



ECONOMIC AND MARKET STUDY

IMPACT ANALYSIS OF “THREE UNRELATED
PERSONS” ORDINANCE ENFORCEMENT IN
THE CITY OF FORT COLLINS

Submitted by:

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Economic and Market Study

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INTRODUCTION

In January of 2005, Corona Research was retained by the City of Fort Collins to examine the impacts of a strong enforcement of the City’s “Three Unrelated Persons” ordinance. This ordinance states that no more than three unrelated adults may share one housing unit. The ordinance is currently in place, but has historically been enforced at a very low level, if at all. As a result, a large number of households are currently in violation.

Corona’s goal in this research was to examine the impacts on the local housing market if this ordinance was to be strictly enforced. Those impacts would include:

- The effect on rental vacancy rates;
- The effect on rental prices; and
- The effect on home values.

This report documents these expected impacts.

REPORT ORGANIZATION

The report is divided into four major sections, as follows:

Part 1. Defining the Situation

This section of the report develops estimates of the number of households currently in violation of the “Three Unrelated People” ordinance. These households will henceforth be known as “violating households.” This section of the report also documents the relationship between the presence of violating households and other neighborhood nuisances, as well as the relationship between violating households and general neighborhood satisfaction.

Part 2. A Profile of the Violating Population

This section of the report provides a profile of the people who live in violating households. We provide information on their age, income, work status, student status, sources of income, and other key features.

Part 3. Immediate Impacts

This section of the report develops an extensive impact analysis to identify the impacts of ordinance enforcement, including impacts on rental vacancy rates, rental prices, and home values.

Part 4. Long-Term Impacts

This section of the report examines case studies of other communities that have similar types of household change, and reports on changes in those markets’ rental vacancy rates, rental costs, and home values.

Within each section, an overview of the process and other pertinent information is presented, along with key findings. At the end of most sections, a subsection titled, “Background Information for this Section” includes detailed methodologies and data used to develop findings. The “Background Information” section is not necessary for all readers, but may provide additional insights to interested readers.

THE ORDINANCE

The following language was provided for this report by the City of Fort Collins.

The City of Fort Collins Land Use Code stipulates that any dwelling unit, renter- and owner-occupied alike, cannot be occupied by more than one family. There are three distinct types of “families” that are defined in the Code that are legally permitted to live in one dwelling as a single housekeeping unit. These are:

- Any number of persons related biologically or through marriage, adoption, guardianship, legal custody, etc.
- Any unrelated group of not more than two adults and their (biological or otherwise related as noted above) children.
- Any unrelated group of not more than three persons.

This means that in most cases, if more than three persons occupy a rental dwelling unit, they MUST ALL be related to each other. Conversely, if they were not all related to each other, then such occupancy would be considered to be a zoning violation. The exception to this rule applies ONLY to owner-occupied dwelling units. City Code allows an owner-occupant who is a member of either of the three types of “legal families” defined above to rent rooms to two additional people, provided the owner obtains a Fort Collins “Home Occupation License” from the City Building & Zoning Department. Such licenses cost \$10 and are valid for two years. Additionally, to qualify for the license, one off-street parking space must be provided for each additional person and any bedroom for that use must have an approved emergency escape window.

PART 1. DEFINING THE SITUATION

This section of the report develops estimates of the number of households currently in violation of the “Three Unrelated People” ordinance.

This section of the report also documents the relationship between the presence of violating households and other neighborhood nuisances, as well as the relationship between violating households and general neighborhood satisfaction.

THE NUMBER OF VIOLATING HOUSEHOLDS

As an initial step in examining the impacts of the ordinance, it is first necessary to know the number of households that are currently in violation of the ordinance. There were three methods available to the research team on this project:

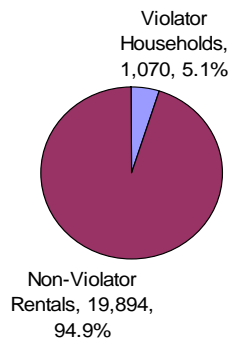
- *Census 2000 Public User Microdata Sample (PUMS) approach.* The PUMS dataset is a specialized dataset from the U.S. Census of Population and Housing. This dataset consists of a sample of individual households’ responses to the Census, and can be used to identify a wide variety of data not available via the more commonly used Census summary data. Using PUMS data, the research team estimated the proportion of violating households with a high degree of confidence. These proportions were applied to current rental housing stock estimates to develop an estimate of the number of violator households.
- *Census 2000 Summary File data.* Similar to the above approach, the research team used Census 2000 summary data, with an augment from PUMS data, to develop estimates in a different manner. Census summary data represent the released files for the 2000 Census, which contain tabulated data statistics. These data report the total number of nonfamily households containing four or more people, and then PUMS data was used to segment out owners from renters.
- *Public survey.* Corona Research conducted a survey of 387 households living in single-family homes in Fort Collins, excluding some of the outlying suburban parts of the city. Each household was asked several questions about the four houses closest to them, including whether that household contained more than three unrelated persons. These figures were used to calculate an estimated number of violating households.

The research team considered several other options as well, including analyzing formal complaints to the City about overcrowded housing and examining water usage records to identify high-occupancy homes. The analysis of complaints is useful, but will likely not include many violator households for which no formal complaint has been filed. The analysis of water records may be quite useful in identifying overcrowded homes, but no mechanism exists to separate violator households from large family households that do not violate the ordinance. In addition, many older housing units that have been legally subdivided into apartments still use only one water meter, which would create difficulties in separating violator households from legal apartments. Both methods hold

value for future consideration, but are not viable for estimating the total number of violator households.

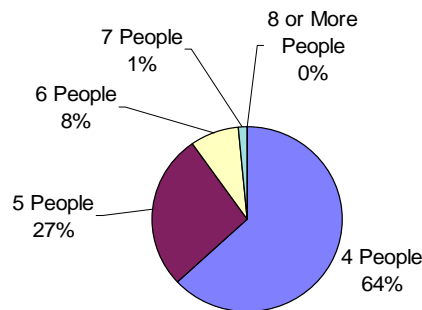
The three methods of estimation produced somewhat similar estimates: 905 for the PUMS-based estimate, 1,038 for the Census summary-based estimate, and 1,266 for the survey based estimate. Because none of the estimates is judged to be a flawless estimator, none takes precedence over the others. As a figure for continuing the impact analysis, the research team chose to average these three estimates, yielding a final estimate of 1,070 violator households.

Exhibit 1-1
Estimated Number and Proportion of Violator Households, 2004



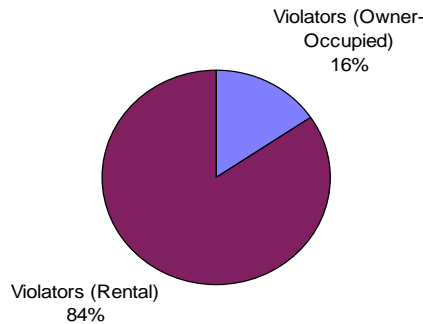
Most violator households are only slightly over the three-person ordinance limit, with four people sharing a housing unit. Only nine percent of violator households have more than six people. At an average of 4.46 people per household, the 1,070 violator households contain approximately 4,773 people.

Exhibit 1-2
Proportion of Violator Households by Household Size



In addition to rental households, there may be a small number of owner-occupied households that are in violation of the ordinance. There is only one means of estimating this population, which is an analysis of Census PUMS data. Those data show that, for every five rental properties that exist, there is one owner-occupied property that also contains more than two additional unrelated people, as specified by the ordinance. Multiplying that ratio by the total estimate for rental households, the research team estimates that 168 owner-occupied units are in violation of the ordinance. These households will most likely remain in place even if the ordinance is strongly enforced, but will become smaller as some tenants re-enter the rental market.

Exhibit 1-3
Proportion of Households Containing More than Three Unrelated People by Ownership



On average, these owner-occupied units will have to reduce their household size by 1.37 people to meet the ordinance requirements. This means that the 168 units will shed a total of 230 renters who will need to find new housing. When this figure is added to the figure for renters currently living in violator households, the total impact of the ordinance will be changes in households among an estimated 5,003 renters.

CONDITIONS ACCOMPANYING ORDINANCE VIOLATION

During the public survey, the research team asked three types of questions after confirming that the resident lived within the city limits and in a single family home.

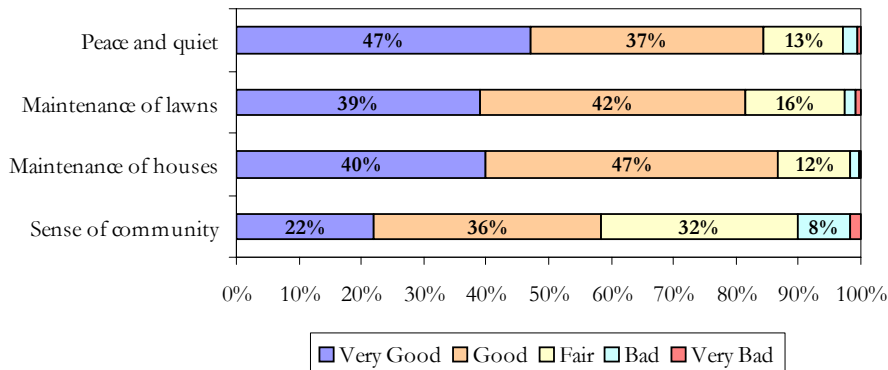
The first question asked the residents' ratings of four neighborhood attributes, as shown below.

How would you rate your neighborhood in terms of the following factors? For each category, please answer Very Good, Good, Fair, Bad, or Very Bad.

	Very Good	Good	Fair	Bad	Very Bad
Peace and quiet					
Maintenance of lawns					
Maintenance of houses					
Sense of community					

When asked to rate these four neighborhood attributes, a majority of respondents gave positive ratings (“very good” and “good”) to all attributes. While “peace and quiet” was rated “very good” by 47 percent of respondents, “sense of community” was rated “very good” by only 22 percent of respondents. Moreover, there were a reasonable proportion of respondents (about ten percent) that rated the sense of community of their neighborhood negatively (“bad” and “very bad”), while this proportion ranged from only two to three percent for the other three attributes.

**Exhibit 1-4
Neighborhood Ratings**

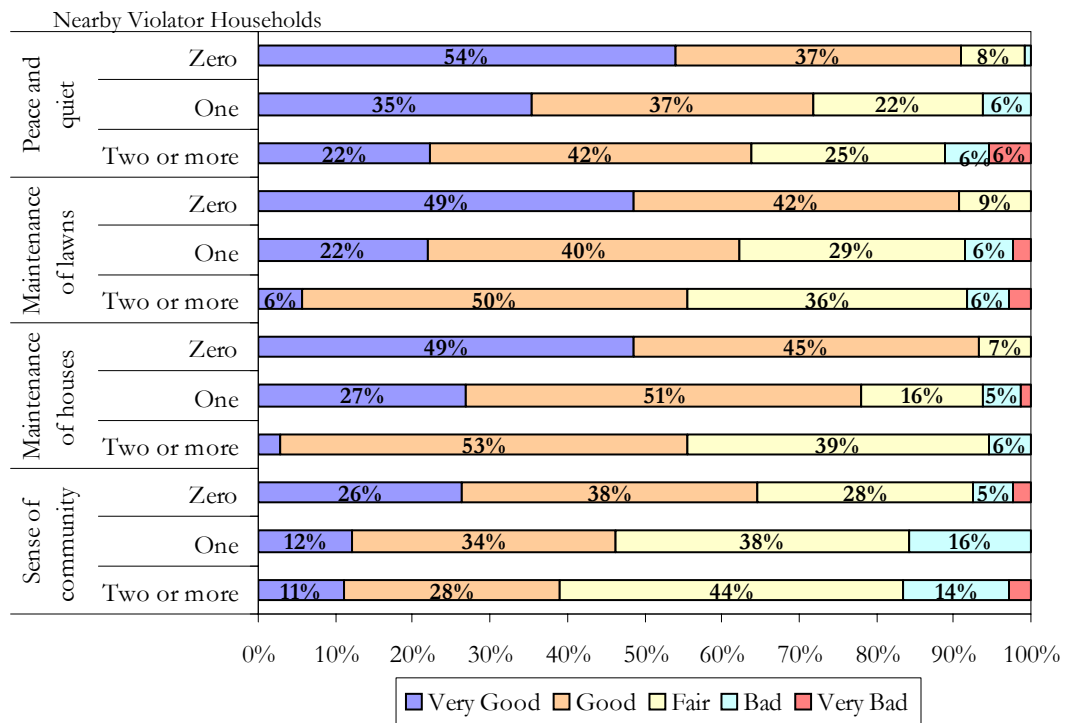


In the following exhibit, respondents' ratings of their neighborhoods were compared to the number of nearby violator households.

Interestingly, respondents' satisfaction with neighborhood attributes is negatively related to the number of violator households near to the respondents' homes. For example, 54 percent of households that do not have a violator household among their four nearest neighbors rated their peace and quiet as "very good." Among those who have two or more violator households among their four nearest neighbors, only 22 percent rated their neighborhood's peace and quiet as "very good."

The presence of violator households cannot be conclusively identified as the causal factor for these patterns in neighborhood ratings, because they are also correlated with other neighborhood problems, as shown later in this section. However, there is a strong correlation between close proximity to violator households and lower perceptions of one's neighborhood.

**Exhibit 1-5
Neighborhood Ratings by Proximity to Violator Households**



The second question asked the respondent to provide information on how many of the four nearest homes had various types of neighborhood issues. That question is provided below.

I'd like for you to take a moment now and think about the four houses that are closest to your home. They can be in any direction. I'll then ask you some questions about those homes. I'll give you a moment to think about it.

(Give the person a moment to think.) Do you have the four nearest houses in mind?

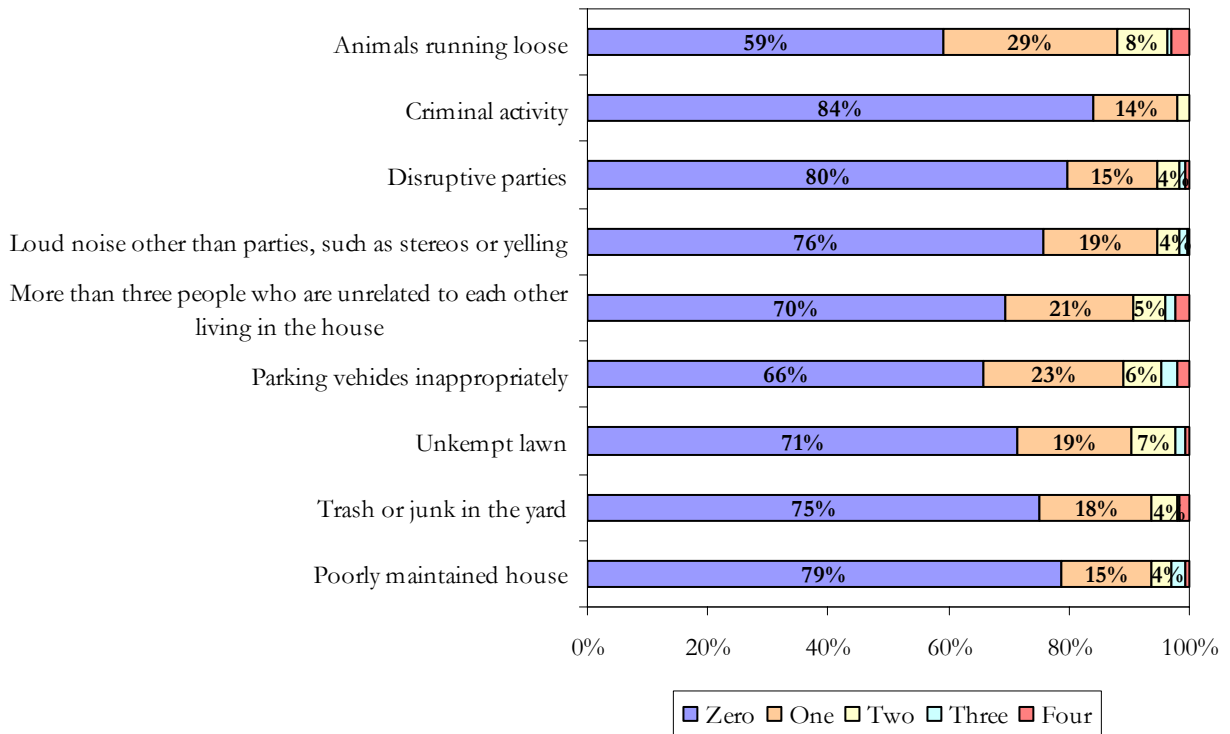
I'm going to read several categories of potential neighborhood problems. Thinking about the four homes nearest to yours, how many would you say have had these problems during the past six months? For each category that I read, please answer zero, 1, 2, 3, or 4 houses.

	Zero	1	2	3	4
Animals running loose					
Criminal activity					
Disruptive parties					
Loud noise other than parties, such as stereos or yelling					
More than three people who are unrelated to each other living in the house					
Parking vehicles inappropriately					
Unkempt lawn					
Trash or junk in the yard					
Poorly maintained house					

The exhibit on the following page shows that, when asked to provide information on how many of the four nearest homes had various types of neighborhood issues, respondents were least likely to report that their nearest neighbors were involved in criminal activity, disruptive parties, or had a poorly maintained house. Conversely, a significant proportion of respondents (41 percent) reported that at least one of their nearest neighbors had animals running loose, 34 percent said that at least one of the four homes nearest to theirs had an issue with parking vehicles inappropriately, and 30 percent said that at least one of the four homes nearest to theirs were in violation of the “three unrelated people” ordinance.¹

¹ Note that this does not mean that 30 percent of homes are in violation of the ordinance. Several mathematical adjustments must be made, and the proper figures (significantly smaller) were calculated from these data in the previous subsection of the report. Nonetheless, it does illustrate the fact that neighborhood problems are magnified beyond the actual number of homes that are engaging in negative activities.

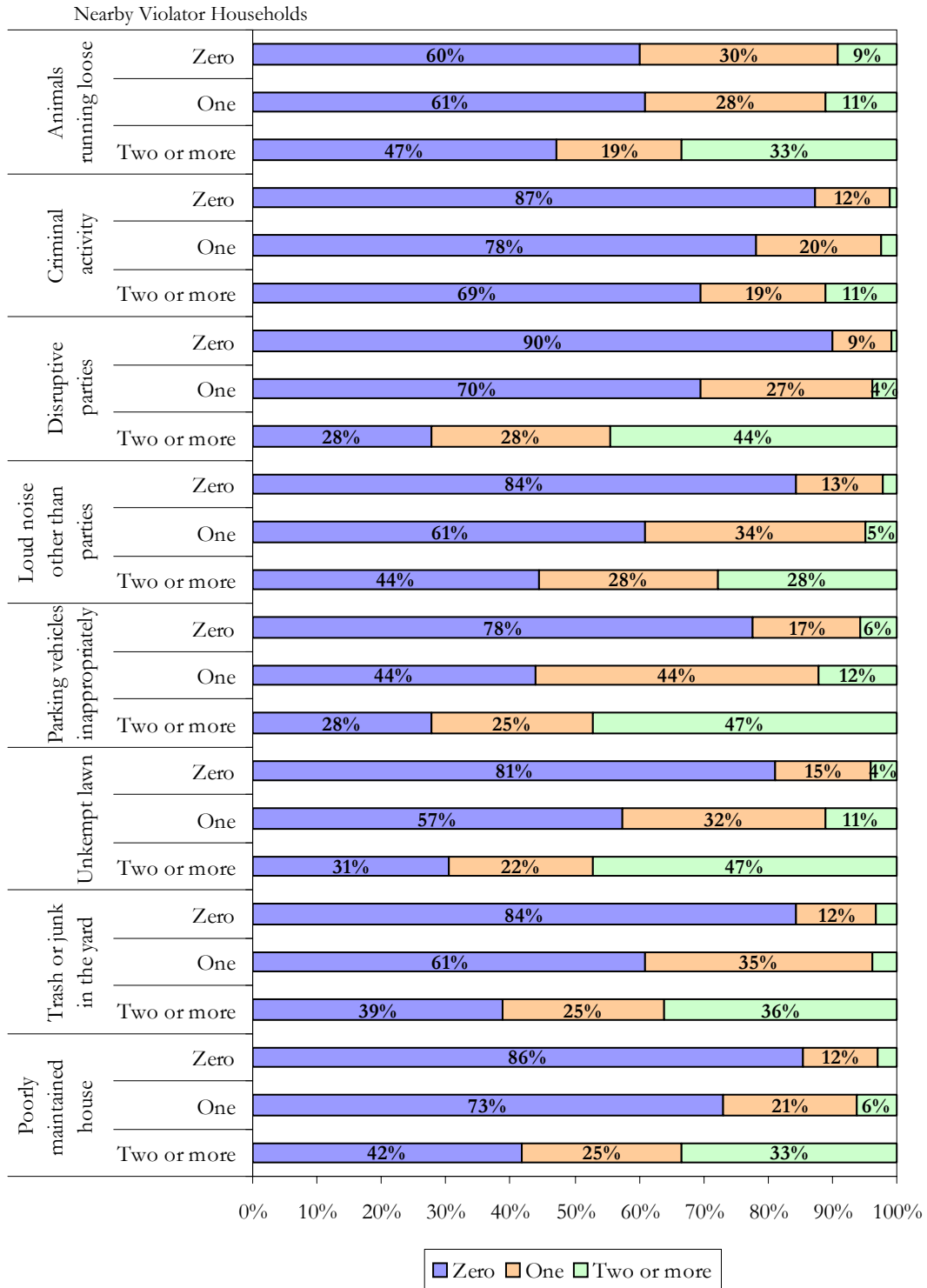
Exhibit 1-6
Number of Four Nearest Neighbors Engaging in Negative Activities



A clear and interesting pattern again emerges when neighborhood problems are analyzed by proximity to overcrowding. For nearly every type of neighborhood issue that was examined, respondents were more likely to report problems if they also reported living near households that are in violation of the “three unrelated persons” ordinance. For example, 84 percent of the respondents who do not live near a household in violation of the ordinance also reported that none of their neighbors engage in disruptive parties. Among those who live near one such house, 61 percent reported not having a problem with disruptive parties. Among those who live near two or more such houses, only 28 percent reported not having a problem with disruptive parties.

Again, this correlation does not necessarily prove that violator households are responsible for these other problems, because respondents were not asked to link specific problems to specific houses. (This was an intentional decision to protect citizen privacy.) It is possible that violator households are most common in areas where these other neighborhood problems already exist. However, the strong correlation seen below certainly supports a theory that violator households are responsible at least in part for some of these problems.

Exhibit 1-7
Number of Four Nearest Neighbors Engaging in Negative Activities, by Proximity to Violator Households



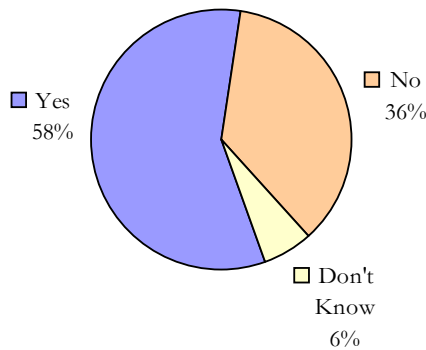
The final question asked whether the respondent would support a stronger enforcement of the ordinance, as shown below.

As my last question, would you support stronger enforcement of an existing city ordinance that limits the number of unrelated adults who can share a house to three people?

