal, Champaign, Springfield, and St. Louis. As also indicated in the Figure, the majority of the very largest of these multifamily buildings (i.e., those with 20+ units as designated in green) are located in these same major metropolitan territories.

<sup>1</sup> 156,103 multifamily housing units/1,198,784 total units (Source: Census data)

<sup>2</sup> The estimated number of buildings is derived from a series of analysis steps applied to AIC customer account data. Generally, this involves aggregating and compiling counts of AIC accounts that have the same street address (most of which also have apartment number designations).

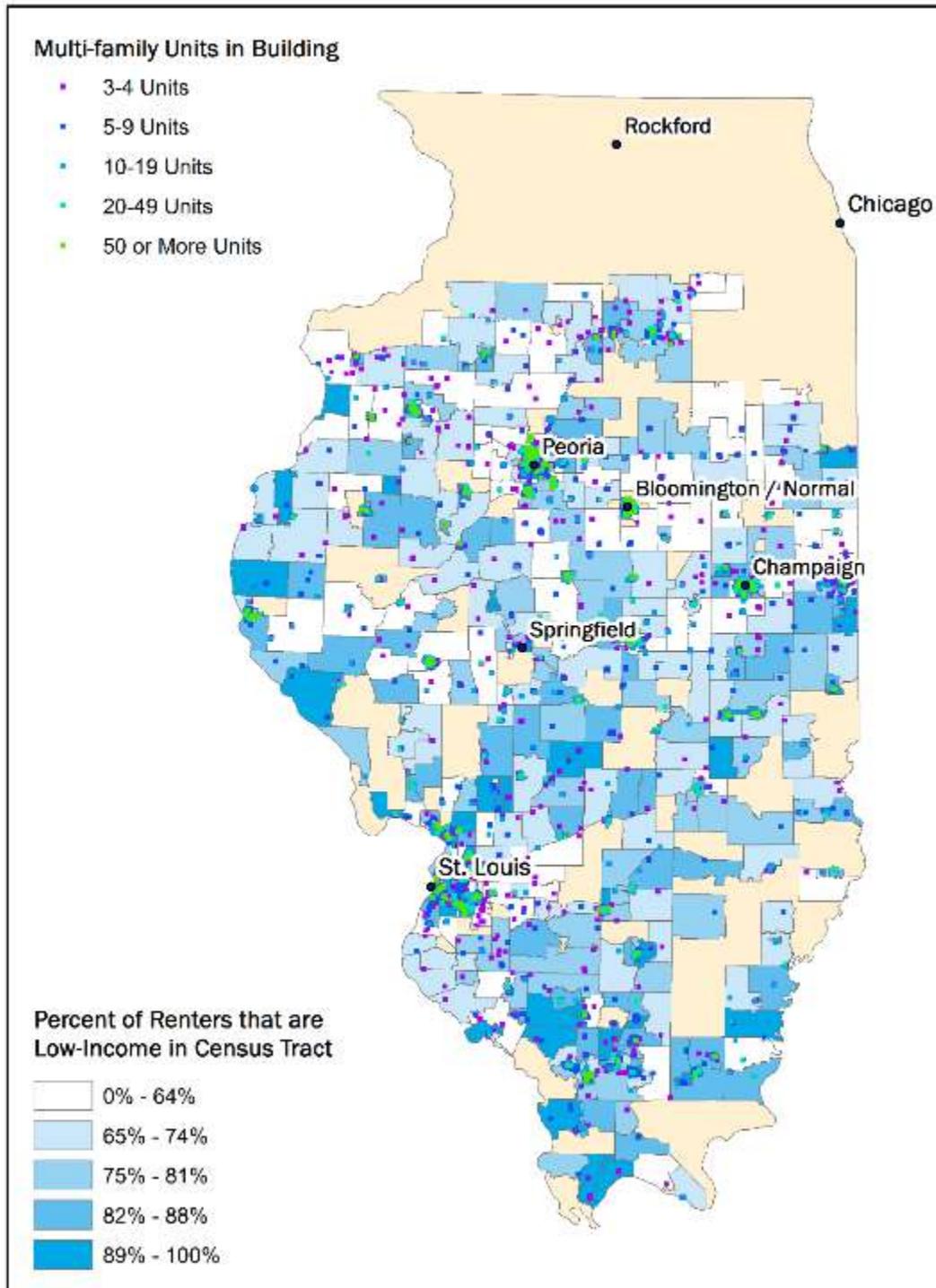
Figure 1. Multifamily Building Locations and Size



Since AIC's multifamily program targets "market rate" housing, we attempted to identify program eligible buildings as part of the analysis. Within Figure 2, we have added Census tracts with shading to represent the percentage of renters in the tract that are low-income. The darker the shading, the higher the percentage of renters within the given tract that are low-income. Overall, the graphic shows

that there is a good deal of variability across the AIC service territory in terms of the presence of lower income renters.

Figure 2. Multifamily Building Locations and Size by Low Income Grouping



If we look at certain metropolitan areas (Figure 3 and Figure 4) and focus on those census tracts with the largest percentage of market rate multifamily housing (i.e., the smallest percentage of low-income housing, denoted by white or light blue shading), we see that these buildings tend to be smaller (i.e., contain 9 or fewer units) and located in suburban or rural areas (i.e., not city centers).