Yes
 No
 Don't Know

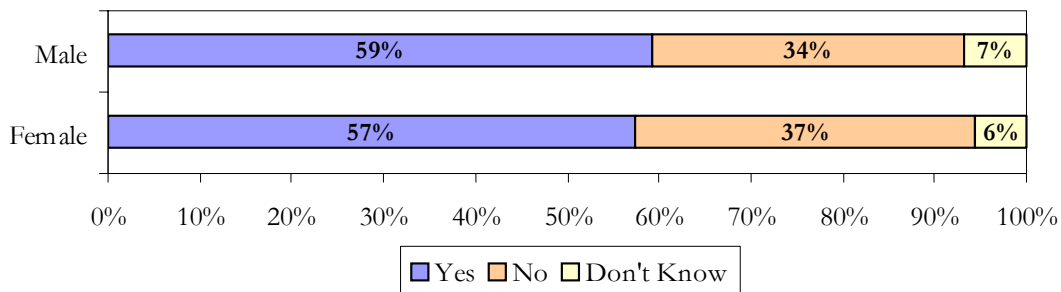
More than half of respondents (58 percent) would support stronger enforcement of an existing city ordinance that limits the number of unrelated adults who can share a house to three people. However, a significant proportion of respondents (36 percent) were opposed to stronger enforcement. It should be noted that this is an unweighted survey of residents and does not differentiate between registered voters and non-voters.

Exhibit 1-8
Support on Stronger Enforcement of an Existing City Ordinance



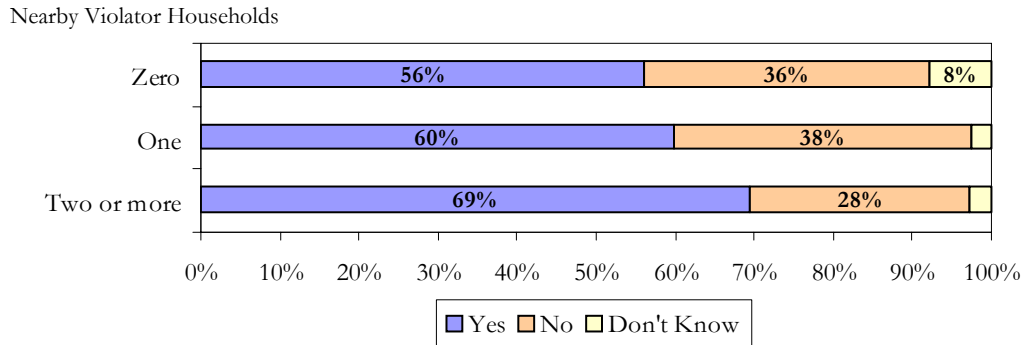
The exhibit below implies that, males and females seemed to have the same opinion on supporting/not supporting stronger enforcement of the existing city ordinance.

Exhibit 1-9
Support on Stronger Enforcement of an Existing City Ordinance by Gender



Furthermore, when analyzed by proximity to overcrowding, it is indicated that the more houses in their nearest neighborhood that were in violation of ordinance, the more likely they were to support stronger enforcement of an existing city ordinance regarding number of unrelated people living in the same house.

Exhibit 1-10
Support on Stronger Enforcement of an Existing City Ordinance by Proximity to Overcrowding



KEY FINDINGS

The key findings of this section include the following list.

- According to the research team, there are an estimated 1,070 violator households in Fort Collins.
- Overall, 5,003 renters will be affected by the enforcement of the ordinance that calls for no more than three unrelated adults per household, either by moving or by downsizing their household.
- Residents living in close proximity to violator households are significantly more likely to identify problems with their neighbors in numerous areas, such as disruptive parties, noise, parking issues and other neighbor-to-neighbor problems. Residents living in close proximity to violator households are also more likely to have negative perceptions of their neighborhood on specific issues.
- The majority of respondents (58 percent) would support stronger enforcement of the ordinance. Support increases to 69 percent among households that live near two or more violator households.

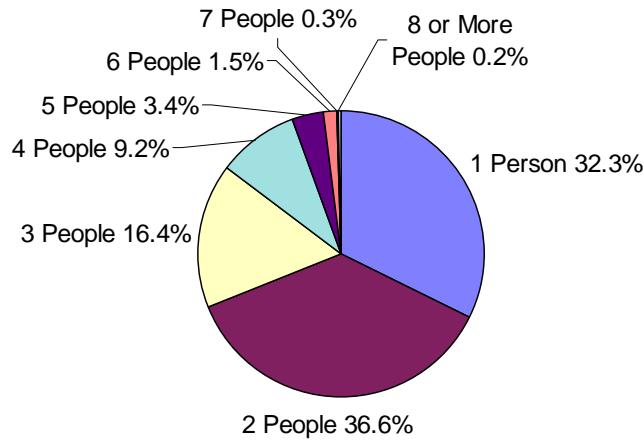
BACKGROUND INFORMATION FOR THIS SECTION

This portion of the report documents the three methodologies used to estimate the total number of violator households. Readers interested in the data used to develop the estimates may read this, while readers interested only in the key findings can skip to the next section of the report.

CENSUS 2000 PUMS DATA APPROACH

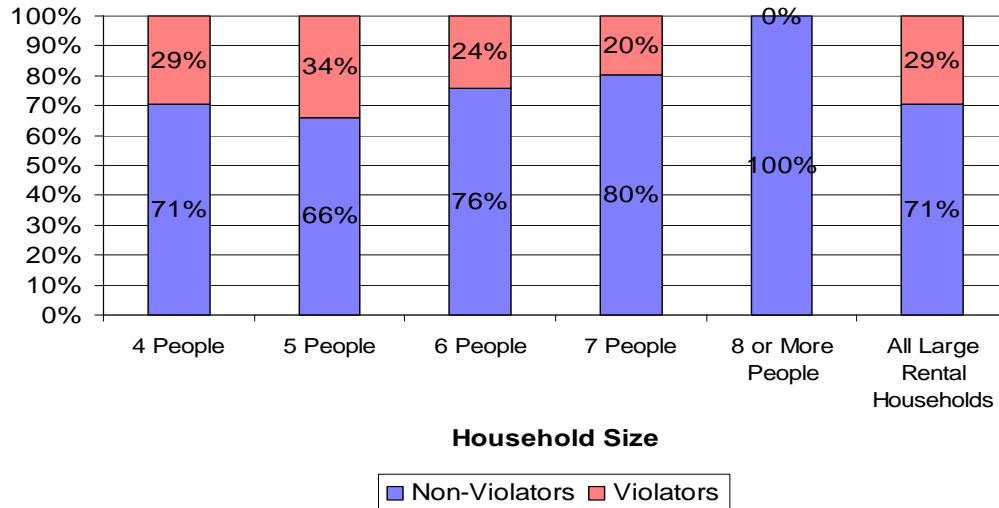
The exhibit below describes the makeup of households in Fort Collins as of the Year 2000. While raw numbers of households may have changed in the past four years, these proportional profiles will still be quite accurate. These figures show that 14.6 percent of rental households consist of four or more people. Note that these figures include violator households and non-violator (family) households.

**Exhibit 1-11
Total Rental Market by Household Size**



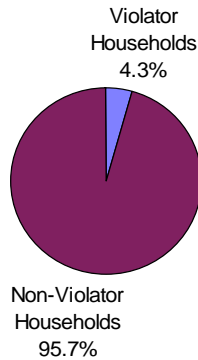
When large households are examined specifically, we see that violator households make up a significant portion of large rental households. Roughly three of every 10 rental households with four or more people are composed of unrelated parties who are in violation of the ordinance.

Exhibit 1-12
Proportion of Violator Households by Household Size



Combining these figures, it can be seen that, in the Year 2000, 4.3 percent of all rental households in Fort Collins were violator households.²

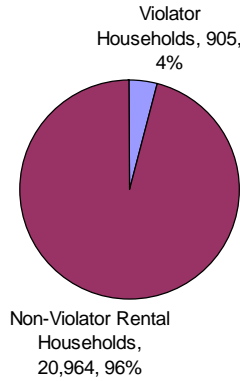
Exhibit 1-13
Proportion of Rental Households in Violation of the Ordinance



² For the purposes of this study, all rental households with no cash rent are excluded from the analysis, as are any group quarters or institutional housing.

These figures can be combined with rental housing supply and vacancy data from the Colorado Division of Housing to produce an estimate of the total number of households that are currently in violation of the ordinance. This method produces an estimate that 905 households in Fort Collins are in violation of the ordinance.

Exhibit 1-14
Number of Rental Households in Violation of the Ordinance
Census PUMS Data Estimation



CENSUS 2000 SUMMARY DATA APPROACH

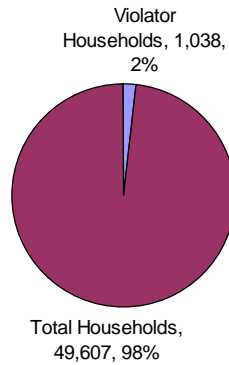
In this approach, the study team first examined the number of large non-family households in Fort Collins, according to the Year 2000 Census. The raw figures are provided below.

Exhibit 1-15
Household Makeup in the City of Fort Collins, Year 2000

Total Households	45,769		
Family households:	25,925	Nonfamily households:	19,844
		1-person household	11,981
2-person household	11,168	2-person household	5,070
3-person household	5,762	3-person household	1,658
4-person household	5,620	<i>4-person household</i>	<i>904</i>
5-person household	2,499	<i>5-person household</i>	<i>171</i>
6-person household	603	<i>6-person household</i>	<i>50</i>
7-or-more-person household	273	<i>7-or-more-person household</i>	<i>10</i>

These raw figures indicate that a total of 1,135 households contain no related members (per the Census definition of ‘Nonfamily’), and have four or more people. Using an estimate of 10.4 percent household growth since 2000 as defined in section three of this report, that estimate would rise to 1,253 households. However, as discussed later, an estimated 15.6 percent of large non-family households are actually owner-occupied homes that do not fall under the ordinance. This then lowers the estimate of violator households to 1,038.

Exhibit 1-16
Number of Rental Households in Violation of the Ordinance
Census Summary Data Estimation



PUBLIC SURVEY APPROACH

In contrast to the Census approach, a public survey was conducted to gather data from the public about the presence of violator households. This survey was conducted on a random basis with 387 residents of single-family homes. Each resident was asked to answer several questions about the four houses nearest to theirs, yielding data on 1,548 homes in the city.

Particular elements of the survey that bear discussion include:

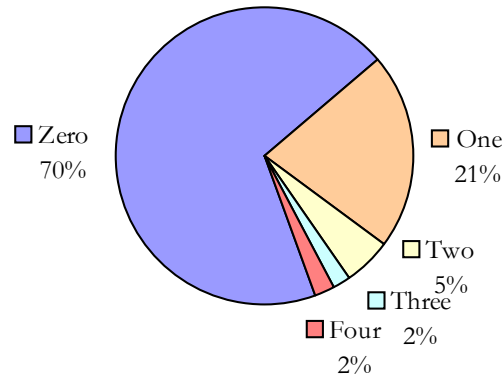
- This survey was originally intended to exclude some newer suburban parts of the city where single-family rental units are known by City staff to be very uncommon. A “survey area” was drawn that encompassed approximately 91 percent of the city’s population. However, for sampling reasons, the survey boundaries actually extended outside those boundaries and for all practical purposes captured the entire city population.
- This survey acquired information only from dwellers of single-family units, and so will not include data on violator households who live in multi-family units. Using Census PUMS data, multi-family violators can be calculated as a function of the survey’s findings for single-family homes.

Calculation of Number of Households in Violation of the Ordinance

The proportion of households in violation of the ordinance in the survey area was directly obtained from the survey response. Respondents were asked to think about the four homes nearest to theirs, and to estimate how many of those homes, during the past six months, have had more than three people who are unrelated to each other living in the house. A majority of respondents (70 percent) stated that none of those houses were in violation of the ordinance, while 21 percent said

that one of those houses were in violation, and nine percent stated that at two or more of the four homes nearest to theirs were in violation of ordinance.

Exhibit 1-17
“How Many of Four Homes Nearest to Yours Have More than Three People Who Are Unrelated to Each Other Living in the House?”

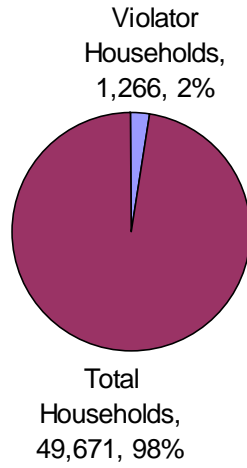


The estimate of violator households was calculated via the following steps:

1. The team totaled the number of reported violator households and divided it by the total number of houses for which data was collected (387 x 4).
2. Because of selection statistics, the total number of identified violator households will be four times higher than the actual number, because each violator household could be identified by four nearby homes. This is corrected by merely dividing the reported rate by four.
3. A correction factor was applied to account for only rental violator households, since owner-occupied units will likely not dissolve as a result of ordinance enforcement.
4. An adjustment was made to account for the fact that survey respondents could be identifying owned units that are exempt from the ordinance.
5. These figures address violator household rates in single-family homes, but an additional figure must be used to estimate violator households in multi-family units. This was accomplished by using the PUMS-define ratio of single-family home violators versus multi-family home violators.

Using this methodology, the survey shows that a total of 1,266 violator households exist in the city, which is a slightly higher estimate than the other two methods.

Proportion of Rental Units in Violation of Ordinance based on Public Survey



PART 2. A PROFILE OF THE VIOLATOR POPULATION

This section of the report provides a profile of violator households and tenants. The first subsection examines the households as a whole, while the second subsection examines the individuals who live in these households.

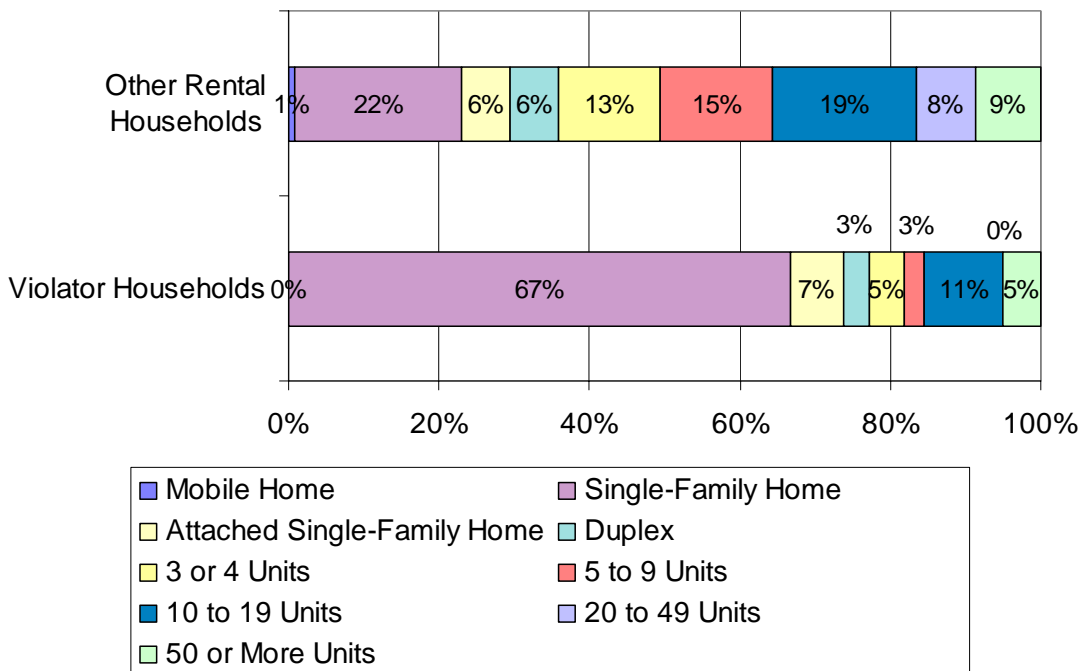
This section focuses on the rental violator population, which makes up over 95 percent of the tenants who will be affected by the ordinance. The available data on tenants in owner-occupied units is too small to be relied upon to develop a distinct profile for that group, but it is presumed that the tenant population in owner-occupied housing will be similar demographically to those in rental units. This assumption is supported by the data available for that population.

A PROFILE OF VIOLATOR HOUSEHOLDS

HOUSING TYPES

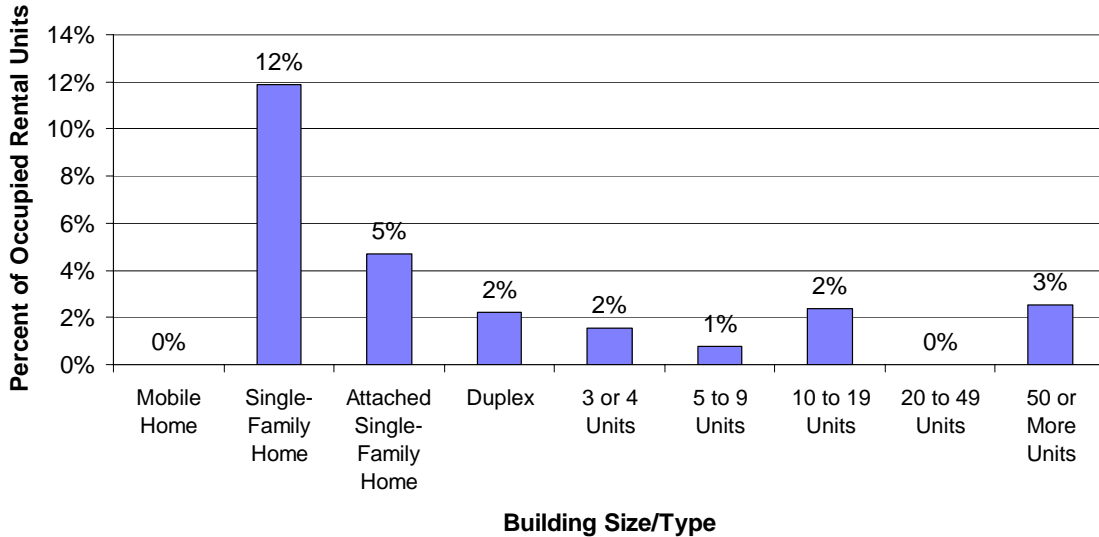
One striking difference between violator households and other rental households is their choice of housing units. Single-family homes occupy two-thirds of violator households, compared to only 22 percent of non-violator households.

**Exhibit 2-1
Proportion of Households Containing More than Three Unrelated People**



Violator households make up one-eighth of all single-family home rentals in Fort Collins, and lesser proportions of other types of rental housing.

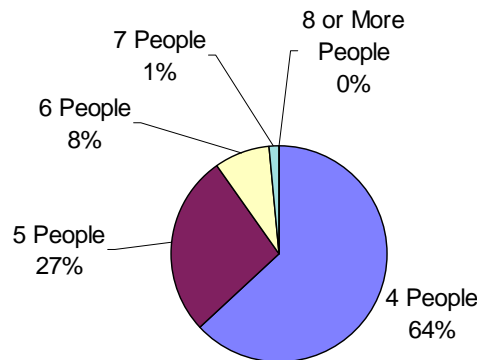
Exhibit 2-2
Proportion of Violator Households by Building Size/Type



HOUSEHOLD SIZES

Most violator households are only slightly over the three-person ordinance limit, with four people sharing a housing unit. Only nine percent of violator households have more than six people.

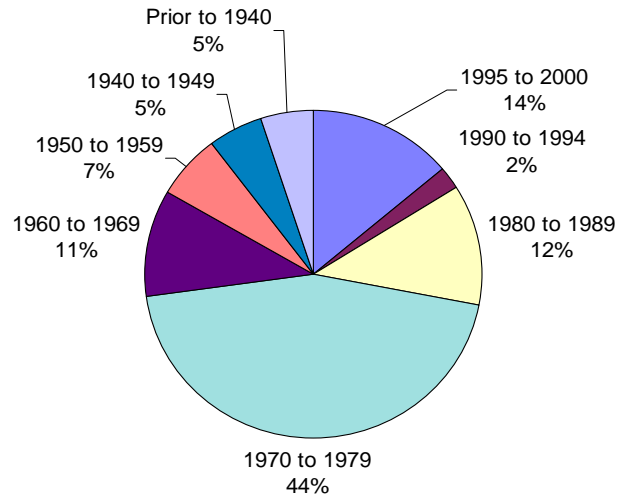
Exhibit 2-3
Proportion of Violator Households by Household Size



AGE OF HOUSING UNITS

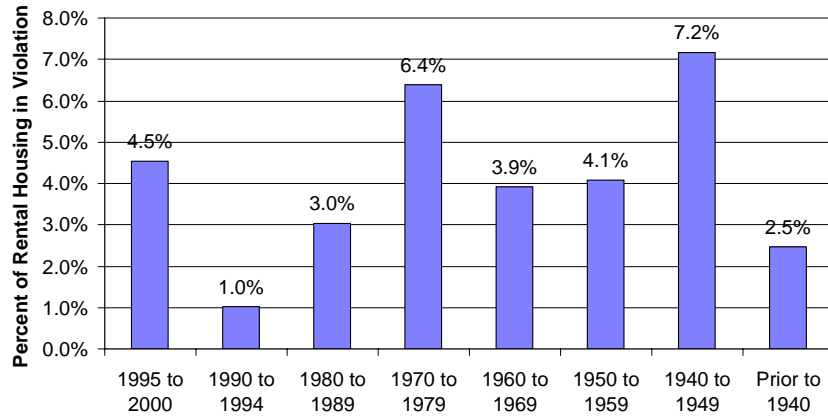
Nearly half (44 percent) of violator households live in housing that was built during the 1970's. However, all housing age ranges are represented among violator households. (Note that this profile is based on Year 2000 data, so new construction is not represented.)

Exhibit 2-4
Proportion of Violator Households by Age of Housing Unit



The prevalence of violators living in 1970's-era housing is somewhat offset by the fact that rental housing from that era is disproportionately common compared to rental housing from other eras. Nonetheless, violator households are more common in rental housing of that era than any other area other than 1940's-era rental housing. Over seven percent of rental housing that was built in the 1940s is currently in violation of the ordinance, and over six percent of rental housing that was built in the 1970s is in violation.³ Overall, though, the data does not show a strong and recognizable pattern by housing age.

**Exhibit 2-5
Percent of Housing Units in Violation, by Age of Housing Unit**

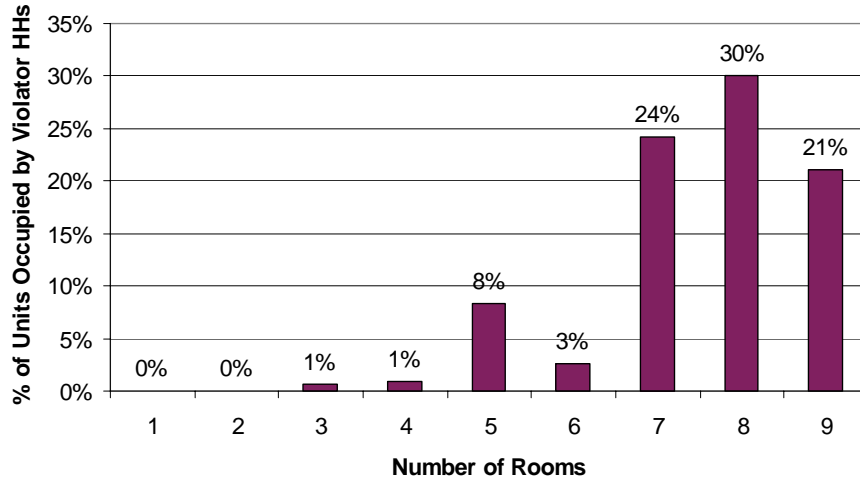


³ Note that these figures include housing that is currently rental housing, and does not reflect the original purpose of the housing unit in terms of ownership/rental.

PHYSICAL SIZE OF HOUSING UNITS

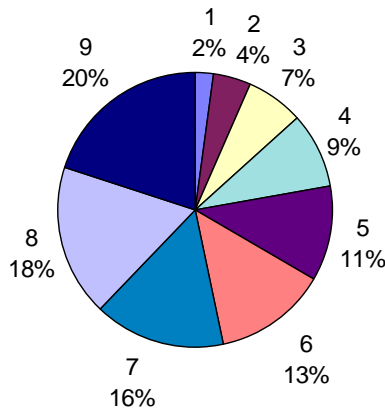
Violator households make up roughly one-fourth of the demand for rental units that are seven rooms or larger.

Exhibit 2-6
Violator Households as a Proportion of Rental Demand, by Unit Size (Rooms)



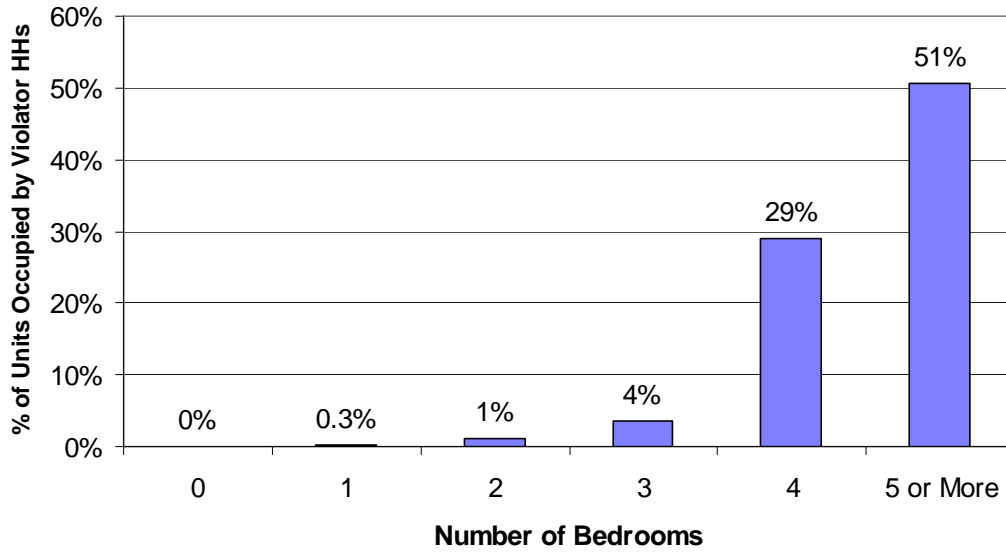
Despite the fact that smaller units are more common in the city, violator households are predominantly located in larger rental units of seven rooms or more. Over half of violator households are in units of this size, though it is notable to observe that nearly one-quarter of violator households are conversely situated in small rentals of four rooms or less.

Exhibit 2-7
Violator Households' Housing Preferences by Unit Size (Rooms)



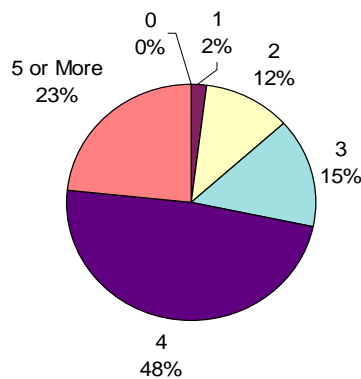
A more common descriptor of housing unit size is the number of bedrooms. In this measure, a strong pattern emerges. Over half of rentals with five or more bedrooms are occupied by violator households, along with 29 percent of four-bedroom units.

Exhibit 2-8
Violator Households as a Proportion of Rental Demand, by Unit Size (Bedrooms)



While violator households make up more than half the market for five or more bedroom rentals, those units are less common than smaller units. Only 23 percent of violator households actually occupy five or more bedroom rentals, compared to 48 percent in four-bedroom units and 15 percent in three-bedroom units. Another 14 percent live in one- or two-bedroom units.

Exhibit 2-9
Violator Households' Housing Preferences by Unit Size (Bedrooms)



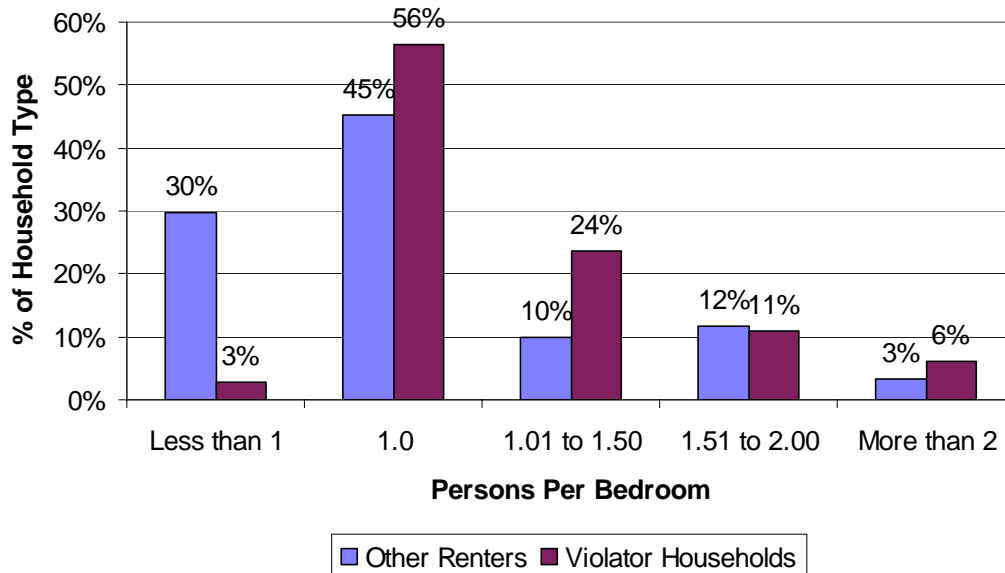
MEASURES OF OVERCROWDING

The following exhibits provide measures of overcrowding. If violator households are merely renting larger units in proportion to their household size, they will have a similar ratio of persons per bedroom and persons per room as do other renters.

The pattern differs between violator households and other renters, in that other renters are far more likely to be in the lowest category of less than one person per bedroom. However, the portions of highly overcrowded households (more than 1.5 persons per bedroom) are similar between violator households and other households.

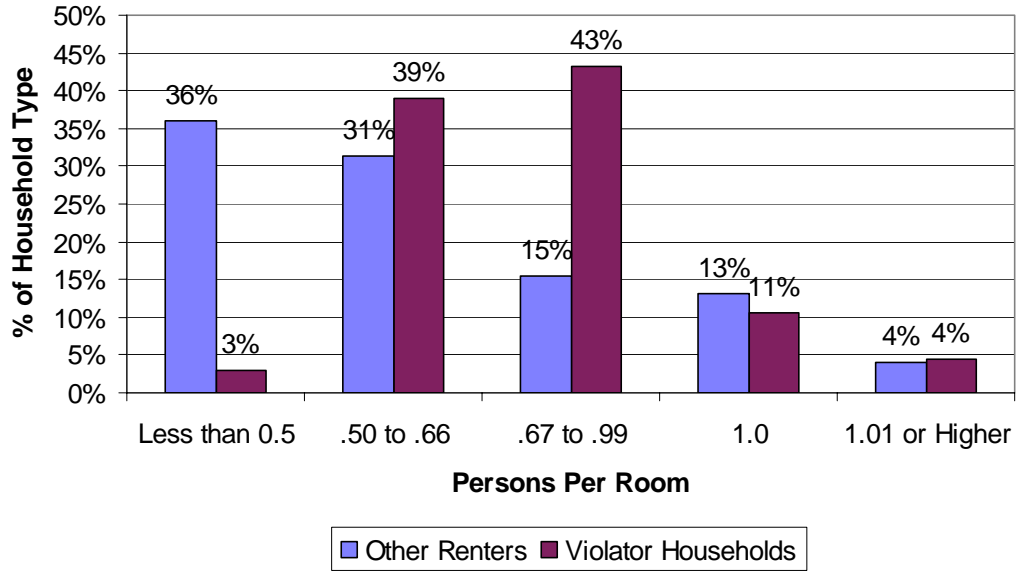
It should be noted that married renters may have more people per bedroom because the husband and wife most likely share a bedroom. By definition, violator households do not contain married couples, while other rental households will have married couples along with other household types.

Exhibit 2-10
Average Number of Tenants Per Bedroom



When the analysis is expanded to persons per room, rather than persons per bedroom, a stronger difference emerges between the two types of households. Proportions of highly overcrowded housing (more than one person per room) remain similar, but violator households are far more likely to have .67 to .99 persons per room, and are far less likely to have fewer than 0.5 persons per room. A household with .67 persons per room is equivalent to a house with three bedrooms, a kitchen, a living room, and a dining room having between four and six people.

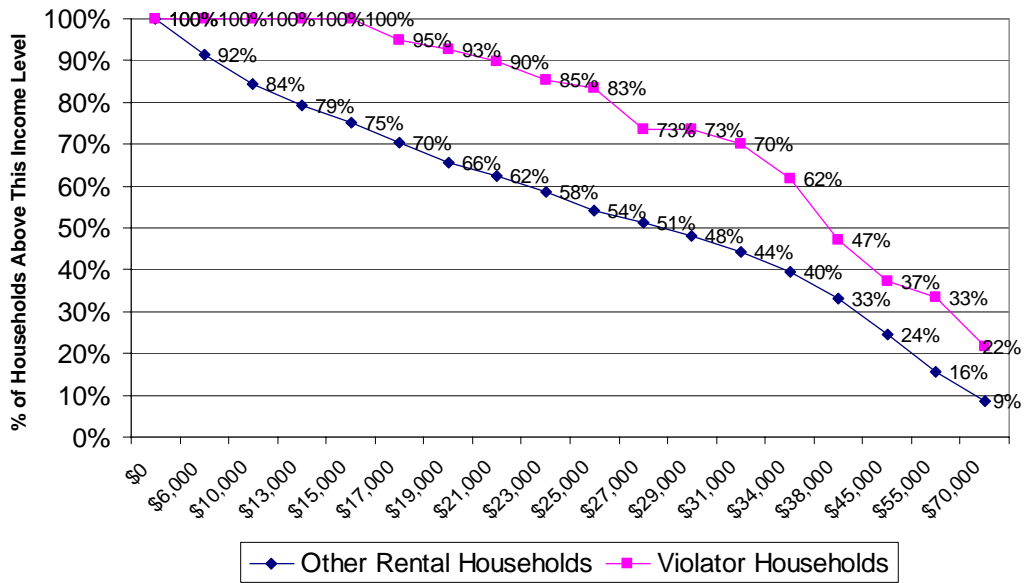
Exhibit 2-11
Average Number of Tenants Per Bedroom



HOUSEHOLD INCOMES

Violator households tend to have higher incomes than other rental households, in large part because they have more people generating income. Over 60 percent have household incomes above \$34,000, in comparison to only 40 percent of other rental households.

Exhibit 2-12
Household Income Levels of Violator Households and Other Rental Households

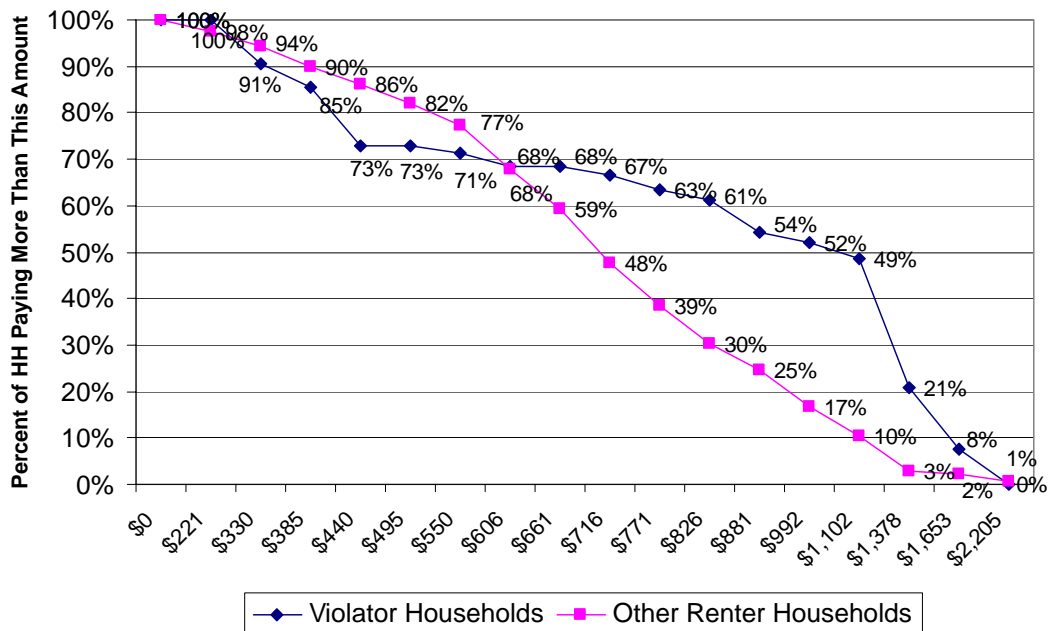


HOUSEHOLD RENTS

When examining rent levels, violator households tend to pay higher rent levels. Nearly half (49 percent) of violator households pay rents of \$1,102 per month or more, compared to only 10 percent of non-violator rental households.

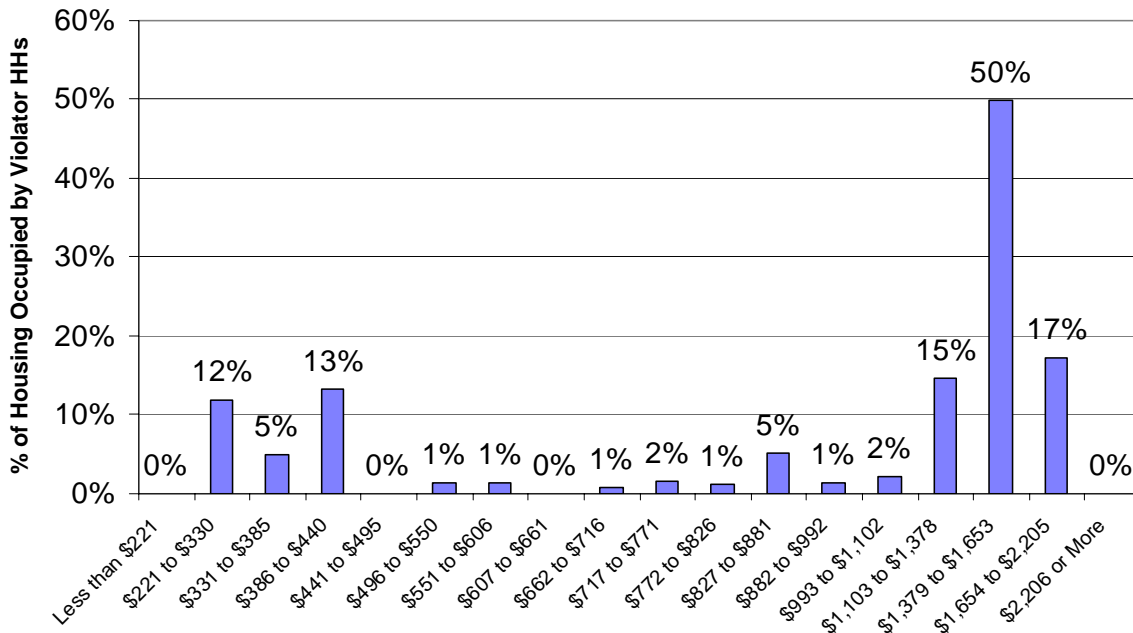
Interestingly, a significant subset of violator households pay low rent levels as well. Violator households are actually less likely than other households to pay rents of more than \$550, but far more likely to pay rents of more than \$1,102.

Exhibit 2-13
Household Rent Levels of Violator Households and Other Rental Households



The following exhibit shows the prevalence of violator households within various rental price ranges. Within the rental market, violator households are an insignificant share of rentals in most mid-price ranges. They make up a significant proportion of low-cost rentals (under \$440) and of high-end rentals (\$1,103 or more).

Exhibit 2-14
Violator Households as a Proportion of Rental Demand, by Rent Amount



It might be expected that a large proportion of the violator market inhabits upper-price housing, presumably because the rental costs are divided among a larger number of tenants. One unusual feature of this renter profile is the secondary market at the very low end of the housing spectrum, with over one-fourth of violator households occupying housing at prices under \$400 per month in the Year 2000. Potential explanations include:

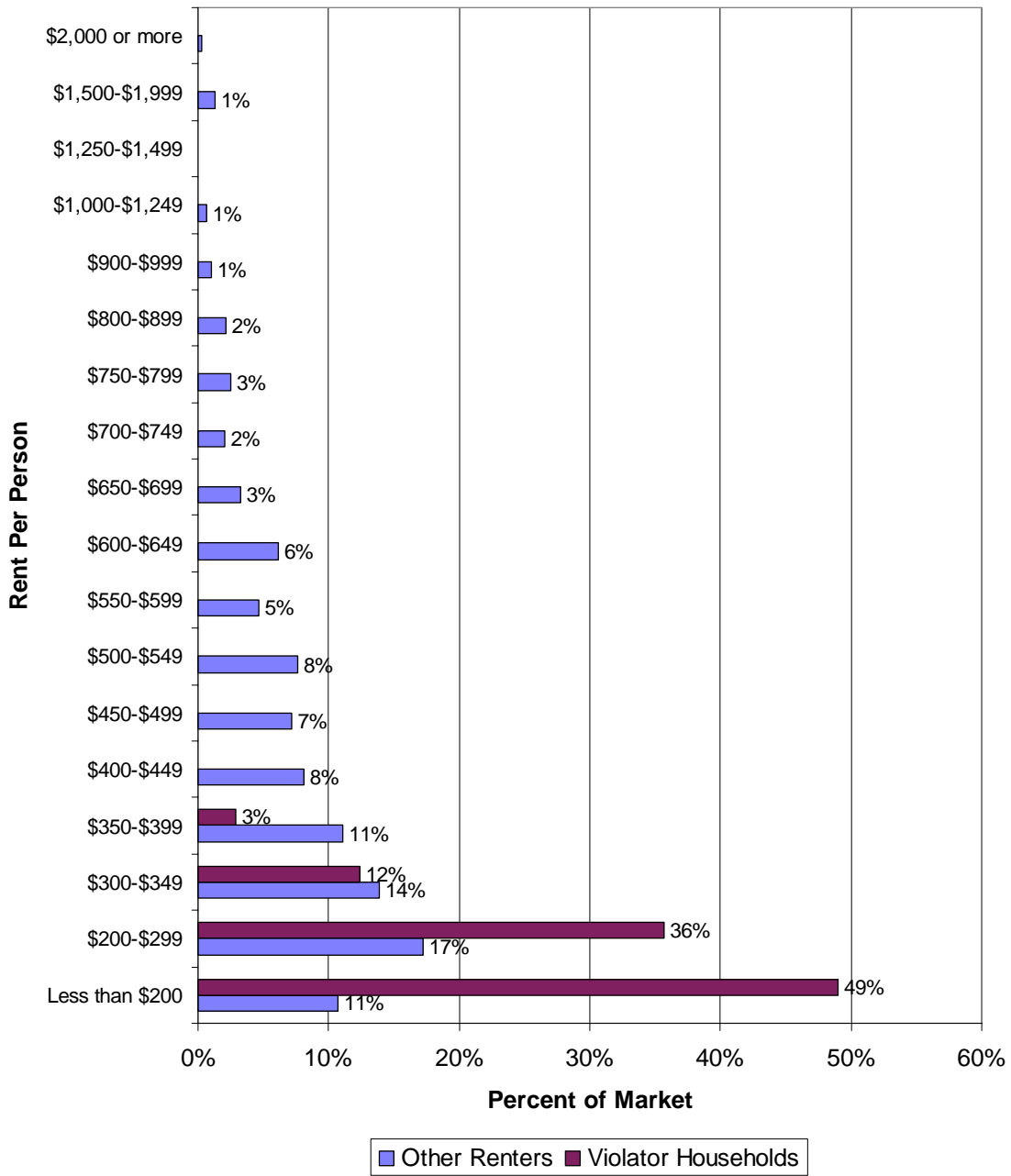
- the possibility that a significant portion of households have obtained very low-rent housing, though that appears unlikely because the data show that they are living in large (four or more bedroom units);
- the possibility that these violator households have obtained small units and “converted” them to larger units by making basements, closets, or other nontraditional spaces into makeshift bedrooms;
- the possibility that the householder incorrectly entered on Census forms only his or her share of the total rent, as opposed to the full household rent; or
- the possibility that certain types of housing may lend themselves to inappropriate reporting. For example, Ram Village in Fort Collins offers group housing to

individuals via large apartments, with each individual paying on an individual basis. It is possible that individuals in these units would report their rent payment as an independent household within an apartment, and then provide information on the apartment and the roommates. In this case, they would have correctly answered all questions, but merely have a housing situation that does not match the typical payment/roommate structure.

The bottom line is that this market bulge, while somewhat mysterious, cannot be confirmed or refuted, despite the fact that the data appear to be contradictory within these households. For this reason, the profile will be used just as it is reported.

While violator households may pay more total rent, they have more adults who are contributing to that rental payment. The exhibit on the following page describes the rent obligation per person (adult) for violator households versus other rental households. While nearly half of other renters have payment obligations of \$400 per month or more (in the Year 2000), nearly half of violator households paid less than \$200 per month. On the whole, the median rent obligation of a tenant in a violator household is almost exactly half that of a person living in a non-violator household.

Exhibit 2-15
Household Rent Levels Per Adult Tenant of Violator Households and Other Rental Households



A PROFILE OF TENANTS WITHIN VIOLATOR HOUSEHOLDS

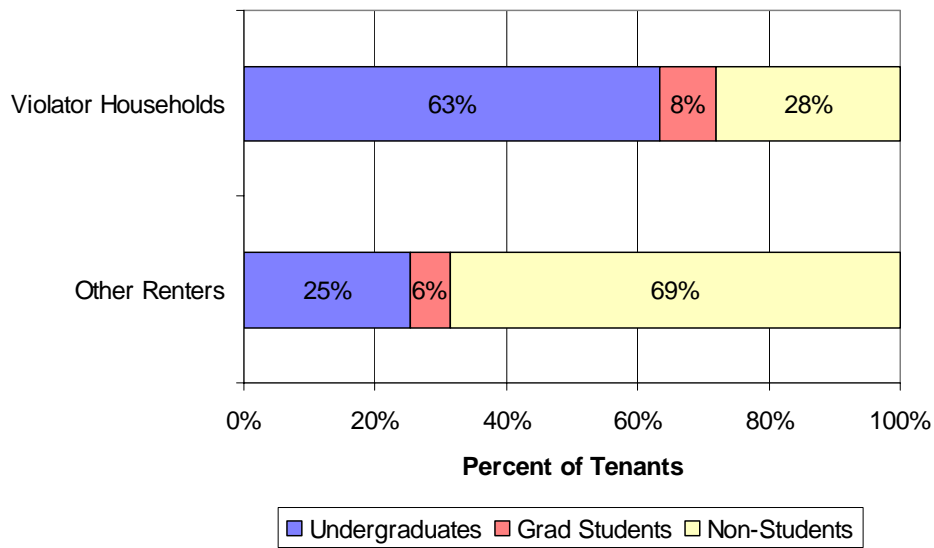
Within the violator households are four or more distinct, unrelated individuals. The following exhibits provide a profile of those individuals.