**Figure 3. Multifamily Building Locations and Size by Low Income Grouping in Peoria**

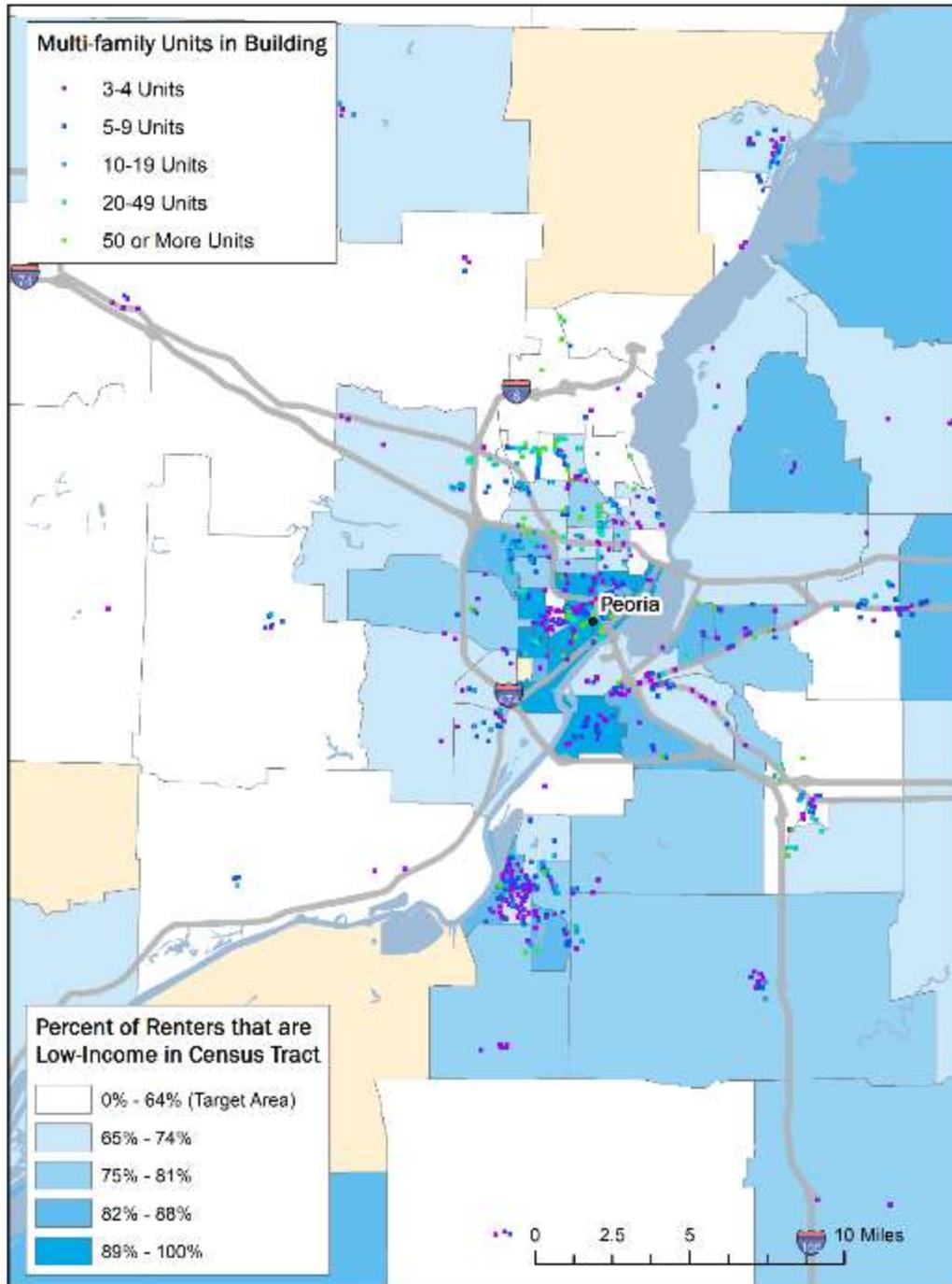
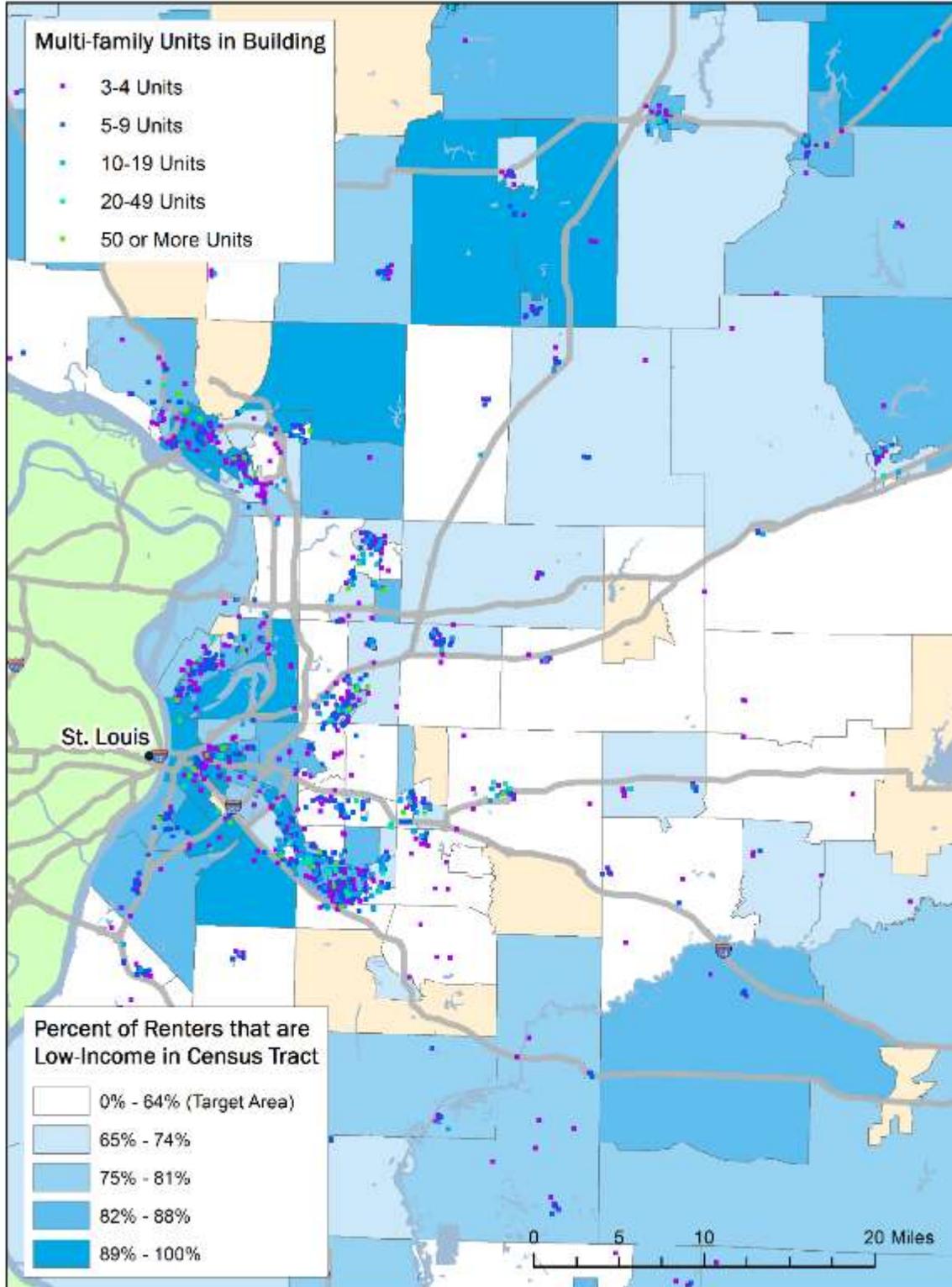