STUDENT STATUS

Student status is of course a significant identifier in Fort Collins. A majority of tenants in violator households are college students, and particularly undergraduate college students. Even so, nearly three in ten are not college students. On the other hand, only three in ten tenants in non-violator households are college students.

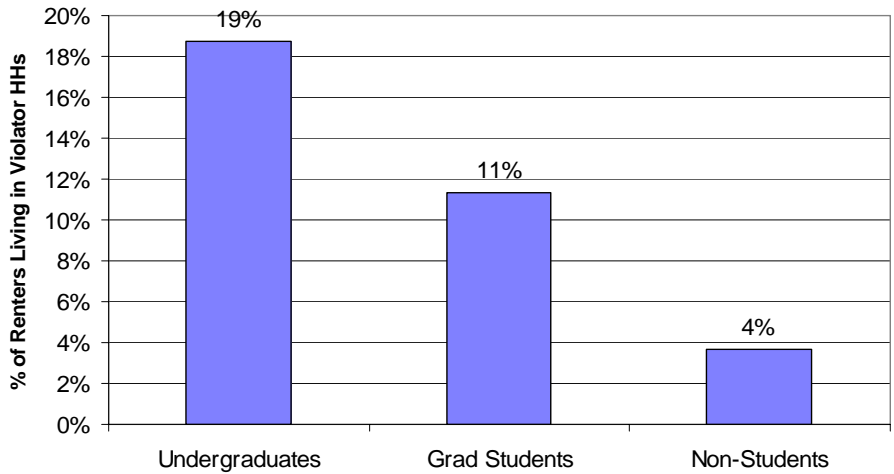
Note that while the majority of these students are probably Colorado State University students, they represent students at all universities who happen to live in Fort Collins.

Exhibit 2-16
Student Status of Tenants in Violator Households



Combining these figures with total rental populations, it appears that nearly 20 percent of undergraduate college students who are renting housing units in Fort Collins are living in violator households, compared to 11 percent of graduate students, and only four percent of non-students. Note that these figures include only people renting housing, and do not include homeowners, people living in group quarters such as dormitories, or people who pay no cash rent.

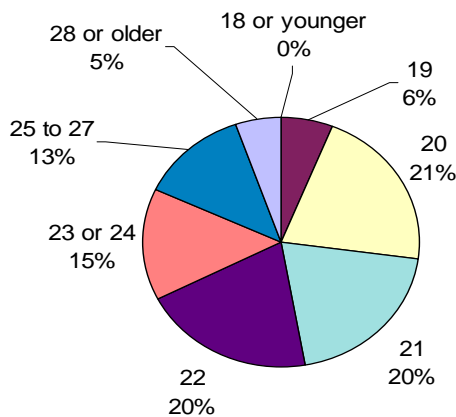
Exhibit 2-17
Proportion of Various Populations in Violation of Ordinance



AGE AND GENDER

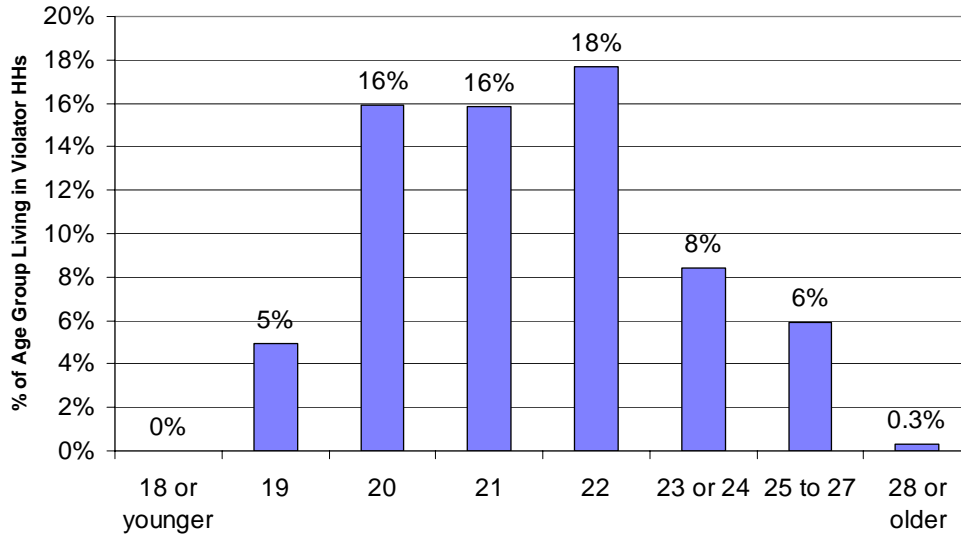
Regardless of their student status, tenants in violator households are young. Only five percent of these tenants are over the age of 27, and 82 percent are between the ages of 19 and 24, inclusive.

Exhibit 2-18
Age Distribution of Tenants in Violator Households



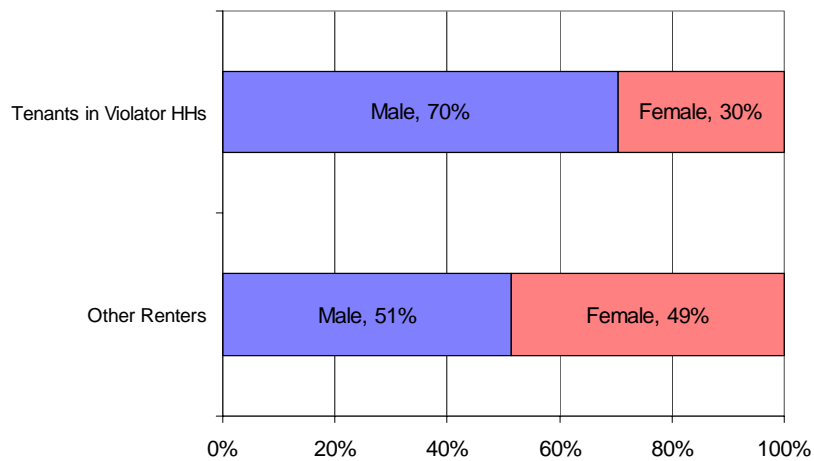
Roughly one in six city residents between the ages of 20 and 22 are living in violator households. The figures decrease rapidly for younger and older age groups, and are almost non-existent among adults over the age of 27.

Exhibit 2-19
Percent of People by Age Who are Tenants in Violator Households



Tenants in violating households are disproportionately male, with more than twice as many males as females in this population. This skewing is not true for other renters, who are evenly divided between males and females.

Exhibit 2-20
Proportions of Renters by Gender

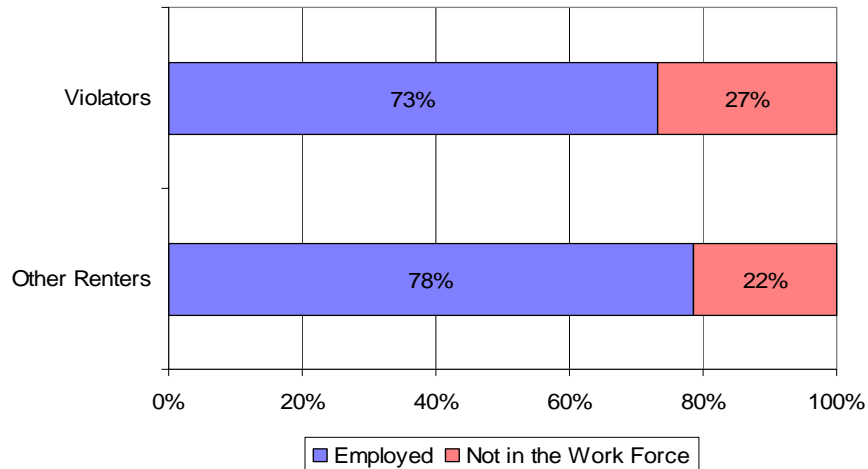


EMPLOYMENT STATUS

Tenants in violator households are only slightly less likely to work than are tenants in non-violator households. Employment figures include both people who are employed and those who are seeking employment or on temporary layoff.

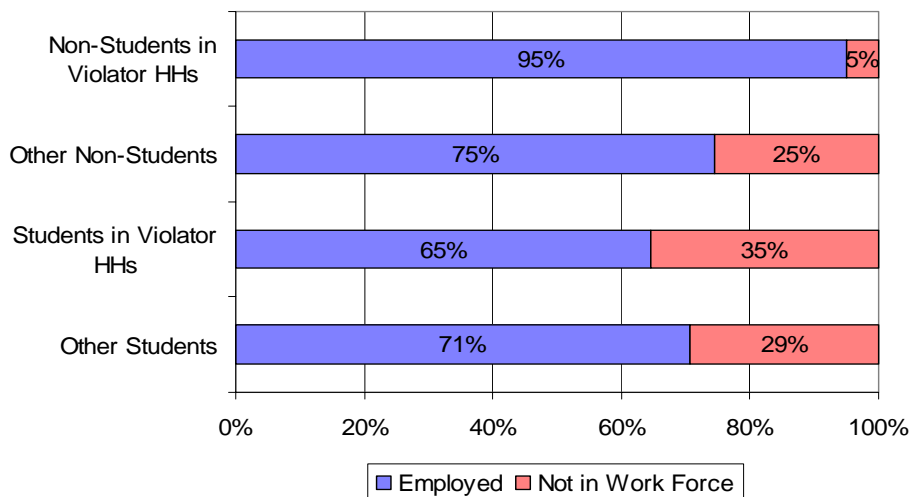
Note that these figures count only people age 16 or older.

Exhibit 2-21
Employment Status of Rental Populations



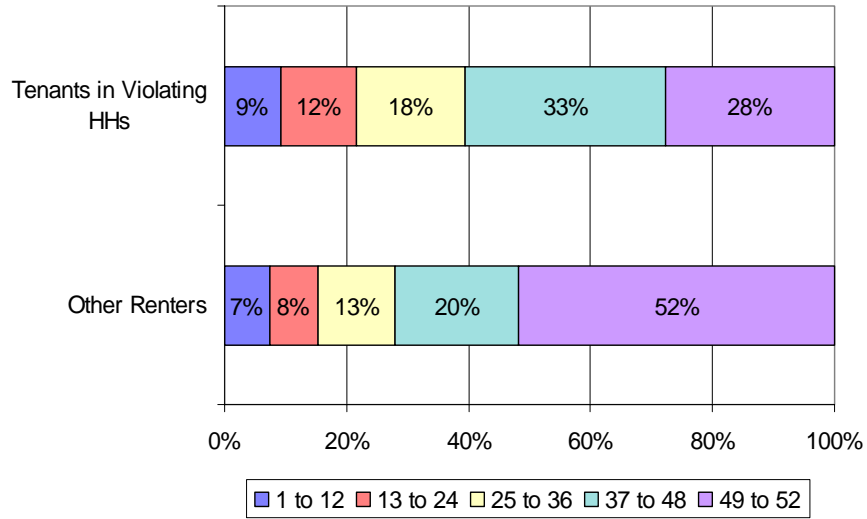
Students who are living in violator households are slightly less likely to work than other college students in the city (including those who rent, own, and living in group quarters). Non-students in violator households are more likely to work than are their counterparts in other types of housing.

Exhibit 2-22
Employment Status by Student Status



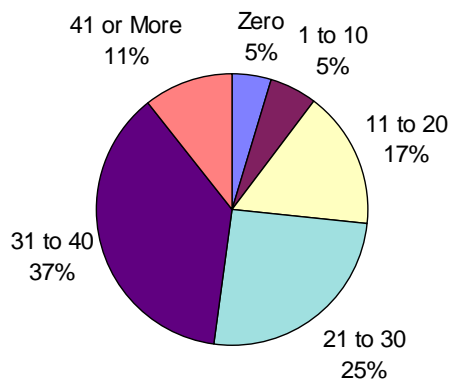
Of those who work, tenants in violating households are less likely to work year-round than are other renters, though 61 percent work more than 36 weeks per year. A total of 21 percent of working tenants in violating households work less than approximately half a year.

Exhibit 2-23
Weeks Worked in Previous Year (Working People Only)



Of those tenants in violator households that work, almost half (48 percent) are working more than 30 hours per week. Only 27 percent work 20 hours per week or less, which includes five percent that sought employment but did not work.

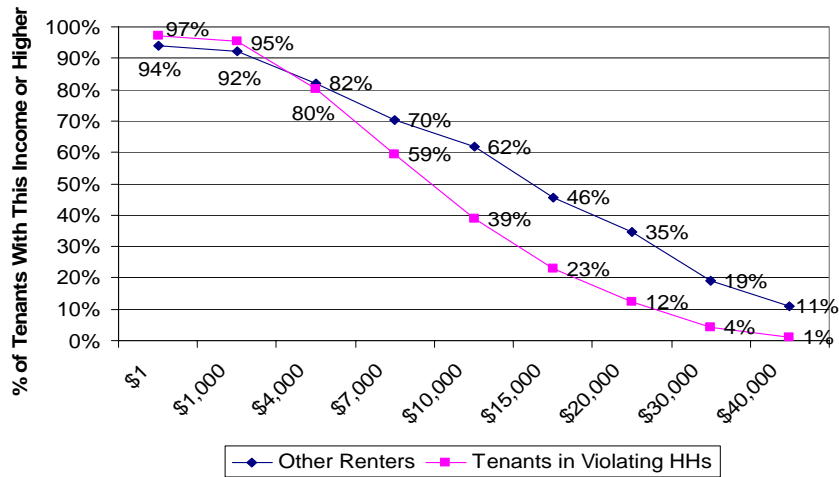
Exhibit 2-24
Hours Worked Per Week, Tenants in Violator Households Who Worked



PERSONAL INCOME AND INCOME SOURCES

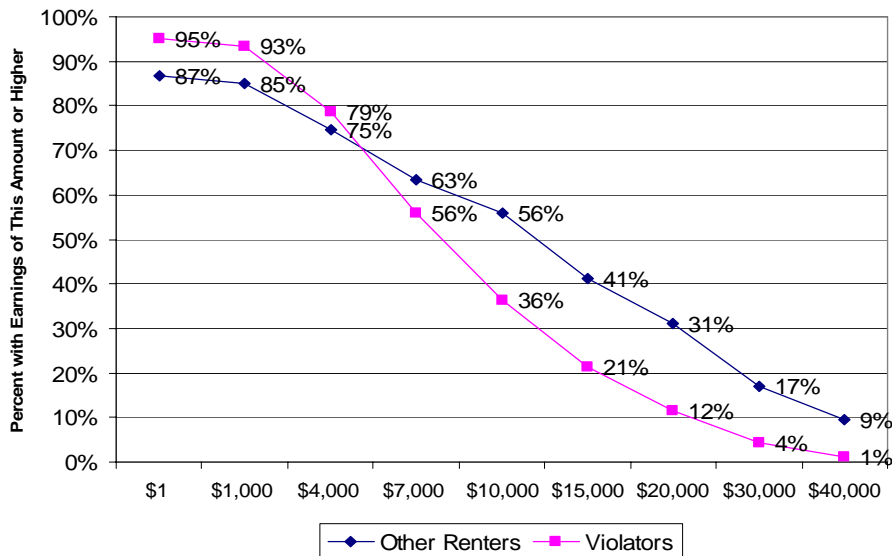
Tenants in violating households tend to have lower total incomes than other renters. These tenants are half as likely to have incomes of \$15,000 or more on a personal basis, and one-fifth as likely to have a total personal income of \$30,000 or more.

**Exhibit 2-25
Total Incomes of Renters**



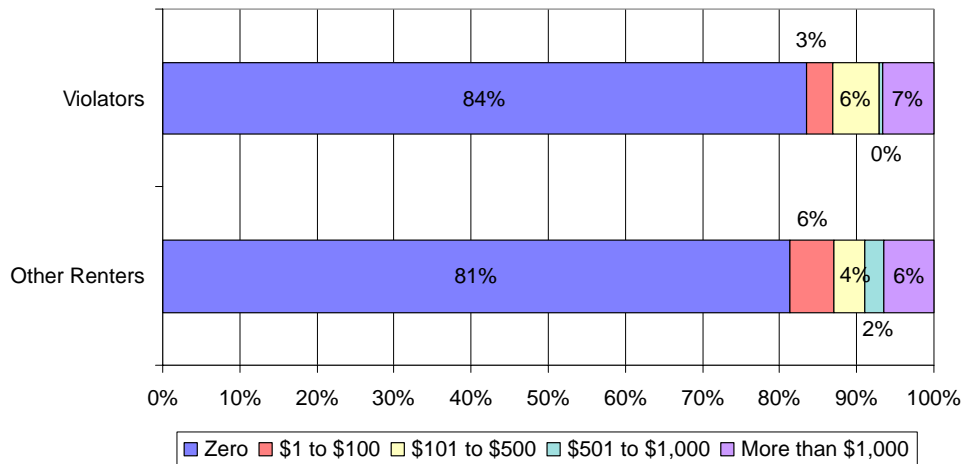
Tenants in violating households also tend to have lower earned incomes than other renters, though they are less likely to have extremely low earned incomes of \$4,000 or less. Only 21 percent of violating tenants have earned incomes of \$15,000 or more.

**Exhibit 2-26
Total Earnings of Renters (Excluding Self-Employment Income)**



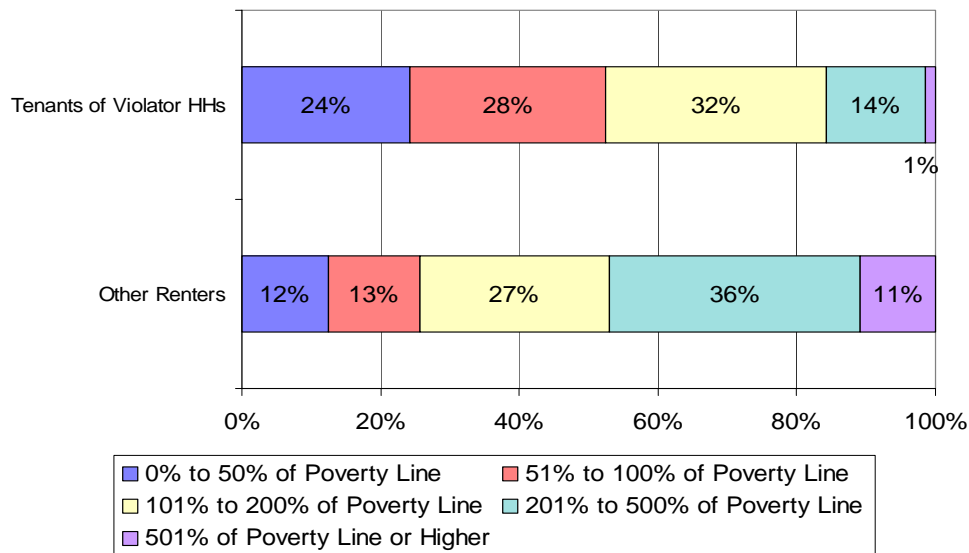
An examination of incomes derived from investments, rents, interest, and dividends reveals no significant differences between tenants of violator households and other renters. The vast majority of both groups have no appreciable savings or investments. However, it should be noted that some college students may receive significant unearned income from parents that does not factor into their personal incomes.

Exhibit 2-27
Investment Income Among Renters



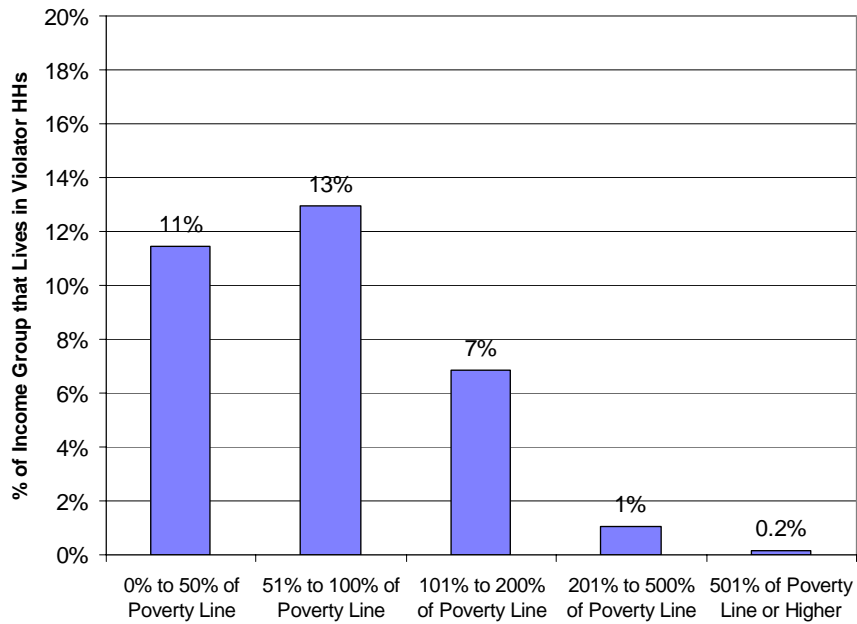
Despite their propensity to work, tenants in violator households are much more likely to be below the poverty line than are other renters. Over half of the tenants in violator households are living below the poverty line, compared with 25 percent of other renters.

Exhibit 2-28
Poverty Status of Renters



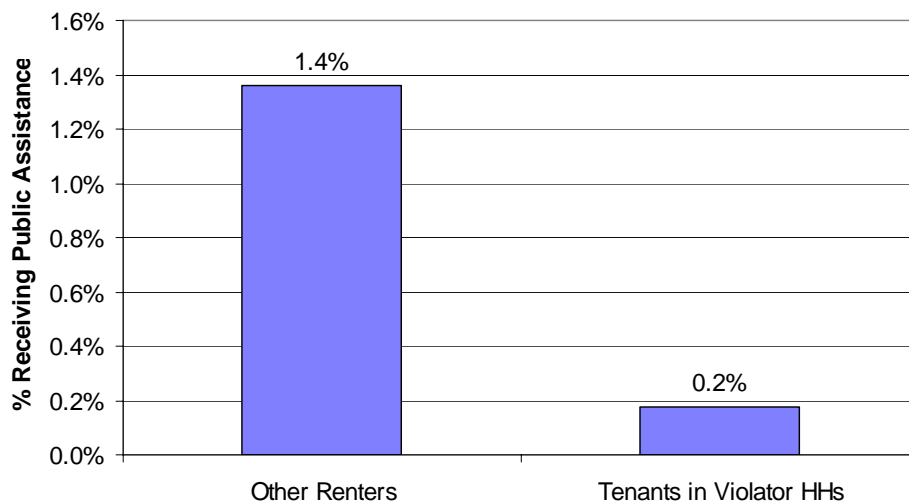
Nearly one in eight people living below the poverty line live in violator households.

Exhibit 2-29
Tenants in Violator Households as a Proportion of Income Groups



While tenants in violator households are more likely than other renters to live in poverty, they are less likely to seek public assistance. Only 0.2 percent had received public assistance during the previous year, compared with 1.4 percent of other renters.