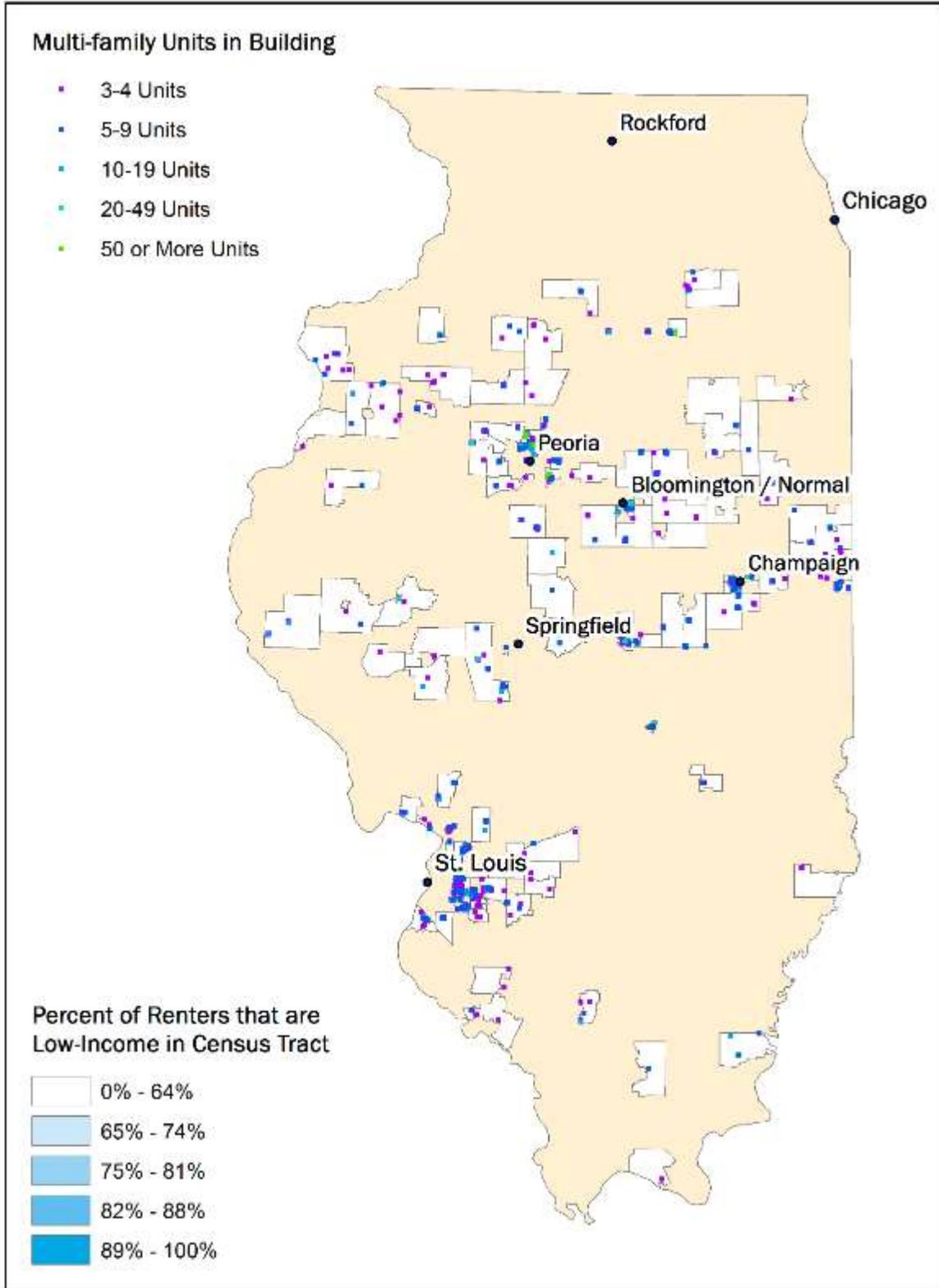
Figure 4. Multifamily Building Locations and Size by Low Income Grouping (St. Louis)



Finally, in Figure 5, we isolate the Census tracts (white shaded territories) with the lowest percentage of low-income renters. This graphic provides further visualization of the information previously

presented in that the buildings in these targeted areas are typically outside of city centers (more suburban or rural) and smaller (i.e., contain 9 or fewer units).