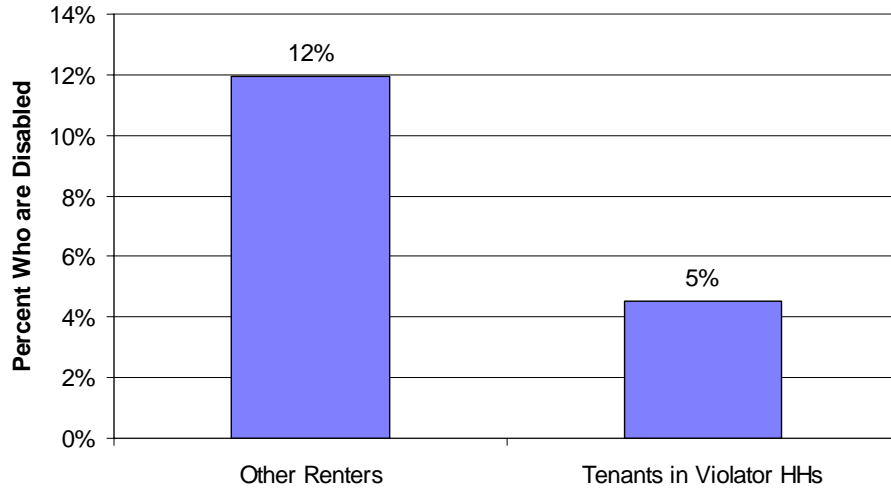
Exhibit 2-30
Proportions of Renters Receiving Public Assistance in 2000



DISABILITY STATUS

Perhaps in part due to their young age, tenants in violator households are much less likely to be disabled than are other renters.

Exhibit 2-31
Disability Status of Renters



KEY FINDINGS

The key findings of this section are divided into two sections, violator households and tenants within violator households.

VIOLATOR HOUSEHOLDS

- Approximately two-thirds of violator households occupy single family homes.
- Most violator households (64 percent) are only slightly over the three-person ordinance limit, with four people sharing a housing unit.
- The average household incomes of violator household are generally higher than those of other renters, despite the fact that individual tenants' incomes are lower and individual tenants in violator households are more likely to be below the poverty line.
- Violator households are significant shares of the housing market in both low-cost rentals (under \$440) and high-cost rentals (\$1,103), and are very minor market participants in mid-range units.
- The rent per person in violator households is nearly 50 percent less than that paid by other renters, on a per-adult basis.
- The majority of violators (86 percent) live in three-bedroom units or larger. Violator households make up a significant portion of the market for four-bedroom units and larger.

TENANTS WITHIN VIOLATOR HOUSEHOLDS

- Overall, 71 percent of violator household tenants are college students.
- Seventy percent of the tenants in violator households are males and 82 percent of the tenants are under the age of 25.
- The majority of tenants within violator households do not work year round.

PART 3. IMMEDIATE IMPACTS OF ORDINANCE ENFORCEMENT

This section of the report develops an extensive impact analysis to identify the impacts of ordinance enforcement, including impacts on rental vacancy rates, rental prices, and home values.

Having defined the situation regarding the number and nature of violator households, the next step is to actually identify the impacts that a strict ordinance enforcement would have on the various interested parties. We will address several key questions in this research, such as:

- What will be the impact of ordinance enforcement on rental vacancy rates?
- What will be the impact of ordinance enforcement on rental pricing?
- What will be the impact of ordinance enforcement on property values?

These will be addressed from the standpoint of key populations.

This section of the report will address those questions. In order to do so, seven distinct steps will be undertaken.

1. Corona will develop a profile of the rental market as it existed during the 2000 Census. The Census provides a very comprehensive portrait of the rental market.
2. Corona will develop an updated estimate of the rental market as it exists today, using a variety of sources and techniques.
3. Corona will use the profiles previous developed to identify the presence of violator households within the rental market.
4. Corona will develop estimates for how violator households will reform if broken up by the ordinance, and what the housing preferences will be for the newly formed (and smaller) households that will result.
5. Corona will alter the profile of the rental market to reflect the loss of violator households and the addition of newly formed non-violator households.
6. Corona will assess the rental market's reaction to these shifts in demand.
7. Corona will examine the impacts of these shifts on rental vacancy rates, pricing, and property values.

Each step in the process is described in the background documentation at the end of the section. The following discussion focuses on key findings and implications.

A SUMMARY OF RENTAL MARKET IMPACTS

After taking into account the number of violator households, their demographics, the supply of rental housing, and the rental preferences of households at various income levels, the research team determined that a strong enforcement of the “three unrelated people” ordinance will have the following impact on the rental market.

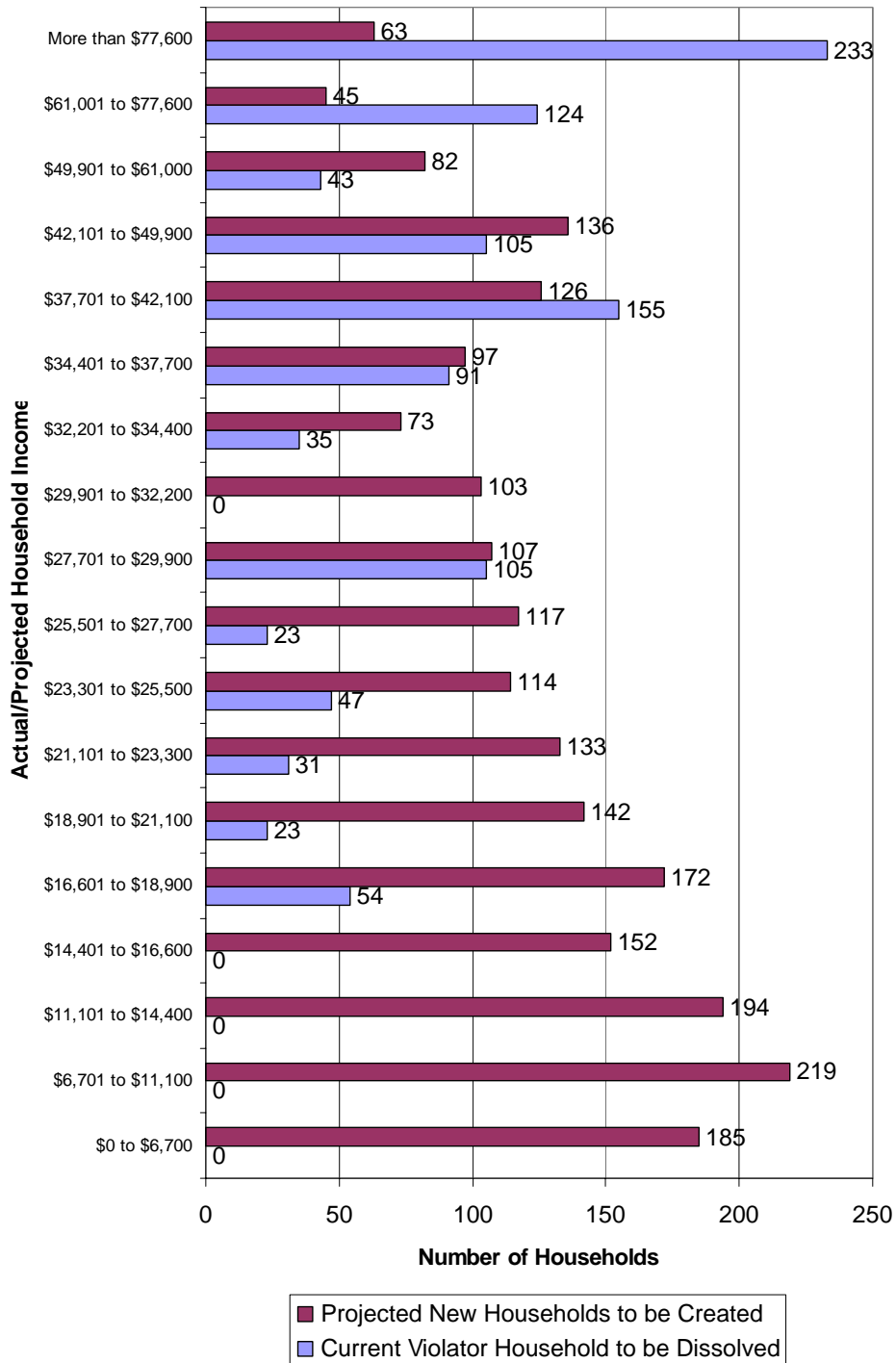
- A total of 1,070 rental units are in violation of the ordinance and would be forced to downsize or dissolve.
- These households contain a total of 4,773 renters. In addition, another 230 tenants would be forced to vacate owner-occupied housing so that those homes would satisfy the ordinance. A total of 5,003 renters would need to change their living arrangements.
- These 5,003 renters would reform into 1, 2, or 3-person households. The research team estimates that the ratio will be as follows:
 - 260 of these people will form new one-person households, for a total of 260 new one-person households.
 - 2,518 of these people will form new two-person households, for a total of 1,259 new two-person households
 - 2,225 of these people will form new three-person households, for a total of 742 new households.

In essence, 1,070 large households will disappear from the Fort Collins housing market, and 2,261 new smaller households will appear, for a net gain of 1,191 households (with no change in total population).

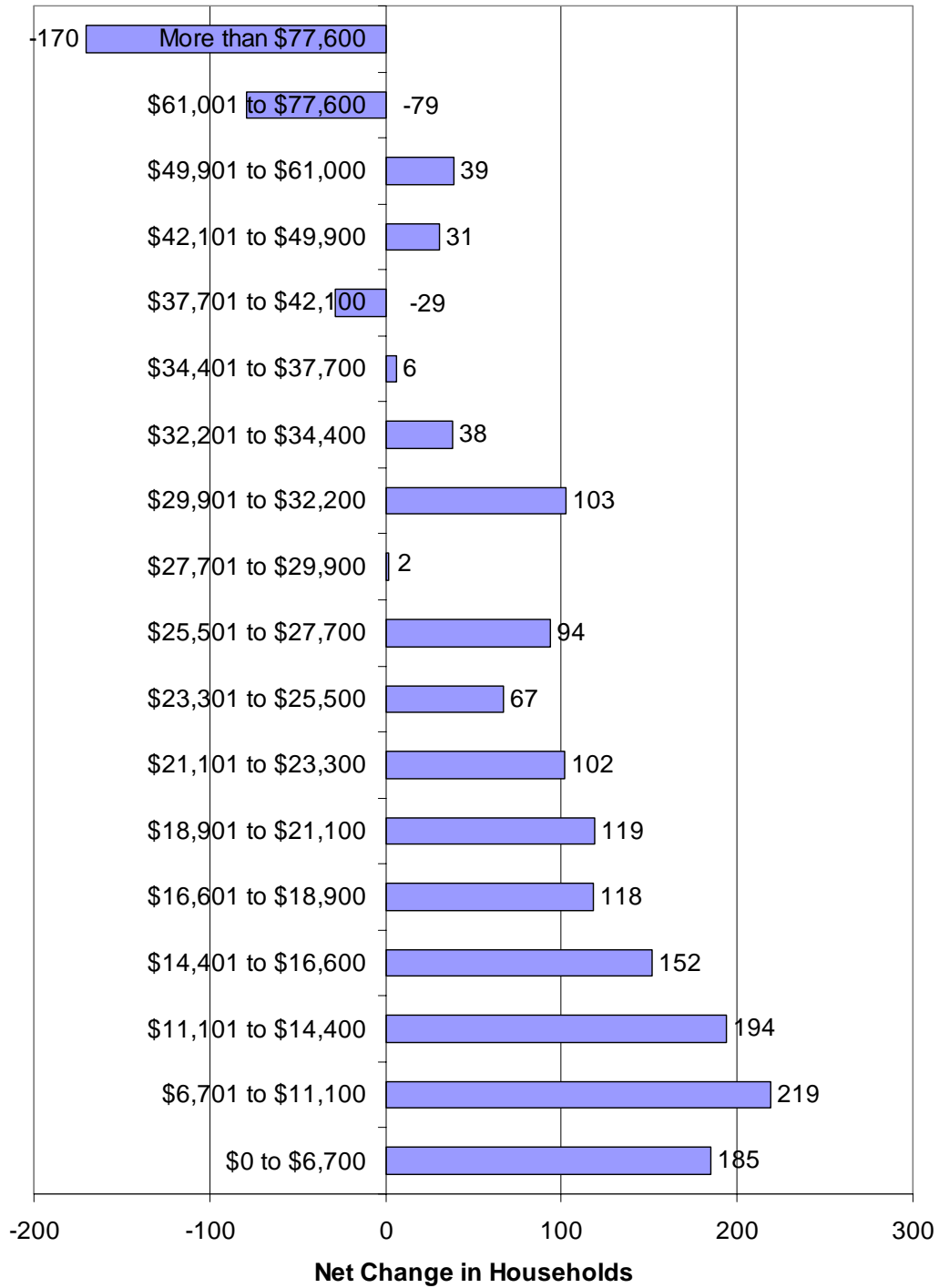
- When examined by income, strong ordinance enforcement will result in the net loss of nearly 250 households with incomes over approximately \$60,000 per year, and the net creation of approximately 190 new households with incomes from \$30,000 to \$60,000 per year. The number of households with incomes below \$30,000 will increase by over 1,250.

As a means of comparison, the total city’s number of households with incomes below approximately \$22,000 per year will increase by approximately 10 percent. The city’s total number of households with incomes between \$22,00 and \$33,000 will increase by approximately 5 percent. The change in the number of households with incomes over \$33,000 will decrease by approximately 1 percent. However, the change on the rental market will be much larger.

**Exhibit 3-1
Household Income Profiles – New Households Versus Dissolved Violator Households**



**Exhibit 3-2
Net Change in Households with Ordinance Enforcement**



- When translated to rental demand, these changes in households will produce a significant increase in demand for units in the \$550 to \$775 price range, and a decrease in demand among units priced above \$1,100.

Exhibit 3-3
Net Change in Rental Demand by Price Level

Rental Price	Rental Unit Demand of New Households	Lost Rental Unit Demand of Violator Households	Net Change in Demand
Under \$222	68	0	68
\$222 to \$332	103	101	2
\$333 to \$387	115	54	61
\$388 to \$442	130	136	-6
\$443 to \$498	117	0	117
\$499 to \$553	120	16	104
\$554 to \$609	252	31	221
\$610 to \$664	187	0	187
\$665 to \$720	270	19	251
\$721 to \$775	202	35	167
\$776 to \$831	165	23	142
\$832 to \$886	103	74	29
\$887 to \$997	135	25	110
\$998 to \$1,108	105	35	70
\$1,109 to \$1,385	124	299	-175
\$1,386 to \$1,662	19	140	-121
\$1,663 to \$2,217	36	82	-46
\$2,218 and Up	10	0	10
	2,261	1,070	1,191

When these changes in rental demand are entered into the current Fort Collins rental market, the impacts will be quite significant. The overall rental vacancy rate will drop by five percentage points, and the initial impact will produce negative vacancy rates in several market segments, which of course are not possible. The various market scenarios to deal with this situation are discussed later in the analysis of affected parties.

**Exhibit 3-4
Impact of Ordinance on Rental Market**

Rental Rate	Baseline Scenario		Scenario with Ordinance				
	Vacancy Rates	2004 Supply	2004 Baseline Occupied Units	Change in Demand (Units)	Change in Demand (Percent)	2004 Occupied Units with Ordinance	2004 Renter-Preferred Vacancy Rate with Ordinance
Under \$222	11.0%	636	566	68	12%	634	0.3%
\$222 to \$332	10.2%	794	713	2	0%	715	9.9%
\$333 to \$387	6.9%	1,061	988	61	6%	1,049	1.1%
\$388 to \$442	6.4%	814	762	-6	-1%	756	7.1%
\$443 to \$498	9.6%	959	867	117	13%	984	-2.6%
\$499 to \$553	4.3%	1,270	1,216	104	9%	1,320	-3.9%
\$554 to \$609	4.5%	1,840	1,756	221	13%	1,977	-7.4%
\$610 to \$664	9.2%	1,943	1,764	187	11%	1,951	-0.4%
\$665 to \$720	10.3%	2,499	2,242	251	11%	2,493	0.2%
\$721 to \$775	4.8%	2,630	2,504	167	7%	2,671	-1.6%
\$776 to \$831	5.3%	1,452	1,375	142	10%	1,517	-4.5%
\$832 to \$886	12.0%	1,244	1,095	29	3%	1,124	9.6%
\$887 to \$997	17.3%	1,613	1,333	110	8%	1,443	10.5%
\$998 to \$1,108	13.4%	1,456	1,261	70	6%	1,331	8.6%
\$1,109 to \$1,385	11.7%	1,966	1,735	-175	-10%	1,560	20.7%
\$1,386 to \$1,662	7.0%	377	351	-21	-34%	230	39.0%
\$1,663 to \$2,217	7.6%	401	370	-36	-10%	334	16.7%
\$2,218 and Up	0.0%	66	66	0	0%	66	0.0%
Total Rental Market	8.9%	23,021	20,964	1,191	5.7%	22,155	3.8%

IMPACTS ON AFFECTED POPULATIONS

The impacts of this market shift will now be discussed for each of several affected parties, including:

- Low-range rental market – Renters and landlords in the price range under \$440
- Mid-range rental market – Renters and landlords in the \$440 to \$830 range
- Upper-middle market – Renters and landlords in the \$830 to \$1,100 range
- Upper-end market – Renters and landlords in the \$1,100 range and up
- Tenants in Dissolved Violator Households
- Owners in Owner-occupied Violator Households
- Non-Violator Households
- Local Companies
- Housing Construction Industry

KEY MARKET 1: RENTERS AND LANDLORDS IN THE LOW-RANGE MARKET (UNDER \$440)

Default Market Size: 3,300 housing units, 3,150 rental households (before market shifting)

Landlords in the low-rent market will gain immensely in the short-term from ordinance enforcement. On the other hand, renters in this price range will suffer from extreme competition for housing and higher prices even to stay in their current units.

These units typically have a high vacancy rate as they are generally less desirable units, and most rental households can afford to pay a higher price for a nicer or larger unit.

In a post-ordinance environment, three strong factors will change this market:

- First, the large increase in demand will create a net increase in demand at this price level, reducing natural vacancy rates for the group from over 8 percent to the 4 to 5 percent range even before a secondary market reaction (below).
- Second, the price levels above this market range will face huge supply shortages. As a result, the best units in this price range will be able to increase into the price range above \$440, with a subsequent shift upward in price through the entire supply of low-market rentals. The research team predicts that approximately 15 percent of this low-cost housing supply will move up to the medium-range market and the supply will be lost to low-range renters, and pricing levels for these units will increase by a minimum of 5 to 20 percent.
- Third, the pricing movement of housing supply out of this market will cause even greater shortages at the lowest end of the low-range market. This change in supply will essentially lower the vacancy rate to zero, with more supply than demand. It is likely that approximately 150 to 250 households at this extreme low end of the market will be unable to compete for housing, requiring either public assistance or creating a market for “non-standard” housing or illegal overcrowding. Another option, albeit unlikely for this income group, is that the lowest-income households will simply leave the city.

In the long run, increased construction in the mid-range market will almost certainly push back the units that priced themselves out of this market. However, with the increased demand and the likelihood that few new units will be built in this price range, the long-term return of these units will merely return vacancy rates to a healthy level in the 4 to 5 percent range. This segment will most likely not be directly served by new market-level construction, but will benefit only indirectly by increases in supply in the mid-market range.

KEY MARKET 2: RENTERS AND LANDLORDS IN THE MID-RANGE MARKET (\$440 TO \$830)

Default Market Size: 12,600 housing units, 12,900 rental households (before market shifting)

Landlords in the mid-range rental market will gain somewhat in the short-term from ordinance enforcement, though to a lesser extent than landlords of low-rent properties. Once again, the situation will be detrimental to renters, due to extreme competition for housing. However, pricing for these units may not increase dramatically due to downward price pressure from upper-end rentals.

In this price range, pre-ordinance vacancy levels were somewhat high in some price segments and were moderately healthy in others. However, the addition of over 1,100 new households into this market range alone will completely swamp the housing supply, with demand for units outstripping supply throughout the range.

Aside from competing fiercely to find units, renters in this price range will have four options:

- Pay more money to rent larger units, an option that is only available to those at the top end of this price range. This will happen to some extent, since the vacancy rate for units in the \$830 to \$1,100 range will be higher than a healthy rate. However, vacancy rates at those levels are not high enough to provoke a full-scale downsizing, so price cutting of upper-middle units into the mid-range market will be limited. Similarly, relatively few renters will venture out of the competitive mid-range market into the somewhat stagnant upper-middle market.
- Another option is to move down and rent cheaper units that are less desirable, and which typically have high vacancy rates for that reason. However, the competition for those units will be even more fierce, and a significant part of that supply will have already risen to mid-range prices. As a result, this will not happen.
- Move out of the area, either permanently or on a commuting basis. This may actually be an attractive option for some of these households, particularly if there is an overstock of mid-range rentals in other nearby communities. Depending on other factors such as the availability of rental housing in the unincorporated county and/or nearby communities, one to two percent of the market could relocate out of the city, equating to 100 to 300 mid-range renters. We caution that this is merely a rough estimate.
- One- and two-person households can double up and obtain roommates, while staying under the limit set by the ordinance. This is a probable scenario as well, and has the potential to create overcrowding to some extent in one- and two-bedroom rental units where two or three renters share a unit.

On the positive side, price pressure from upper mid-range units may dampen the price increases that will be prevalent in the low-range market. Units in the \$800 range cannot significantly increase prices without running into competition from the upper mid-range market, which will still have a relatively high vacancy rate. Therefore, landlords will benefit from extremely low vacancy rates (on the order of 0 to 1 percent), but will not be able to use that to price units up significantly. Even so, some price increases are likely, perhaps in the five to ten percent range, as the entire market shifts upward in response to competition.

In the long term, the housing construction market will almost certainly correct for this intense shortage of housing by increasing new construction. In the short term, some additional low-end owner-occupied units could be converted to rentals as well.

KEY MARKET 3: RENTERS AND LANDLORDS IN THE UPPER MIDDLE MARKET (\$830 TO \$1,100)

Default Market Size: 4,300 housing units, 3,900 rental households (before market shifting)

Landlords and tenants in this price range will exist somewhat on the tipping point of the market, between the high vacancies and lost demand at the upper end of the market and the saturated market and increased demand in the mid-range market. As a result, the impact on this market segment will be relatively small.

Vacancy rates at this price range are currently high, estimated in the 14 to 15 percent range. With the breakup of larger households formerly renting upper-end housing, this market segment will benefit as some of those households downsize and move down into the upper middle market. Even so, most of the demand will bypass them and move further down the price scale, so rental rates will remain somewhat high, in the 8 to 10 percent range.

This market will be impacted by two key factors that cannot be predicted with great confidence:

1. Landlords' willingness to discount pricing at the lower end of the scale will be an important factor. A move down into the \$800 price range will produce large demand and low vacancies. However, history shows that landlords in this price range are hesitant to discount prices, while renters in the \$800 range are hesitant to move up. The research team predicts some crossover, but history indicates that landlords in this price range are willing to tolerate vacancies in the ten percent range in exchange for keeping their rental rates high.
2. A threat to this market exists from above. Upper-end rentals will be facing extraordinarily high vacancy rates, and landlords will be facing decisions about whether to sell their units, wait until demand increases again, or lower their prices. If they lower their prices, they then transfer that market stress to the upper middle market. However, the upper middle market is approximately 50 percent larger than the upper end market (4,300 units versus 2,800 units), and the upper end landlords may have little interest in dropping their prices to compete in a market that already has high vacancy rates.
3. A third potential factor is that the research team assumed that roughly 5 percent of the tenants in the dissolved households will reform as one-person households, 50 percent as two-person households, and 45 percent as three-person households, based on existing patterns among other renters (with adjustments to denote this population's propensity for having roommates). It is possible that some of those one- and two-person households will merge to escape the competition at the mid-market and low-rent levels, and will, in combination, have enough household income to afford upper middle range housing. This would be a positive in many respects, as it would ease the demand pressures at the lower and middle price levels. However, it may lead to overcrowding to some degree as three renters move into two-bedroom units.

Overall, this market will probably not be impacted significantly by the ordinance. Demand will increase, which will aid landlords, but vacancy rates will remain high enough that renters who can afford this price range will have an ample opportunity to rent at stable prices.

KEY MARKET 4: RENTERS AND LANDLORDS IN THE UPPER-END MARKET (\$1,100 AND UP)

Default Market Size: 2,800 housing units, 2,200 rental households (before market shifting)

This market will essentially see exactly the opposite effect of the low-end market. The breakup of violator households will disproportionately impact the upper end rental market, and most of the reformed smaller households will not be able to afford these larger, more expensive properties. Enforcement of the ordinance would be expected to more than double vacancy rates in this market segment, from a current level in the 10 percent range to an expected 22 percent level. Housing in the \$1,400 to \$1,700 range would be particularly hard-hit, with vacancies approaching 40 percent.

Landlords in this market segment will have three primary choices:

1. *They can hold on to their properties and attempt to “wait out” the housing glut created by the ordinance enforcement.* In order to consider this option, it is important to estimate how long it will take for the vacancy rate in that sector to fall back to a reasonable level. For this analysis, a reasonable level is assumed to be 10 percent. Assuming constant growth in the city that is proportionate by owner/renter households and price demand, and assuming that the number of rental units in the higher end of the market remains the same (i.e., no new construction or conversion takes place), it will take approximately 7.4 years to reach a 10 percent vacancy rate. The following exhibit provides the actual values used to estimate this period.

**Exhibit 3-5
Estimated Time to Reduce Vacancy Rate in Upper End of Market**

Total Rental Units (\$1100+)	Occupied Units (\$1100+)	Occupied Units at 10% Vacancy (\$1100+)	Household Growth Rate	Years to Market Recovery
2,810	2,190	2,529	1.97%	7.38

2. *They can lower their rental price.* This may not be an option to some landlords who have to cover mortgage costs. However, for others who have held their properties for some time, it may be feasible. In considering the mechanics of price dynamics at this end of the market, one can consider the various property levels and their “natural” vacancy rate if the ordinance is passed.

For landlords at the low end of the upper end market, there is significant potential for lowering their rental prices, because that would move them into the \$998 to \$1,108 category, which has an acceptable (if slightly high) vacancy rate. Since their unit was previously priced higher, it is presumably a larger or higher quality unit and could compete well in that range. On median, though, this would represent a 16 percent price discount.

At higher rent levels, the same mechanism holds true: a discounted unit of higher quality should be more desirable than a non-discounted unit of lower quality. However, the dynamics are made difficult by the high vacancy rates at higher levels. For example,

discounting a \$1,900 per month rental down to \$1,525 will certainly make it desirable, but at the same time it is difficult even to lease desirable units in an atmosphere with a 39 percent vacancy rate. In summary, lowering prices is an option, particularly to landlords on the lower end of the market, but it may not be feasible from a business perspective.

Exhibit 3-6
Vacancy Rate in Upper End of Market (and Top of Upper Middle Market)

Rental Rate	Housing Supply	2004 Occupied Units	
		with Ordinance	Vacancy Rate
\$998 to \$1,108	1,456	1,331	8.6%
\$1,109 to \$1,385	1,966	1,560	20.7%
\$1,386 to \$1,662	377	230	39.0%
\$1,663 to \$2,217	401	334	16.7%
\$2,218 and Up	66	66	0.0%

3. *They can sell their property.* Obviously, this is not a preferred approach for a person who has invested in a rental property, but it remains a feasible option. As a rental property, these large units will lose value as a result of the ordinance, because their market size will drop significantly. As seen above, decreases of 15 to 25 percent may be necessary to lease an upper-end unit, with a proportional decrease in property value.

However, this does not reflect the true picture. Most rental units at this price range are single-family homes, and single family homes were originally built to be owner-occupied units. In most cases, a conversion back from rental to single-family home would be painless, and the ownership market is much larger than the rental market for houses in this value range. Additionally, the impacts of ordinance enforcement on the owner-occupied housing market will be negligible, so it is likely that the home could be sold for its pre-ordinance value as an owner-occupied home. (Of course, this depends on some property-specific attributes such as location, condition, and home layout.)

Another bonus for sellers would be the potential impact of the sale of multiple single-family rentals in a neighborhood. According to the research team’s analysis (described later in this section), it appears that a neighborhood’s median home value declines by \$391 for every percent of the single-family home inventory that is a rental property. In other words, a house in a neighborhood where all single-family homes are rentals can be estimated to be valued at \$39,100 less than a house in a neighborhood where no single-family homes are rentals.⁴ If multiple landlords opt to sell their properties, those who sell later may reap the benefits of the neighborhood’s return to single-family occupant status.

The above impacts all relate to landlords. As a closing note, it should be observed that renters in this price category will benefit from ordinance enforcement, as they will have many more homes to choose from, and potentially lower pricing.

⁴ Note that the model used to develop the figure of \$391 explains only 58 percent of the variation in median home values across neighborhoods. This figure should be considered a “ballpark estimate” rather than a firm figure.

KEY MARKET 5: DISPLACED TENANTS FROM VIOLATOR HOUSEHOLDS

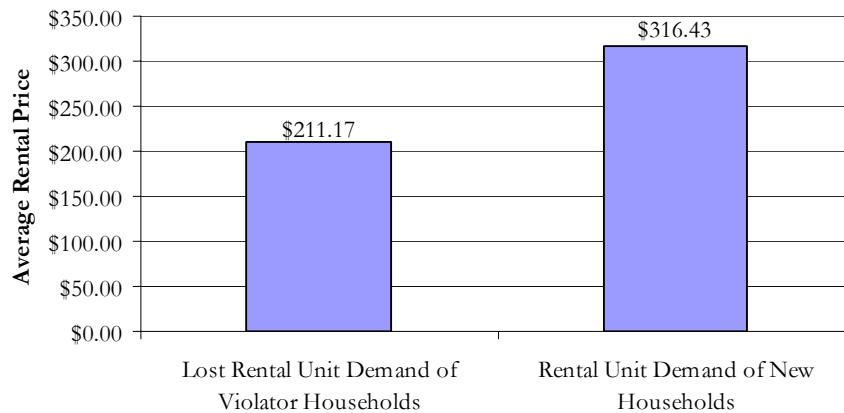
Market Size: 5,003 individuals

This market consists of the 5,003 individuals who will have to change their housing situations as a result of the ordinance. While they are included in the rental markets that have already been discussed in Key Markets 1 through 4, but they warrant additional analysis because of their nature as the focal point of the ordinance.

From a game theory perspective, these individuals are by definition losers in the ordinance enforcement, because they will be banned from pursuing a housing arrangement that they have decided to be in their best interest. They have already decided that living in a household with three or more other people is their best housing option, and will be forced to abandon that option if the ordinance is enforced.

Not only is this true in theory, but it is also true in practice. The exhibit below shows that the tenants in violator households currently average approximately \$211 per person in rental costs. In their new living situations after ordinance enforcement, it is estimates that their rental costs will increase by over \$100 per month as they relocate to smaller households. These figures do not include any “new market” rent changes as described in Key Markets 1 through 4, which could further increase rents and will affect low-income individuals more than high-income individuals. Keeping in mind that a significant portion of current tenants in violator households have incomes that would place them below the poverty line, the ordinance will have a strong negative impact on housing for some portions of this population.

Exhibit 3-7
Per-Person Rental Costs for Tenants in Violator Households, Pre- and Post-Ordinance



In addition to ongoing rental costs, these households will face increased costs in other ways as well. For example, some fixed household expenses such as cable television, Internet access, and telephone service will be split among a smaller number of people. Further, the individual will have to absorb the cost of moving their household.

In summary, enforcement of the ordinance would produce strong negative outcomes for the tenants currently residing in violator households.

KEY MARKET 6: OWNERS IN OWNER-OCCUPIED VIOLATOR HOUSEHOLDS

Market Size: 168 individuals

Less than 200 housing units are owner-occupied, but take on renters in a number that is in violation of the ordinance. It is unlikely that these households would dissolve, but they would have to shed one or more tenants to satisfy the ordinance.

Because this is such a small population, little data is available through which to draw conclusions about the impact of the ordinance. Certainly, the ejection of one or more renters will reduce cash flow to the owner, but it is not clear whether that loss of income will also result in the owner not being able to maintain the mortgage. The impact of the ordinance on this population is therefore limited to stating that the owner will generally lose at a minimum 25 percent of his or her rental income.

In the limited data that are available, it should be pointed out that the stated owners of these properties may be predominantly college students themselves. In the few data records that are available, the majority of property owners were undergraduate college students.

KEY MARKET 7: NON-VIOLATOR HOUSEHOLDS

Market Size: City households

This market consists of all city households other than violator households.

Aside from the impacts on rental markets discussed earlier, this group will receive two primary benefits from ordinance enforcement, at the cost of one potential risk.

The first benefit is that there may be an increase in “peace and quiet” in neighborhoods that currently host violator households, and a decrease in negative activities that cause problems for neighbors, such as inappropriate parking, loud noise, disruptive parties, and poor lawn and home maintenance. While the data from the public survey in Section 1 of this report cannot definitively identify violator households as the cause of neighborhood problems, there is a strong correlation between neighborhood problems and proximity to violator households.

The second benefit is in property values. As noted earlier, the research team has identified a potential relationship between median home values in a neighborhood and the presence of single-family rental units. For each percentage point of single-family housing that is rented out, the median value of homes in the neighborhood drops by \$391. If the number of single-family rentals declines, the value of homes in the neighborhood will increase by a like amount. Citywide, it is estimated that about two-thirds of violator households live in single-family homes, which means that about 800 such homes exist. This represents less than three percent of all single-family homes. While impacts would vary greatly by neighborhood, the model suggests that, on a citywide average, home values are diminished by about \$1,200 per home due to the presence of single-family rental units.

The potential risk involves the transition of violator households to new households. The individuals in violator households will reform new households of three people or less, and will move to different housing units in many cases. With the expected increase in their costs, they may be more

likely to overcrowd small housing units as long as the overcrowding involves only two or three people. With the increase in demand for those smaller units, a neighborhood could conceivably end up with more overcrowded units than were present before the ordinance enforcement took place. Those units will merely be smaller and hold fewer people.

KEY MARKET 8: LOCAL COMPANIES

The local economy will be impacted by the ordinance as well. While a quantification of the impact is beyond the scope of this study, it can be easily noted that companies that sell household products will benefit from the spontaneous creation of over 1,100 new households. Companies that provide services such as Internet connections, telephone service, and television services will benefit as more households come into being to purchase their services.

On the other hand, many tenants from violator households will face increasing demands for their limited funds. This will cut their discretionary spending, which will impact firms that provide discretionary goods and services.

KEY MARKET 9: HOUSING CONSTRUCTION INDUSTRY

The enforcement of this ordinance will be a boon to the local housing construction industry. The creation of nearly 1,200 new households in a short period of time will have profound implications on vacancy rates, as noted earlier, with strong housing shortages in all price ranges below \$830 where no such shortage existed before. In order to bring the housing supply in those price ranges back up to a healthy level, new construction of over 970 rental units would be needed. This equates to nearly two years of multi-family unit construction above and beyond the normal construction growth. If the multi-family construction industry ramps up 50 percent above current capacity, it would then take four years to bring vacancy rates in the low-end and mid-range price levels back to healthy levels.

Of course, this new construction would generate significant additional economic benefits to the community in terms of jobs, spending, and taxes.

BACKGROUND INFORMATION FOR THIS SECTION

This portion of the report documents the methodology used to develop the impact model. Readers interested in the data and approach used to develop the model may wish to read this, while readers interested only in the key findings can skip to the next section of the report.

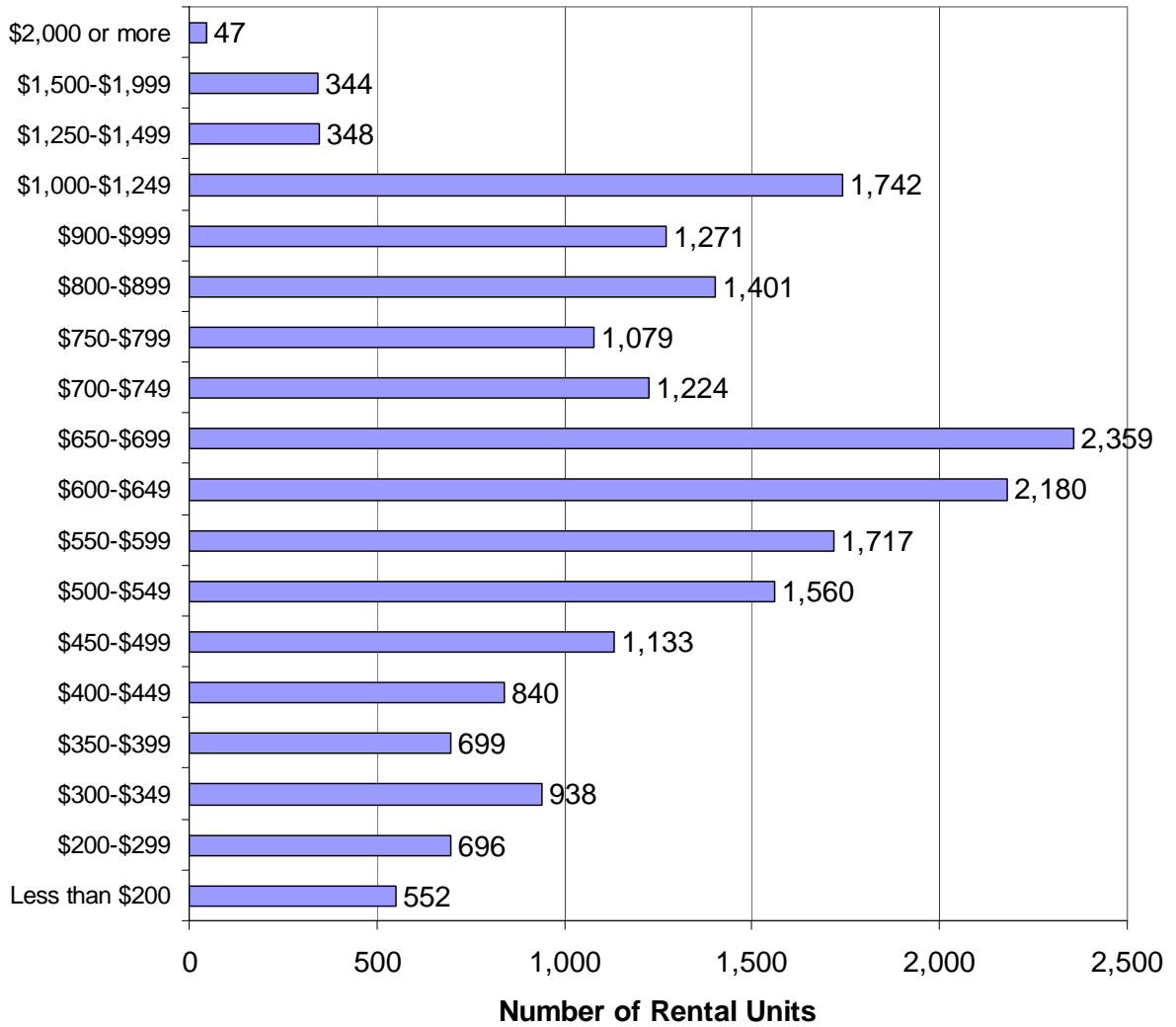
STEP 1. YEAR 2000 RENTAL PROFILE

The 2000 Census offers data that can be used to develop a vacancy profile of the rental market in Fort Collins. That profile is presented below.

First, the 2000 Census provides strong information about the rental stock in Fort Collins. The exhibit below provides information about the number of units in a variety of price ranges. These figures include all units that are vacant or occupied, with the exception of units for which the occupants are paying no cash rent.

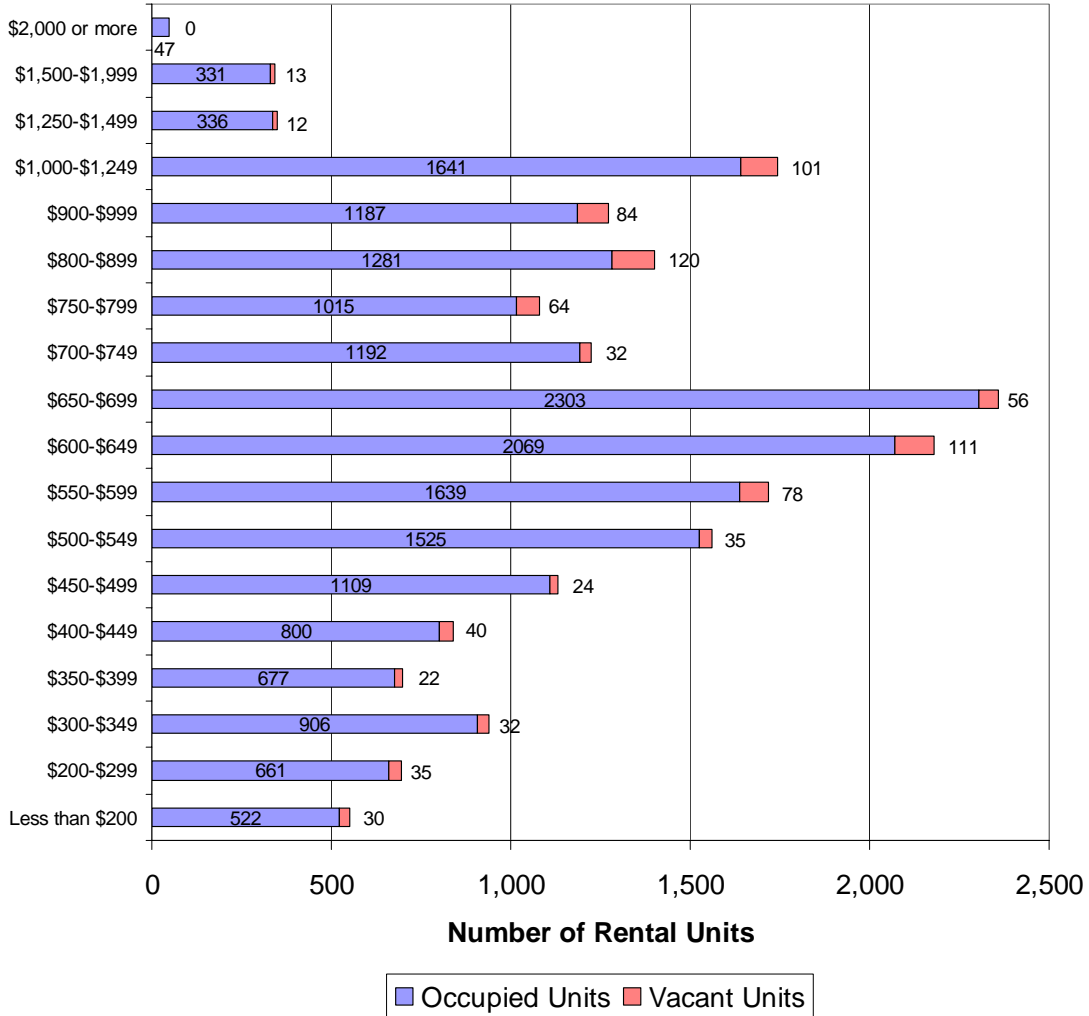
This exhibit shows that the core of the local rental market in 2000 was in the \$550 to \$699 per month income range. Another spike occurred in the \$1,000 to \$1,249 range, and above that price point the inventory drops off considerably. The supply of rental housing priced at \$1,250 and above was less than half of that within the \$1,000 to \$1,249 range.

**Exhibit 3-8
Fort Collins Rental Housing Stock, Year 2000**



The exhibit on the following page provides the same data, but divides the housing stock into occupied and vacant housing. That data can be used to calculate vacancy rates by price level. Vacancy rates include homes that are vacant for any reason, whether the home is actively for rent or not.

**Exhibit 3-9
Fort Collins Rental Housing Stock, Occupied and Vacant, Year 2000**



The following exhibit documents the vacancy rates by price level in 2000. Vacancies were relatively consistent in the 2 to 5 percent range at most price levels. Vacancies were slightly higher in the \$800 to \$1,249 range and in the price ranges below \$300.

Exhibit 3-10
Year 2000 Vacancy Rates by Price

Price Level	Vacancy Rate
Less than \$200	5.4%
\$200-\$299	5.0%
\$300-\$349	3.4%
\$350-\$399	3.1%
\$400-\$449	4.8%
\$450-\$499	2.1%
\$500-\$549	2.2%
\$550-\$599	4.5%
\$600-\$649	5.1%
\$650-\$699	2.4%
\$700-\$749	2.6%
\$750-\$799	5.9%
\$800-\$899	8.6%
\$900-\$999	6.6%
\$1,000-\$1,249	5.8%
\$1,250-\$1,499	3.4%
\$1,500-\$1,999	3.8%
\$2,000 or more	0.0%

STEP 2. UPDATES TO 2004 CONDITIONS

The second step in the modeling process is the updating of housing conditions to 2004 levels. This will be accomplished by examining data sources that provided updates to key data elements.

Reader Note: Much of this step documents background data that were used to develop the 2004 rental market profile. Readers who are interested only in the final result may wish to skip to the final exhibit in Step 2.

The main components of this step are to update housing supply and vacancy rate figures, as well as pricing. A useful tool for this update is the quarterly Multi-Family Rental Survey sponsored by the Colorado Division of Housing, and Building Permit records as recorded by the Department of Commerce. The latest report in the Division of Housing data collection provides an insight into multi-family rental supply since the 2000 Census was taken, as described in the table below.

Exhibit 3-11
Multi-Family Rental Housing Supply and Vacancy Rates

	Units Added Since Last Survey	Total Units Available This Time Period	Quarterly Vacancy Rate	Units Rented	Units Vacant
2004Q3	0	18,143	11.0	16,151	1,992
2004Q1	251	18,143	13.9	15,621	2,522
2003Q3	107	17,892	12.5	15,650	2,242
2003Q1	206	17,785	16.1	14,922	2,863
2002Q3	392	17,579	13.1	15,276	2,303
2002Q1	343	17,187	7.0	15,984	1,203
2001Q3	216	16,844	3.3	16,288	556
2001Q1	481	16,628	2.6	16,196	432
2000Q3	381	16,147	1.8	15,856	291
2000Q1	367	15,766	3.4	15,230	536

These figures show a significant increase in the rental vacancy rate during the time period when since the 2000 Census was conducted in the first quarter of 2000. They also show a significant increase in multi-family rental units during that time, with 2,377 net new units becoming available. The methodology for developing those figures was not reported by the Division of Housing.