Figure 5. Multifamily Building Locations and Size within Targeted Census Tracts



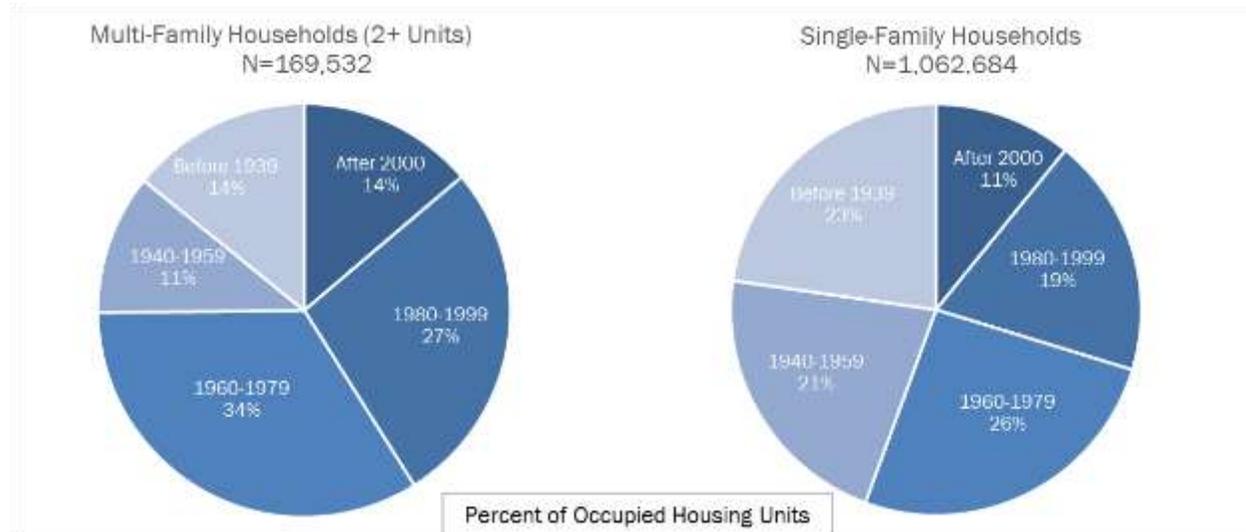
As estimated 2,421 buildings are located in Census tracts where 64% or less of renters are low-income. While this suggests that 16% of the 15,167 multifamily buildings in AIC’s service territory are “market rate” or program qualified, the obvious limitation is that the Census tracts that these 2,421 buildings are located in still contain a high percentage of low-income renters (i.e., up to 64%). It is important to note that this is purely an attempt to provide additional insight into the location of market rate multifamily buildings based on 1) the known demographics characteristics of renters who reside in the Census tract a particular building is located within; and 2) the assumption that the percentage of renters in that tract is indicative of whether or not a building in that same tract might be market rate. Clearly, various other criteria could be applied to provide further insight but this presentation is indicative of what can be done.

### Characteristics of Units within Multifamily Buildings

The information presented in this section describes various characteristics of multifamily units within AIC’s service territory. Overall, we found that multifamily residents—compared to their single family counterparts—tend to live in newer and smaller housing units. These units also commonly have electric heat and some form of air conditioning.

Figure 6 presents the age of units within multifamily structures and compares and contrasts this with single-family households. From the Figure we see that roughly 75 percent of multifamily housing units (here, because of how it is categorized in the Census data, defined as 2+ units) were built after 1959, which differs significantly from single-family households, where just over one-half of all units (56%) were built after 1959. As a result, we see that households living in multifamily buildings tend to live in newer structures, a finding largely supported by the participating and non-participating property manager surveys.

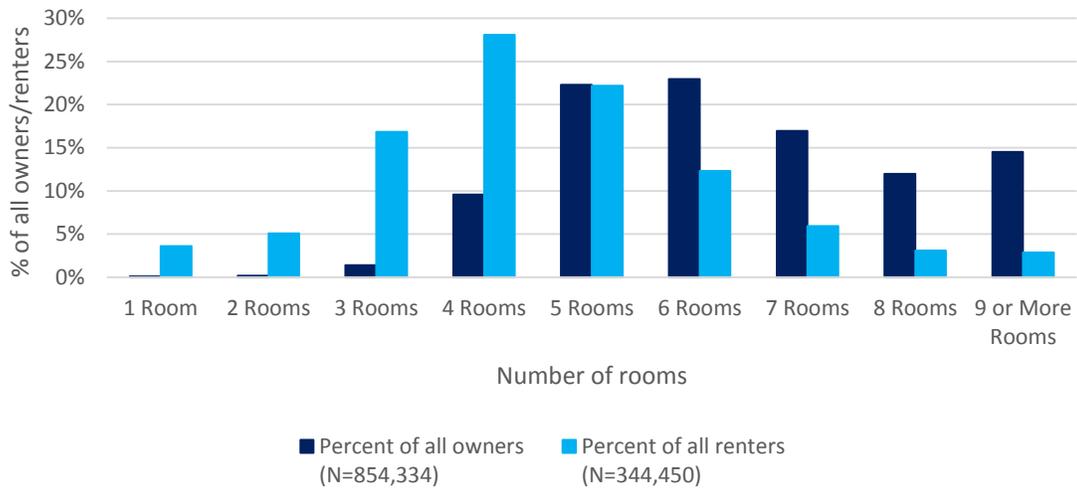
**Figure 6. Year Housing Units Were Built**



The evaluation team also found that renters live in smaller dwellings when compared to their owner counterparts (Figure 7). Not surprisingly, the average rental unit has about four rooms while the average owned unit is generally six or more rooms. Given that the “renter” category, as previously explained, includes a substantial number of 1 and 2 unit dwellings, it seems fair to assume that the

difference in the size of dwellings (multifamily vs. single-family) would be even more dramatic if we could perfectly isolate information for those units that are located in multifamily buildings.