Building permit records recorded with the Department of Commerce show a similar increase in multi-family units from 2000, estimated at 2,273 units. Since these multi-family permit figures would normally include owned units such as condominiums, and also include units not yet under construction and 4th quarter figures for 2004, one would expect that the building permit figures would be higher than those of the Division of Housing estimates. However, there are enough differences in timing and other factors that these differences are not significant.

Exhibit 3-12
Building Permits Issues in Fort Collins, 2000 to 2004

	Single-Family Units	Multi-Family Units
2000 Census	26,706	21,060
Census Adjustment	-351	-165
2000	984	597
2001	1,116	735
2002	1,210	310
2003	960	424
2004 (Estimated)	994	402
Estimated Total	31,619	23,363

Note: the Census adjustment is an estimate used to offset the fact that construction in the first quarter of 2000 is included in both the 2000 Permit figures and in the 2000 Census figures.

Assuming that 2,377 multi-family rental properties were added to the market since 2004, and assuming that the ratio between multi-family and single-family rentals have remained relatively consistent, this would imply that a net increase of 515 single-family home rentals were also generated during this time period. While it is unlikely that these would represent new construction, they would represent conversions from single-family owned housing to rental housing during the 2000 to 2004 time period.

As part of the update, the additional units were apportioned to price ranges. New multi-family units were apportioned by size according to construction patterns during the past five years. Those units were then cross-referenced with existing rental prices by size to develop a profile of pricing for new construction.

Construction patterns were derived from U.S. Census data construction reports, while existing rental patterns were derived through analysis of PUMS data. Note that all pricing in these tables is for the Year 2000, and will be updated to 2005.

Exhibit 3-13
Rental Construction Patterns by Unit Size, Western U.S. 1999-2003

Size (Bedrooms)	Percent of New Construction
Efficiency	3.7%
1 BR	36.3%
2 BR	44.3%
3 BR+	15.7%

Exhibit 3-14
Distribution of Rental Pricing by Unit Size, Multifamily Units

2000 Price Level	Efficiency	1 BR	2 BR	3+ BR
Less than \$200	2.3%	5.7%	1.7%	1.1%
\$200-\$299	11.6%	5.2%	2.3%	1.9%
\$300-\$349	6.6%	6.6%	2.2%	5.4%
\$350-\$399	0.0%	5.6%	2.5%	6.0%
\$400-\$449	13.4%	5.7%	2.8%	3.2%
\$450-\$499	9.6%	9.9%	2.8%	1.2%
\$500-\$549	21.2%	15.6%	9.2%	1.9%
\$550-\$599	9.1%	8.1%	10.9%	3.2%
\$600-\$649	5.3%	10.4%	16.5%	5.0%
\$650-\$699	5.3%	11.0%	11.8%	2.7%
\$700-\$749	4.3%	4.5%	12.8%	3.5%
\$750-\$799	0.0%	4.2%	7.0%	6.4%
\$800-\$899	8.3%	1.9%	7.9%	11.8%
\$900-\$999	0.0%	1.0%	5.4%	14.6%
\$1,000-\$1,249	0.0%	0.0%	3.6%	24.6%
\$1,250-\$1,499	0.0%	0.0%	0.0%	4.5%
\$1,500-\$1,999	3.0%	3.3%	0.9%	1.8%
\$2,000 or more	0.0%	1.1%	0.0%	1.3%
	100.0%	100.0%	100.0%	100.0%

New single-family home rentals were apportioned by price using a similar context. Since these new units are most likely not new construction, Census PUMS data were used to develop a profile of rental costs for single-family homes in Fort Collins. The 515 new rental properties were then apportioned to those price levels using the same profile.

Exhibit 3-15
Distribution of Rental Pricing by Unit Size, Single Family Units

2000 Price Level	Single-Family Rental Home Prices
Less than \$200	2.0%
\$200-\$299	2.3%
\$300-\$349	3.3%
\$350-\$399	3.6%
\$400-\$449	3.2%
\$450-\$499	1.9%
\$500-\$549	4.5%
\$550-\$599	4.3%
\$600-\$649	6.2%
\$650-\$699	7.3%
\$700-\$749	7.4%
\$750-\$799	6.1%
\$800-\$899	11.9%
\$900-\$999	12.6%
\$1,000-\$1,249	18.4%
\$1,250-\$1,499	2.3%
\$1,500-\$1,999	1.7%
\$2,000 or more	0.9%
	100.0%

Two other updates involve price and vacancy rates. The best available data on rental pricing arises from the Division of Housing’s multi-family rental surveys, which provide median rent levels for units. The pricing since 2000 is shown below. Since pricing shows some variability from quarter to quarter, a basic trend analysis is presented at right to model the expected change in pricing on a term to term basis. These changes translate into an expected 10.9 percent increase in price over the past four years (recognizing of course that changes in rental pricing are not linear in the short term).

Exhibit 3-16
Distribution of Rental Pricing by Unit Size, Single Family Units

	Observed Rents	Smoothed Trend
2000Q1	\$690.06	\$690.06
2000Q3	\$657.64	\$698.40
2001Q1	\$726.72	\$706.74
2001Q3	\$710.20	\$715.08
2002Q1	\$752.54	\$723.42
2002Q3	\$729.51	\$731.76
2003Q1	\$743.27	\$740.10
2003Q3	\$832.50	\$748.44
2004Q1	\$725.90	\$756.79
2004Q3	\$722.65	\$765.13
Trended Increase, 2000-2004		10.9%

Vacancy rate projections are available from the Division of Housing, both in total and by price range. However, the data by price range relies on small sample sizes and the margins of error are apparently large, as vacancy rates have very strong variance by price. An example is shown below in the latest survey for the third quarter of 2004.

Exhibit 3-17
Rental Vacancy Rates During the Third Quarter of 2004, City of Fort Collins

Rental Group	Vacant Units	Total Units	Vacancy Rate
\$276 to \$300	0	42	0.00%
\$301 to \$325	0	1	0.00%
\$401 to \$425	4	66	6.10%
\$501 to \$525	0	1	0.00%
\$526 to \$550	0	14	0.00%
\$576 to \$600	0	70	0.00%
\$601 to \$625	0	1	0.00%
\$626 to \$650	31	100	31.00%
\$676 to \$700	67	169	39.60%
\$701 to \$725	5	68	7.40%
\$726 to \$750	7	52	13.50%
\$751 to \$775	9	79	11.40%
\$776 to \$800	0	5	0.00%
\$826 to \$850	14	77	18.20%
\$851 to \$875	6	51	11.80%
\$876 to \$900	0	24	0.00%
TOTALS	143	820	17.40%

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Colorado Division of Housing and Dr. Gordon von Stroh

Because vacancy rates vary significantly, the research team elected to examine only the overall vacancy rate updates and simply scale the known 2000 vacancy rates by the overall change since 2000, with an adjustment to account for the fact that the Division of Housing vacancy rates do not include single-family units.

The most recent reported vacancy rate figure for the Fort Collins/Loveland area is 11.0 percent, according to the Division of Housing. This figure does not include single-family rentals, which constitute approximately 39 percent of local rental units and have a vacancy rate that in 2000 was only about 51 percent of the multi-family vacancy rate.⁵ Combining these calculations, the research team will use a total vacancy rate of 8.9 percent for modeling purposes.

Combining all of the above price, vacancy, and supply changes, the research team developed the following estimate for the current rental environment in Fort Collins.

Exhibit 3-18
Estimated 2004 Rental Environment, Fort Collins

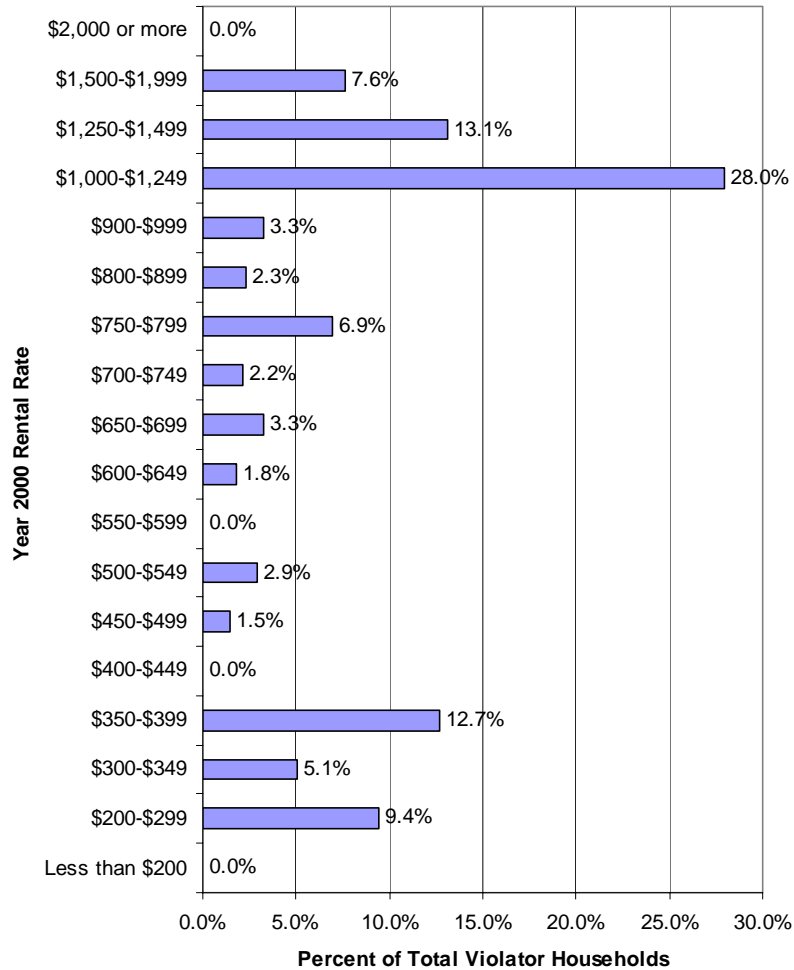
Monthly Rent	2004 Vacancy Rate	2004 Rental Supply	2004 Occupied Units
Under \$222	11.0%	636	566
\$222 to \$332	10.2%	794	713
\$333 to \$387	6.9%	1,061	988
\$388 to \$442	6.4%	814	762
\$443 to \$498	9.6%	959	867
\$499 to \$553	4.3%	1,270	1,216
\$554 to \$609	4.5%	1,840	1,756
\$610 to \$664	9.2%	1,943	1,764
\$665 to \$720	10.3%	2,499	2,242
\$721 to \$775	4.8%	2,630	2,504
\$776 to \$831	5.3%	1,452	1,375
\$832 to \$886	12.0%	1,244	1,095
\$887 to \$997	17.3%	1,613	1,333
\$998 to \$1,108	13.4%	1,456	1,261
\$1,109 to \$1,385	11.7%	1,966	1,735
\$1,386 to \$1,662	7.0%	377	351
\$1,663 to \$2,217	7.6%	401	370
\$2,218 and Up	0.0%	66	66
Total	8.9%	23,021	20,964

STEP 3. IDENTIFY VIOLATOR HOUSEHOLD MARKET SHARES BY PRICE POINT

The third step in the impact model is to determine the market profile of violator households by price point in the market. An initial profile of violator households can be developed using Census PUMS data, as shown in the exhibit on the following page.

⁵ This figure represents all units rather than just rental units, since rental data were not available on a summary basis.

**Exhibit 3-19
Price Segmentation of Violator Households**



As expected, a large proportion of the violator market inhabits upper-price housing, presumably because the rental costs are divided among a larger number of tenants. One unusual feature of this profile is the secondary market at the very low end of the housing spectrum, with over one-fourth of violator households occupying housing at prices under \$400 per month in the Year 2000. Potential explanations include:

- the possibility that a significant portion of households have obtained very low-rent housing, though that appears unlikely because the data show that they are living in large (4+ bedroom units)

- the possibility that these violator households have obtained small units and “converted” them to larger units by making basements, closets, or other nontraditional spaces into makeshift bedrooms
- the possibility that the householder incorrectly entered only his or her share of the total rent, as opposed to the full household rent; or
- the possibility that certain types of housing may lend themselves to inappropriate reporting. For example, Ram Village in Fort Collins offers group housing to individuals via large apartments, with each individual paying on an individual basis. It is possible that individuals in these units would report their rent payment as an independent household within an apartment, and then provide information on the apartment and the roommates.

The bottom line is that this market bulge, while somewhat mysterious, cannot be confirmed or refuted, despite the fact that the data appear to be contradictory within these households. For this reason, the profile will be used just as it is reported.

Using the updated 2004 estimate of 1,070 violator households, and assuming that the market breakdown of violator households has not changed significantly, an updated market profile of violator households can be developed. The following exhibit provides that profile. The violator household profile is compared to the rental supply and the occupied households to examine the “market share” of violator households in each price range.

Exhibit 3-20
Market Profile of Violator Households, 2004

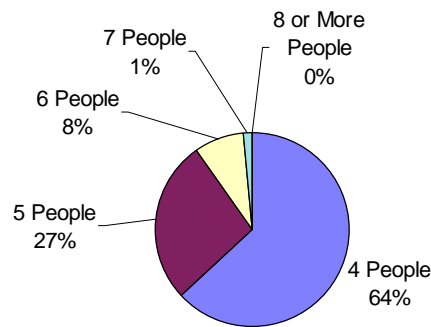
Monthly Rent	2004 Violator Households	2004 Rental Supply	2004 Occupied Households	Percent of Rental Households in Violation
Under \$222	0	636	566	0.0%
\$222 to \$332	101	794	713	14.2%
\$333 to \$387	54	1,061	988	5.5%
\$388 to \$442	136	814	762	17.8%
\$443 to \$498	0	959	867	0.0%
\$499 to \$553	16	1,270	1,216	1.3%
\$554 to \$609	31	1,840	1,756	1.8%
\$610 to \$664	0	1,943	1,764	0.0%
\$665 to \$720	19	2,499	2,242	0.8%
\$721 to \$775	35	2,630	2,504	1.4%
\$776 to \$831	23	1,452	1,375	1.7%
\$832 to \$886	74	1,244	1,095	6.8%
\$887 to \$997	25	1,613	1,333	1.9%
\$998 to \$1,108	35	1,456	1,261	2.8%
\$1,109 to \$1,385	299	1,966	1,735	17.2%
\$1,386 to \$1,662	140	377	351	39.9%
\$1,663 to \$2,217	82	401	370	22.2%
\$2,218 and Up	0	66	66	0.0%
Total	1070	23,021	20,964	5.1%

STEP 4. ESTIMATE REFORMATION OF HOUSEHOLDS IF VIOLATOR HOUSEHOLDS ARE DISBANDED

If the ordinance is enforced, the violator households will be forced to partially or completely disband, since the current combination of tenants will not be allowed to share the same housing unit. This means that these large households will cease to exist, and will be replaced by a larger number of smaller households.

The means in which this would occur cannot be predicted with certainty. As seen in Section 2, the bulk of violator households consist of four people. (See exhibit below for review.) Will each household split up into two two-person households, or one three-person household and one one-person household? And would that individual then find another one-person household as a roommate?

Exhibit 3-21
Proportion of Violator Households by Household Size



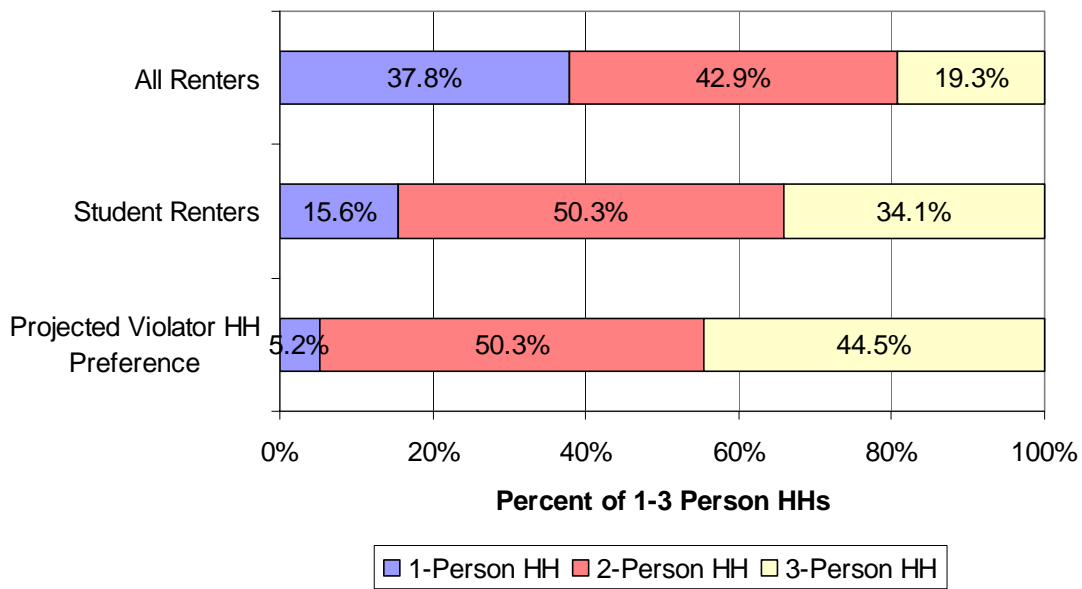
In terms of defining potential actions, there are two key elements that define this population: they have a predisposition to having roommates, and on average they are accustomed to low individual housing costs. This implies that they will have a predisposition to develop a new roommate arrangement that is keeping with the ordinance, i.e., having one or two roommates instead of three to six roommates, and that they may have a predisposition to have more roommates.

The study team developed a profile of the housing patterns of other renters, and of renters who are college students, excluding those who live in large family situations of four or more people (which are legal under the ordinance, but are not options for the current violator population). Those profiles are shown in the following exhibit.

This profile shows that approximately 38 percent of small-household renters live alone, with 43 percent in two-person households and 19 percent in three-person households. In contrast, college student renters are much more likely to have roommates. Only 15.6 percent of these small-household student renters live in one-person households, 50.3 percent live in two-person households, and 34.1 percent live in three-person households.

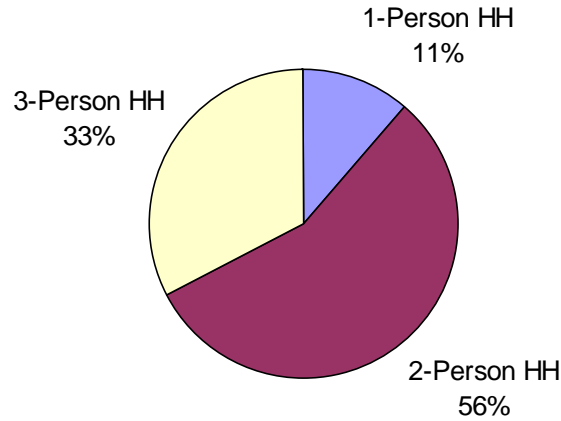
Because of the propensity of the violator population to have roommates, and because the people in those households already have easy and risk-free access to roommates, the research team made an assumption that the proportion of single-person households would be lower than that for the general population or for students, and that those students would instead form three-person households. The team scaled down the proportion of one-person renters by two-thirds relative to the general rental population, and assumed that those renter would instead form three-person households. While this is a somewhat arbitrary assumption, the research team felt that it would more reasonably reflect the decision process of tenants in violator households.

Exhibit 3-22
Small Household Renter Profiles



The above figures reflect individual renters, as opposed to rental households. When adjusted for the number of people who would be in each household, the proportion of new households created would be as shown in the following exhibit.

**Exhibit 3-23
New Household Creation Profile**



The number of new households in each size category can now be estimated from the available information, as follows:

1. The estimated 1,070 existing violator households contain a total of 4,773 people, or 4.46 people per household. Another 230 tenants in owner-occupied households will need to find new housing as those households downsize to satisfy the ordinance.
2. 260 of these people will form new one-person households, for a total of 260 new one-person households.
3. 2,518 of these people will form new two-person households, for a total of 1,259 new two-person households
4. 2,225 of these people will form new three-person households, for a total of 742 new households.

In essence, 1,070 large households will disappear from the Fort Collins housing market, and 2,261 new smaller households will appear.

**Exhibit 3-24
Impact of Ordinance on Number of Households in Fort Collins**

Existing Violator Households Dissolved by the Ordinance	1,070
New Households Formed by Tenants from Dissolved Households	2,261
Net Increase in City Households	1,191

STEP 5. IDENTIFY RAW RENTAL DEMAND OF NEWLY FORMED HOUSEHOLDS

The 2,261 new households formed as a result of the ordinance will have a different demand profile than the 1,070 violator households that previously existed. In large part, this will vary due to their differing income levels.

The research team prepared a simulation model to develop an income profile of the 2,261 new households. This was accomplished by segmenting the income profiles of individuals in violator housing (See Section 2 of this report) and then developing a large number of random combinations of those individuals in the household sizes projected in Step 4.

The result of this process is shown in the following two exhibits, which provide the total numbers of households by income level and the net change in households by income, respectively.

As seen, strong ordinance enforcement will result in the net loss of nearly 250 households with incomes over approximately \$60,000 per year, and the net creation of approximately 190 new households with incomes from \$30,000 to \$60,000 per year. The number of households with incomes below \$30,000 will increase by over 1,250.

As a means of comparison, the total city's number of households with incomes below approximately \$22,000 per year will increase by approximately 10 percent. The city's total number of households with incomes between \$22,00 and \$33,000 will increase by approximately 5 percent. The change in the number of households with incomes over \$33,000 will decrease by approximately 1 percent. However, the change on the rental market will be much larger.