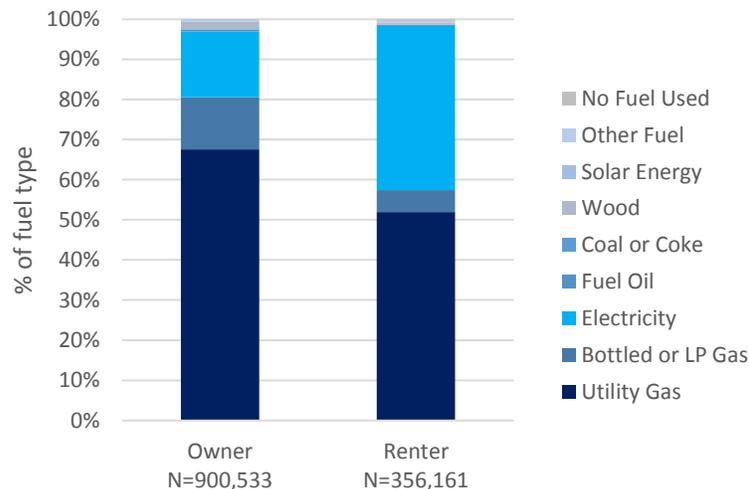
**Figure 7. Number of Rooms by Ownership Status**



Source: Census data using renters as a proxy for multifamily

Using “renters” as a proxy for multifamily, Figure 8 illustrates that renters are significantly more likely, compared to their owner counterparts, to live in units that are heated with electricity. Among renters, 41% of dwelling units are heated with electricity compared to just 16% of owner occupied units. In contrast, over 80% of owner occupied dwelling units are heated with natural gas or liquid petroleum (LP) and this percentage drops to 57% among renters. This information is supported by the participating property manager survey which indicated that electricity was the most common space heating fuel in multifamily buildings (74%). These property managers also indicated that electricity (67% of buildings) was the most common water heating fuel. Finally, participating property managers indicated that the vast majority of buildings (85%) have either room or central air conditioning and nearly all tenants pay their own electricity (93%) and gas (89%) bills.

**Figure 8. Heating Fuel Type by Ownership Status**

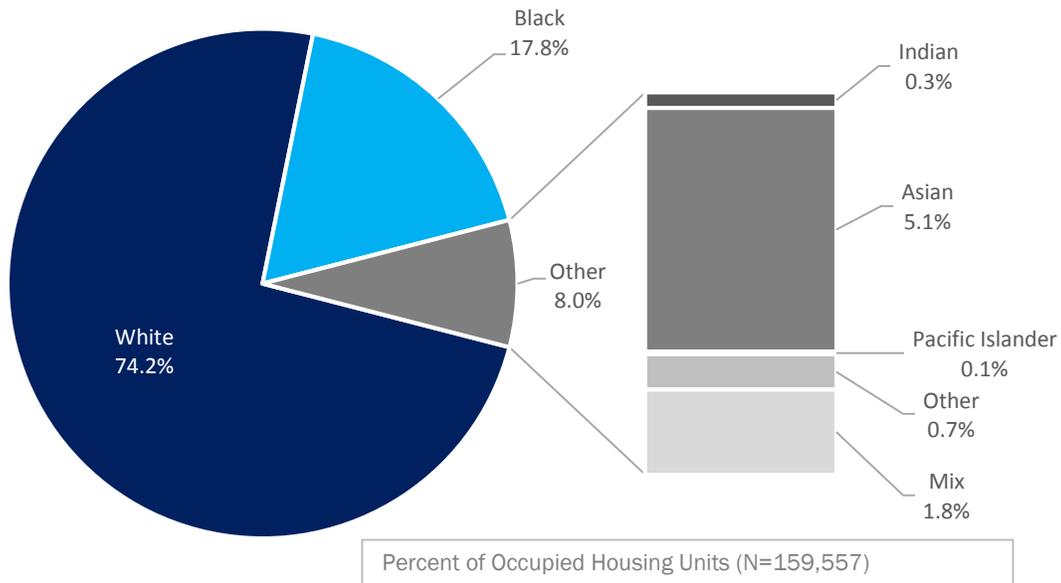


## Characteristics of Multifamily Unit Occupants

The information presented in this section describes various characteristics of the occupants of multifamily buildings within AIC's service territory, most of which is based upon census data. Overall, as a racial group, we found that minorities are significantly more likely than whites to be renters. We also found that occupants of multifamily dwellings are younger, more transient, more likely to be single- or two-person households, and have annual incomes below \$50,000.

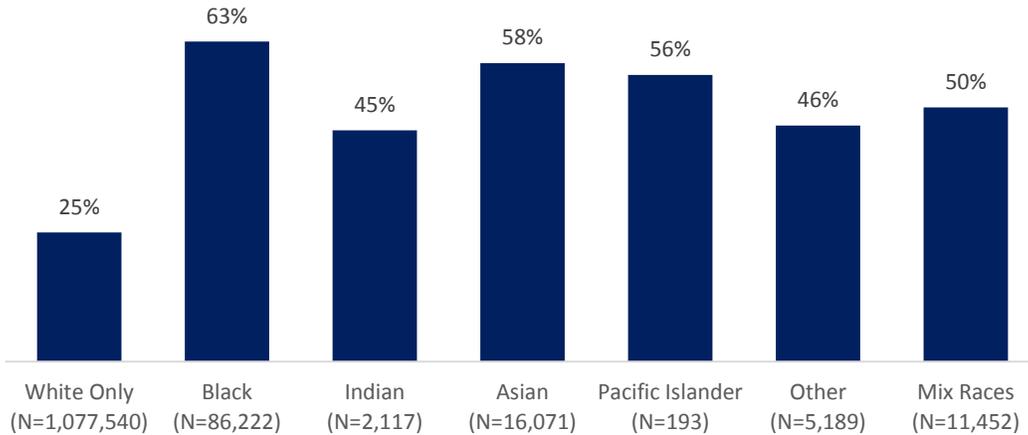
Figure 9 illustrates the racial makeup of multifamily dwelling occupants (i.e., head of household). As a percentage of all occupied multifamily housing units, "whites" are the dominant racial group (occupying 74% of all multifamily housing units) while African Americans (i.e., labelled within the Census as "blacks") make up the next highest grouping, occupying 18% of all multifamily housing units.

**Figure 9. Head of Household Race**



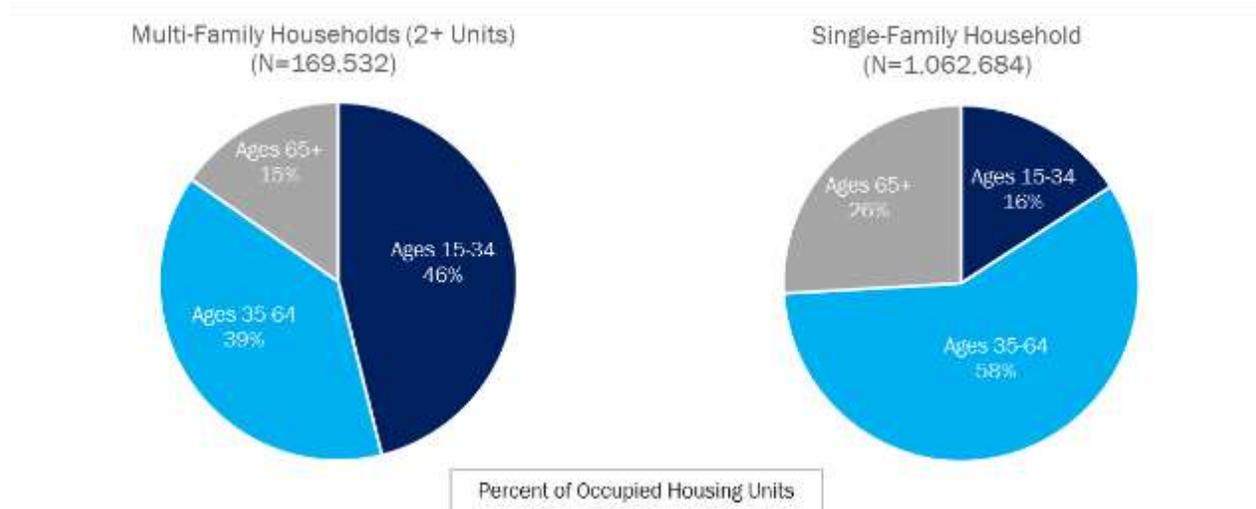
As illustrated in Figure , minorities are significantly more likely to be renters than "whites", with 63% of African American households living in rental units compared to just 24% of whites. Compared to whites, other minority groups are also highly likely to be renters, including 45% of Native Americans or "Indians", 58% of Asians, 56% of Pacific Islanders, and 50% of mixed races.

**Figure 10. Propensity to Rent among Different Ethnic Groups**



Further, occupants of multifamily dwellings are significantly younger (46% are 15-34 years old) than occupants of single-family homes (16% are 15-34 years old) (Figure 8). Here again, multifamily is defined as 2+ units because this is the way that head of household age information is provided through the Census.

**Figure 8. Head of Household Age**



Additionally, multifamily households are significantly more likely, compared to their single family counterparts, to be single (51% vs. 24%) or two person (38% vs. 28%) households (Figure 9).

**Figure 9. Number of Household Members**



Figure 10 indicates that renters are significantly more likely, compared to their owner counterparts, to be low-income. As illustrated in the figure, 63% of households with an income of less than \$15,000 annually are renters. And, alternatively, 93% of households with incomes of \$100,000 or more annually are owners. This information is supported by information provided by the surveys of both participating and nonparticipating property managers. Both of these groups indicated that over 90% of tenant household incomes are below \$50,000 annually.

**Figure 10. Annual Household Income by Ownership Status**

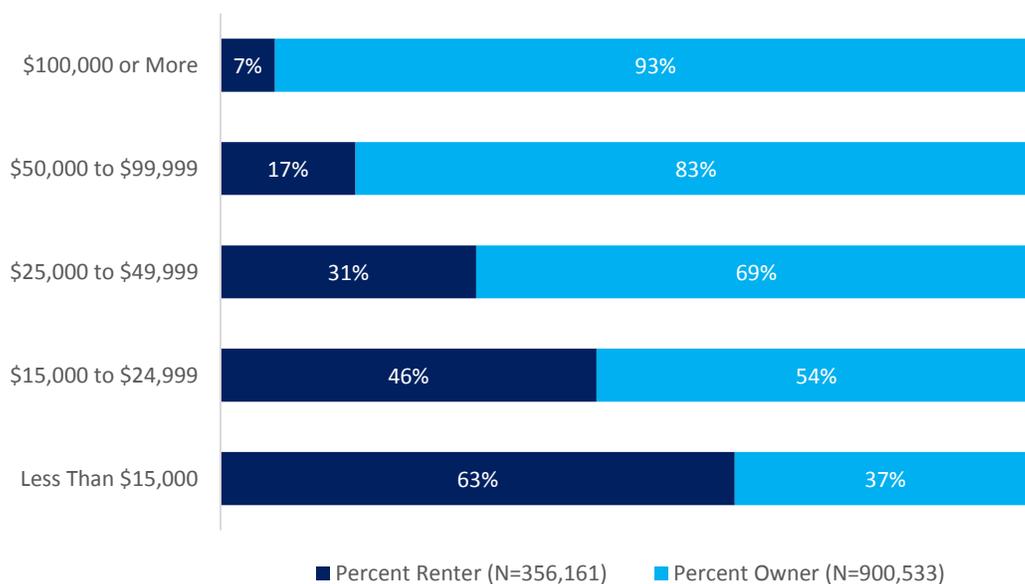
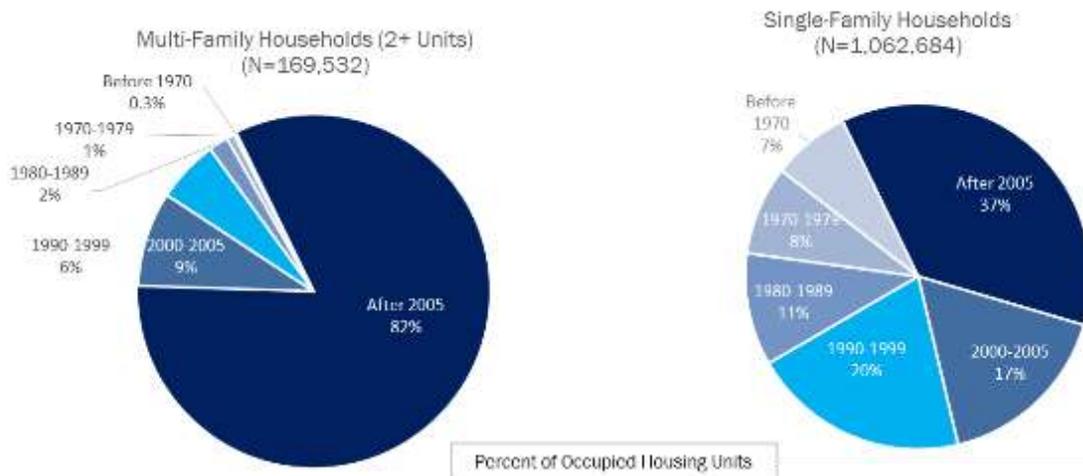


Figure 11 indicates that multifamily households are more transient than their single-family counterparts. While 82% of multifamily households moved into their current residence after 2005, this percentage drops to 37% for single family households.

**Figure 11. Move In Date**



### Characteristics of Multifamily Property Management Firms

The evaluation team spoke with property management firms and owners that own or manage buildings in AIC’s service territory to explore their characteristics, including the decision making process around building upgrades. Overall, we found a high concentration of the market, with two-thirds (67%) of all multifamily units managed by a small group of companies (12%). We also found that participating property managers rely on contractors and internal staff when making building upgrade decisions and that very few have corporate policies pertaining to, or internal staff members assigned to manage, energy use or efficiency. Finally, we found that property owners—with few exceptions—make the vast majority of building upgrade decisions, with upfront costs and budget considerations as key inputs.

Table 2 provides insight into how many multifamily units a management company owns or manages in AIC service territory. Survey data suggests a high concentration of the market. For example, two-thirds (67%) of all units are managed by a small group of companies (12%)<sup>3</sup>. At the other end of the spectrum, half (51%) of participating property management firms indicated that their organization manages less than 100 units, which represents only 7% of all units managed by the firms who participated in the survey. The survey data of non-participating property managers showed a similar trend. However, none of the respondents indicated that their company managed more than 1000 units in AIC’s service territory, which may be due to sample or non-response bias.

<sup>3</sup> Calculated as: units operated by survey respondents with more than 1,000 units divided by units operated by all survey respondents.

**Table 2. Units Operated by Companies in AIC Service Territory**

Units Operated by Company	Participating Property Managers		Non-Participating Property Managers	
	Percent of Respondents (n=51)	Percent of Units Group Represents (n=16,257)	Percent of Respondents (n=17)	Percent of Units Group Represents (n=1,080)
Under 100	51%	7%	82%	29%
100-1000	37%	26%	18%	71%
More than 1000	12%	67%	0%	0%

### Decision-Making Processes

In order to understand the decision-making process around building upgrades, the evaluation team asked managers/owners about both the sources of information they look to when making decisions, and the individuals responsible for making the ultimate decision about updates. We found that those property management companies that have participated in AIC’s program commonly consult contractors (80%), internal maintenance staff (74%) or other company staff members (60%) in deciding what type of upgrades to perform. Among the group of non-participating property managers with whom we spoke, equipment manufacturers (70%) or contractors (60%), and to a lesser degree other staff members (40%) are key sources of information on what to install. It is notable that the participating property managers with internal maintenance staff (74%) are highly likely to use these internal resources to install lighting or appliance related energy efficiency upgrades in rental units as well as lighting in common areas.

**Table 3. Sources of Information Typically Used in Making Equipment Installation Decisions (Multiple Response)**

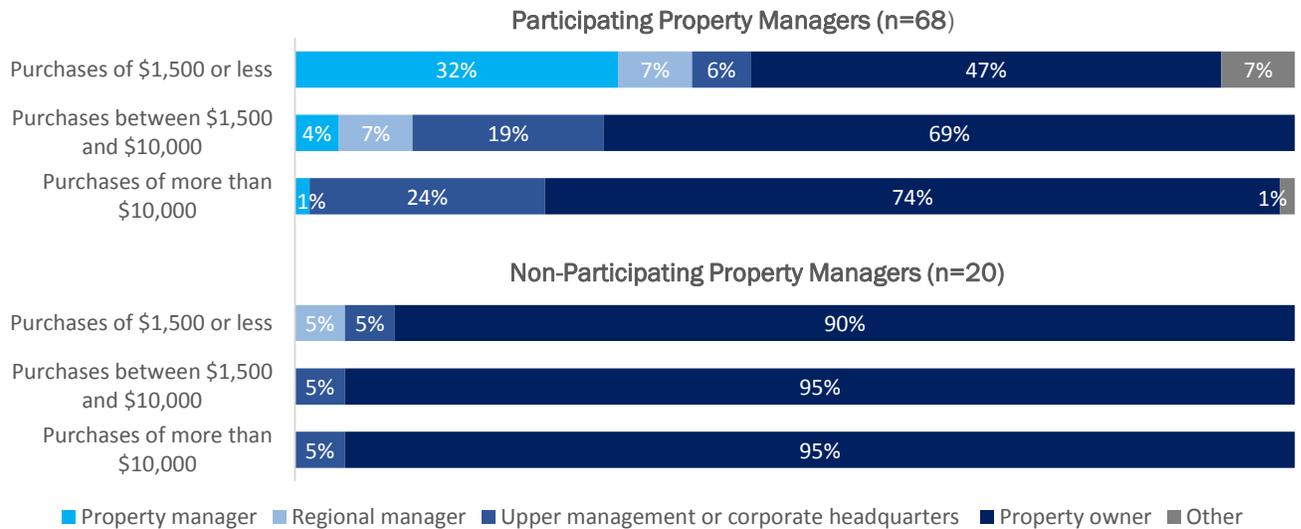
Information Sources	Participating Property Managers (n=70)	Non-Participating Property Managers (n=20)
Contractors	80%	60%
Internal maintenance staff	74%	30%
Other company staff members	60%	40%
Retailers	54%	20%
The Ameren Illinois’ website	46%	20%
AIC staff	43%	n/a
Equipment manufacturers	40%	70%
Trade associations	29%	20%
Internet (not Ameren site)*	7%	15%
Friends/associates*	6%	10%
Other*	7%	5%

\*Note: Asterisk indicates unaided responses.

In terms of where ultimate decision-making authority lies, there is overwhelming evidence that property owners are the final decision-makers for expenditures in multifamily buildings regardless of the scope

of a given purchase (Figure 12). As shown in the Figure, property managers rarely have the ability to make decisions independent of property owners, even for small purchases.

**Figure 12. Final Decision-Makers for Purchases**

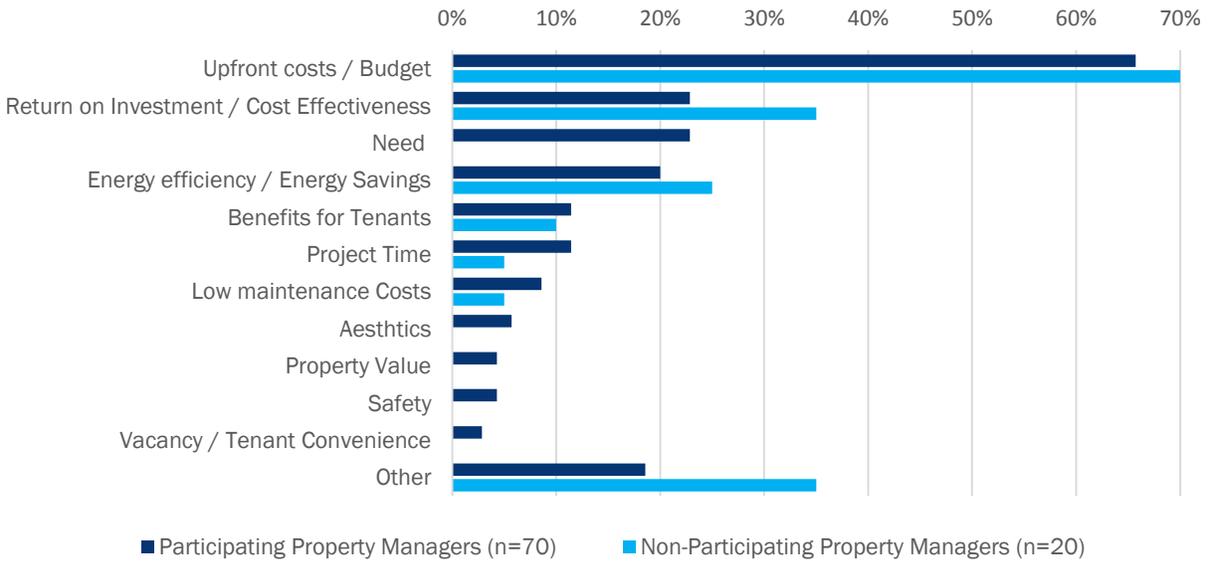


Note: We removed two invalid responses from participating property managers.

These findings indicate that building owners play a critical role in gaining approval for building upgrades, and the majority of energy efficiency upgrades. As a result, it is important for the program to develop strategies to engage them in the conversation about potential projects and/or provide property managers with the information they need to pitch projects to the building owner. We found the same overall trend when asking specifically about decision-making related to energy efficiency upgrades for the program. According to participating property managers, two-thirds (61%) of their energy efficiency projects in the Multifamily Program required approval from the owner.

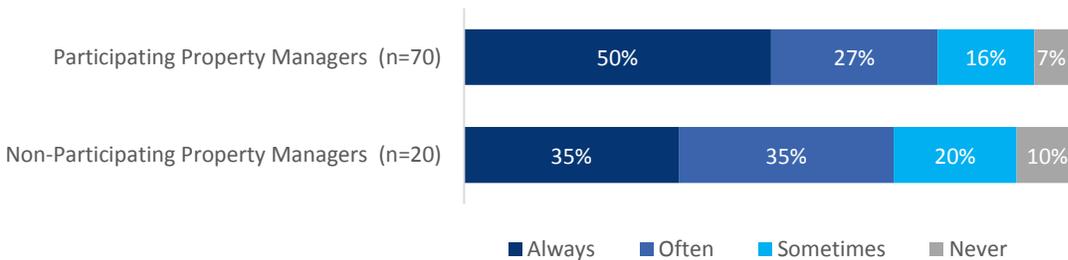
To better understand how multifamily building managers and owners make decisions, we also asked them to name their top three decision-making criteria when making decisions about building upgrades. As shown in Figure 13, upfront project costs and budget considerations were the most frequently identified followed by return on investment.

**Figure 13. Decision-Making Criteria for Building Upgrade Projects (Multiple Response)**



We also probed more deeply into the consideration of energy efficiency as part of the decision-making process, and found that over three-quarters (77%) of participating property managers/owners consider it when making decisions about building upgrades. Among those non-participants with whom we spoke, responses suggest a similar trend.

**Figure 14. Frequency with which Energy Efficiency is Considered in Decision-Making**



However, while they may think about energy efficiency, the majority of managers/owners do not have institutional policies or systems in place to prioritize it, which further illustrates the competing pressures facing multifamily properties. As indicated in Figure 15, less than a third of those we spoke with in both participating and non-participating groups have a formal energy policy, have dedicated staff for managing energy use, or market their property as environmentally responsible. The lack of these resources represents a key barrier for multifamily program participation.

**Figure 15. Prevalence of Company Policies and Practices related to Energy Efficiency**