Exhibit 3-25
Household Income Profiles – New Households Versus Dissolved Violator Households

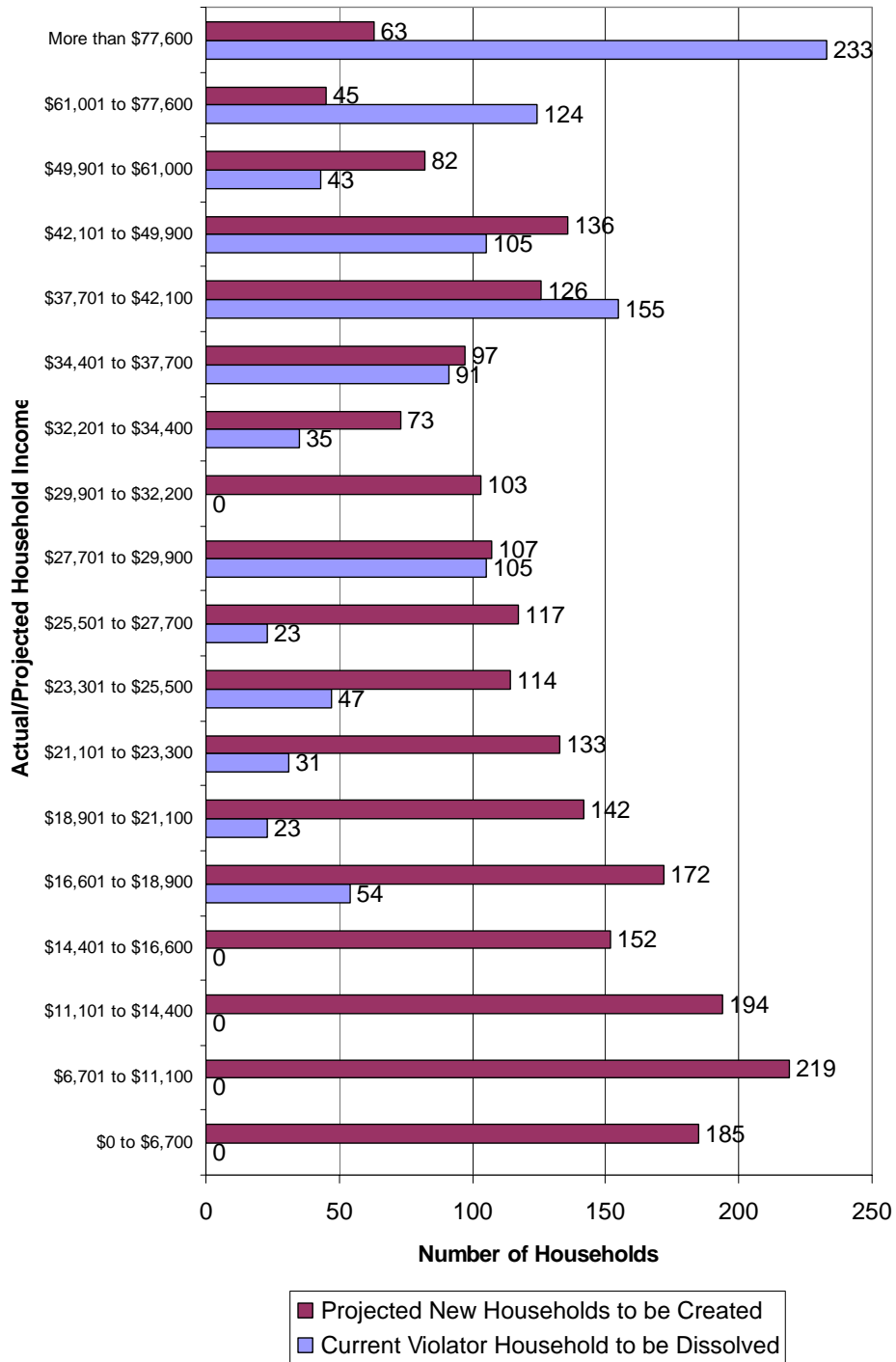
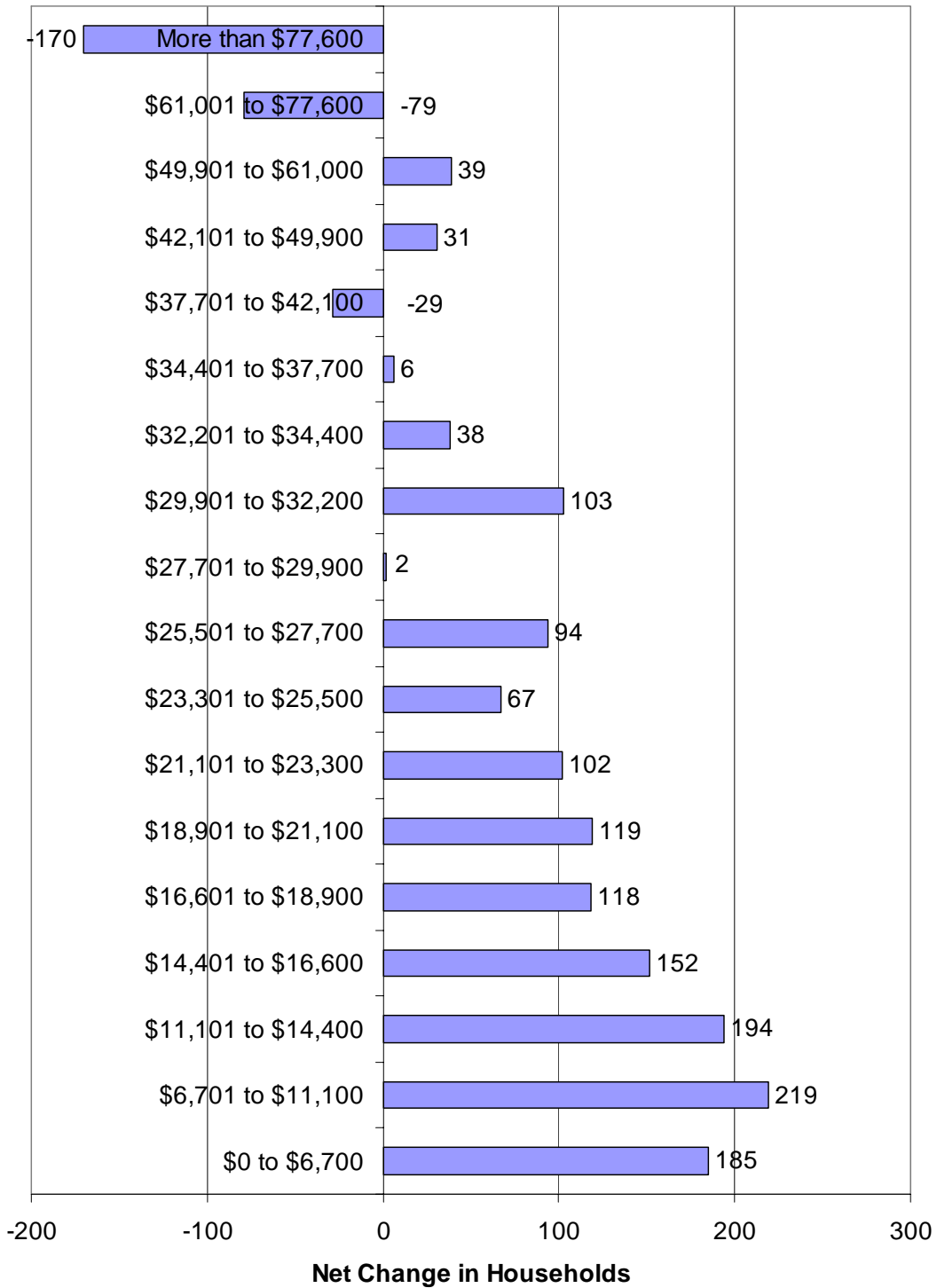


Exhibit 3-26
Net Change in Households with Ordinance Enforcement



STEP 6. ASSESS MARKET REACTION TO DISSOLUTION AND REFORMATION OF VIOLATOR HOUSEHOLDS

After estimating the number of new households that will be created by the ordinance, the next task is to determine the housing preferences of those households. This can be done by developing a profile of housing preferences by income for Fort Collins, and then applying those preferences to the income profiles of the newly created households.

The following exhibit describes the housing profile by price range of rental households by income level in Fort Collins. This data is based on Census PUMS analysis, with updates to reflect 2004 incomes and rental prices. To read this table, one can read across to identify the rent levels paid by households within a certain income range. For example, 3.7 percent of households with incomes from \$29,901 to \$32,200 pay a monthly rent between \$222 and \$332, while another 4.8 percent pay rents between \$333 and \$387. Each row represents one income range, and therefore each row adds up to 100 percent of households in that income range. (Because these figures are based on sample data, the curves are not completely smooth; however, when considered over the entire range of the housing market they will produce an acceptable model of the housing market.)

**Exhibit 3-27
Rent Profiles by Income Level**

Rental Profile										
Household Income	Under \$222	\$222 to \$332	\$333 to \$387	\$388 to \$442	\$443 to \$498	\$499 to \$553	\$554 to \$609	\$610 to \$664	\$665 to \$720	
\$0 to \$6,700	5.5%	2.3%	8.4%	2.0%	5.5%	2.9%	11.9%	10.5%	14.4%	
\$6,701 to \$11,100	9.6%	8.6%	10.2%	13.4%	7.6%	1.8%	10.4%	6.6%	14.1%	
\$11,101 to \$14,400	3.9%	2.6%	4.8%	2.9%	10.6%	8.4%	12.8%	9.4%	12.8%	
\$14,401 to \$16,600	10.7%	12.2%	3.2%	8.7%	0.0%	7.9%	19.9%	9.9%	0.0%	
\$16,601 to \$18,900	0.0%	10.0%	2.3%	12.3%	7.3%	11.7%	10.3%	7.3%	13.7%	
\$18,901 to \$21,100	0.0%	2.4%	5.9%	7.0%	2.4%	5.2%	16.4%	4.3%	27.6%	
\$21,101 to \$23,300	2.8%	10.9%	6.6%	16.6%	12.9%	0.0%	16.6%	3.3%	3.8%	
\$23,301 to \$25,500	3.5%	3.9%	2.4%	2.0%	2.8%	10.2%	3.2%	16.6%	23.8%	
\$25,501 to \$27,700	0.0%	0.0%	7.4%	3.7%	5.9%	5.1%	20.2%	11.0%	9.2%	
\$27,701 to \$29,900	0.0%	0.0%	8.3%	2.9%	13.7%	7.4%	25.5%	6.4%	0.0%	
\$29,901 to \$32,200	0.0%	3.7%	4.8%	5.8%	0.0%	8.5%	5.3%	8.5%	8.5%	
\$32,201 to \$34,400	0.0%	3.4%	2.1%	4.7%	2.6%	6.0%	0.0%	6.8%	9.8%	
\$34,401 to \$37,700	2.2%	0.0%	2.5%	0.0%	2.8%	4.7%	2.5%	16.3%	16.0%	
\$37,701 to \$42,100	1.1%	7.2%	7.2%	4.1%	1.8%	4.5%	2.9%	7.0%	10.2%	
\$42,101 to \$49,900	0.0%	0.0%	1.5%	0.0%	1.1%	2.0%	8.8%	4.2%	18.3%	
\$49,901 to \$61,000	0.0%	0.0%	0.0%	0.0%	4.7%	0.0%	5.3%	13.5%	9.9%	
\$61,001 to \$77,600	1.3%	1.8%	1.1%	0.0%	0.0%	4.4%	4.4%	4.6%	2.2%	
More than \$77,600	1.7%	0.0%	1.0%	2.1%	0.0%	2.2%	5.5%	1.2%	4.8%	

Household Income	\$721 to \$775	\$776 to \$831	\$832 to \$886	\$887 to \$997	\$998 to \$1,108	\$1,109 to \$1,385	\$1,386 to \$1,662	\$1,663 to \$2,217	\$2,218 and Up	Total
\$0 to \$6,700	7.1%	7.1%	5.9%	4.6%	6.1%	3.6%	1.1%	1.1%	0.0%	100%
\$6,701 to \$11,100	10.2%	3.9%	1.8%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	100%
\$11,101 to \$14,400	13.5%	4.8%	0.0%	7.4%	0.0%	3.2%	0.0%	2.9%	0.0%	100%
\$14,401 to \$16,600	1.6%	8.3%	3.2%	11.1%	0.0%	0.0%	0.0%	3.6%	0.0%	100%
\$16,601 to \$18,900	7.8%	0.0%	3.3%	5.0%	9.0%	0.0%	0.0%	0.0%	0.0%	100%
\$18,901 to \$21,100	7.1%	5.2%	7.0%	0.0%	2.8%	3.8%	2.8%	0.0%	0.0%	100%
\$21,101 to \$23,300	3.3%	13.7%	6.2%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	100%
\$23,301 to \$25,500	2.8%	7.6%	0.0%	8.7%	4.3%	2.0%	2.8%	3.5%	0.0%	100%
\$25,501 to \$27,700	14.3%	2.9%	4.0%	0.0%	3.7%	12.5%	0.0%	0.0%	0.0%	100%
\$27,701 to \$29,900	0.0%	9.8%	0.0%	6.4%	0.0%	13.2%	0.0%	6.4%	0.0%	100%
\$29,901 to \$32,200	18.1%	9.0%	4.8%	9.0%	4.8%	0.0%	4.2%	0.0%	5.3%	100%
\$32,201 to \$34,400	18.3%	0.0%	7.3%	15.5%	15.8%	4.3%	0.0%	0.0%	3.4%	100%
\$34,401 to \$37,700	10.7%	14.4%	4.7%	5.8%	0.0%	17.4%	0.0%	0.0%	0.0%	100%
\$37,701 to \$42,100	14.7%	10.2%	7.5%	10.0%	4.1%	5.6%	0.0%	1.8%	0.0%	100%
\$42,101 to \$49,900	13.1%	14.5%	9.5%	3.7%	13.4%	5.7%	0.9%	3.3%	0.0%	100%
\$49,901 to \$61,000	6.4%	13.8%	9.3%	12.1%	7.5%	17.5%	0.0%	0.0%	0.0%	100%
\$61,001 to \$77,600	8.9%	5.5%	6.9%	17.8%	18.0%	16.1%	4.4%	0.0%	2.6%	100%
More than \$77,600	3.4%	5.5%	10.7%	13.4%	11.3%	22.8%	4.1%	8.1%	1.9%	100%

When this profile matrix is multiplied by the income profiles of the new households to be created by the ordinance, the following demand profiles emerge (see following exhibit). These

demand profiles are then compared to the existing housing demand of violator households to determine the net changes in demand by rental price. Recall that the demand generated by violator households will disappear, and will be replaced by demand from the new households.

These data show that there will be a significant increase in demand for units in the \$554 to \$775 price range, and a decrease in demand among units priced above \$1,109.

Exhibit 3-28
Net Change in Rental Demand by Price Level

Rental Price	Rental Unit Demand of New Households	Lost Rental Unit Demand of Violator Households	Net Change in Demand
Under \$222	68	0	68
\$222 to \$332	103	101	2
\$333 to \$387	115	54	61
\$388 to \$442	130	136	-6
\$443 to \$498	117	0	117
\$499 to \$553	120	16	104
\$554 to \$609	252	31	221
\$610 to \$664	187	0	187
\$665 to \$720	270	19	251
\$721 to \$775	202	35	167
\$776 to \$831	165	23	142
\$832 to \$886	103	74	29
\$887 to \$997	135	25	110
\$998 to \$1,108	105	35	70
\$1,109 to \$1,385	124	299	-175
\$1,386 to \$1,662	19	140	-121
\$1,663 to \$2,217	36	82	-46
\$2,218 and Up	10	0	10
	2,261	1,070	1,191

STEP 7. QUANTIFY IMPACTS ON RENTAL VACANCY RATES, RENTAL PRICING, AND PROPERTY VALUES

This step includes three specific types of analyses.

- First, the rental market analysis prepared in Steps 1 through 6 is completed. The outcome of this analysis is a projected rental demand table that will be used in examining the impacts of the ordinance enforcement on various key populations, including impacts on both rental rates and vacancy rates.
- Second, an analysis of the impact of neighborhood values of single-family home rentals is provided. This analysis develops a relationship between average home

values and the presence of single-family rentals, and defines a dollar value associated with proximity to single-family rentals.

- Third, a brief analysis of rental property valuation is included. This analysis will be used to examine the impact on rental investments of high-end rentals where demand is expected to decline.

RENTAL IMPACT ANALYSIS

When the net new demand is added to the current housing market, a scenario will unfold as shown in the following exhibit. This scenario is based on the preferred housing scenarios defined in earlier steps of the process. As can be seen, the initial impact will produce negative vacancy rates in several market segments, which of course are not possible. The various market scenarios to deal with this situation are discussed in the impact analysis earlier in this section of the report.

Exhibit 3-29
Impact of Ordinance on Rental Market

Rental Rate	Vacancy Rates	Baseline Scenario		Scenario with Ordinance		2004 Occupied Units with Ordinance	2004 Renter-Preferred Vacancy Rate with Ordinance
		2004 Supply	2004 Occupied Units	Change in Demand (Units)	Change in Demand (Percent)		
Under \$222	11.0%	636	566	68	12%	634	0.3%
\$222 to \$332	10.2%	794	713	2	0%	715	9.9%
\$333 to \$387	6.9%	1,061	988	61	6%	1,049	1.1%
\$388 to \$442	6.4%	814	762	-6	-1%	756	7.1%
\$443 to \$498	9.6%	959	867	117	13%	984	-2.6%
\$499 to \$553	4.3%	1,270	1,216	104	9%	1,320	-3.9%
\$554 to \$609	4.5%	1,840	1,756	221	13%	1,977	-7.4%
\$610 to \$664	9.2%	1,943	1,764	187	11%	1,951	-0.4%
\$665 to \$720	10.3%	2,499	2,242	251	11%	2,493	0.2%
\$721 to \$775	4.8%	2,630	2,504	167	7%	2,671	-1.6%
\$776 to \$831	5.3%	1,452	1,375	142	10%	1,517	-4.5%
\$832 to \$886	12.0%	1,244	1,095	29	3%	1,124	9.6%
\$887 to \$997	17.3%	1,613	1,333	110	8%	1,443	10.5%
\$998 to \$1,108	13.4%	1,456	1,261	70	6%	1,331	8.6%
\$1,109 to \$1,385	11.7%	1,966	1,735	-175	-10%	1,560	20.7%
\$1,386 to \$1,662	7.0%	377	351	-121	-34%	230	39.0%
\$1,663 to \$2,217	7.6%	401	370	-36	-10%	334	16.7%
\$2,218 and Up	0.0%	66	66	0	0%	66	0.0%
Total Rental Market	8.9%	23,021	20,964	1,191	5.7%	22,155	3.8%

IMPACT OF SINGLE-FAMILY RENTALS ON NEIGHBORHOOD PROPERTY VALUES

In Fort Collins, home values are affected by several factors. Some of these, including geographical location, size, age, and the percentage of rentals in the area are measurable. Others, such as the quality of the neighborhood and overall appeal are more qualitative and cannot be measured. Taken another way, some factors are related to the neighborhood, such as the average age and size of housing, while others are specific to the home itself, such as the home's size, maintenance level, and construction style.

This analysis attempts to draw a connection between the measurable neighborhood factors and average neighborhood home values. From this connection, the effects on home values from a change in the number of renters can be predicted.

Methodology

As a first step, detailed information about the homes in Fort Collins was gathered at the neighborhood level. Each of the 104 census block groups represents a neighborhood in Fort Collins and the surrounding areas. A total of 18 different attributes were studied, but through regression, only seven were found to influence home values in a significant way. The following four values were calculated for each block group:

- Average age of a home
- Average number of rooms in each house
- Distance from the CSU campus to the approximate center of the neighborhood
- Percentage of single family rentals

In addition to these, three others were calculated, the square of the average age, the square of the average number of rooms, and the square of the neighborhood’s distance from Colorado State University. These factors were added to adjust the regression for nonlinearity. Once all of the independent variables were tabulated, a regression was performed with seven independent variables and one dependent, the median value of homes in the neighborhood.

In other words, an analysis was undertaken to identify any relationships between a neighborhood’s average home values and its average age, average house size, average distance from the CSU campus, and the percentage of single-family rentals in the neighborhood. It is understood that this will not produce a flawless predictive model of individual home values since the data exclude individual home features, as well as other non-measurable attributes such as “charm” and reputation.

Value Relationships

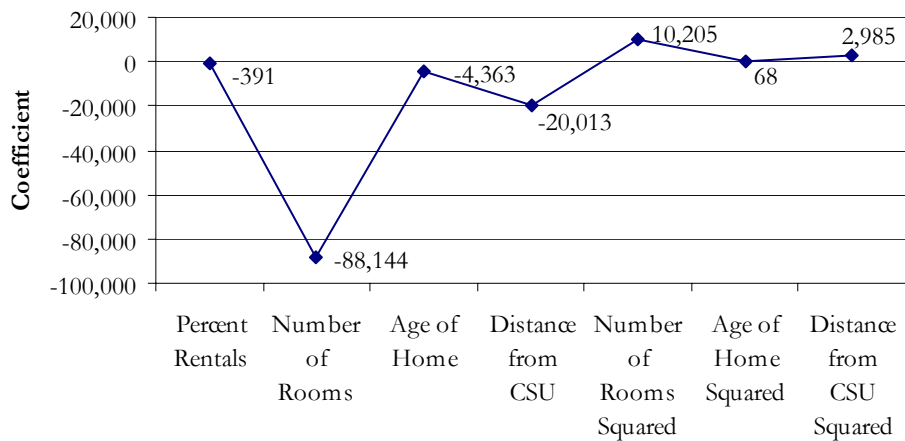
Each of the seven variables affects the value of a home in a different way. The analysis performed resulted in an R-squared value of .589, meaning that the chosen independent variables account for approximately 58.9 percent of the variance in home values. Exhibit (XYZ) gives the regression results.

**Exhibit 3-30
Regression Results**

Regression Statistics	
Multiple R	0.785
R Square	0.617
Adjusted R Square	0.589
Standard Error	33603.885
Observations	104

The following exhibit provides each individual characteristic and its regression coefficient. This is an indicator of the magnitude of the variable's influence on home value. The larger the value, the greater the influence. If the coefficient is negative, this means that the variable and home value share a negative relationship, that is, as the value increases, home value decreases.

**Exhibit 3-31
Regression Coefficients for each Variable**



This graph indicates that the factor studied with the largest impact on a neighborhood's home value is the average size of the homes it contains. When the number of rooms is small, home values are depressed relative to other neighborhoods, as would be expected. A neighborhood that averages five-room homes is predicted to be, on average, worth \$24,000 less than a neighborhood that averages six-room homes in the same area. The effect is strongly non-linear, as seen by the size of the "squared" term.

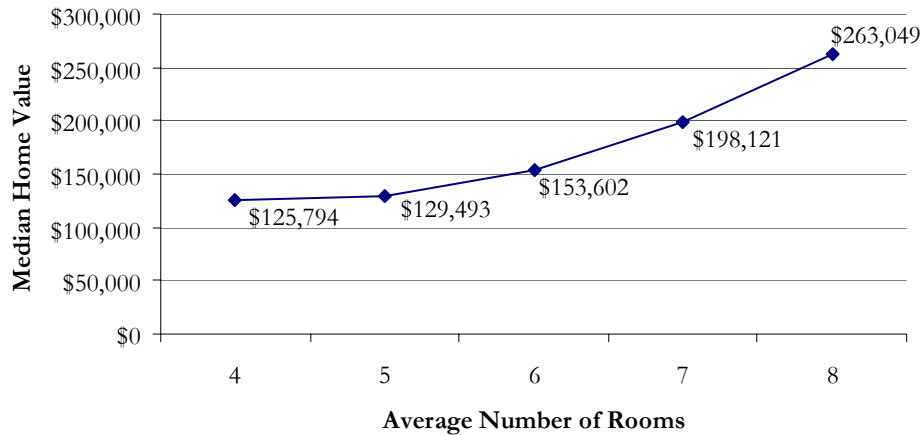
The next large influence is the distance from CSU to the property. If the property is within a mile of campus, the value increases as the property gets closer. Once the home is more than a mile away, however, the value improves as the distance increases.

The factor that bears the most relevance to this study is the percentage of rentals in the area. This was calculated as the percentage of single family homes that are occupied by renters, and gives an idea of how the value of a neighborhood can be affected by a large number of renters. The results of this study indicate that each percentage point of single-family homes that are rentals will have a negative impact on home values of \$391. In other words, a neighborhood whose single-family homes are 50 percent renter-occupied will, on average, have home prices that are \$19,550 less than an identical neighborhood that has no single-family rental homes. While the percentage of single family renters in an area has less of an effect on home values than the size of the homes in the area and the distance to campus, it is still a measurable and negative impact.

The graph below shows the shape of the curve representing home value as a function of the number of rooms. (All prices are for the Year 2000.) This example assume that 25 percent of single-family homes are rentals, an average home age of 15 years, and a neighborhood location 2 miles from campus. In a neighborhood with an average of 4 rooms per home, the expected value of a home is

\$125,794. As the average number of rooms per home in the neighborhood increases, it is easy to see how the value of a home will change.

Exhibit 3-32
Median Home Value as a Function of the Average Number of Rooms
(All Other Factors Equal)



CASE STUDIES

To illustrate the difference each of the factors can make, four block groups were examined in detail. The information given below outlines those areas, along with their actual reported neighborhood average values and the predicted value from the model. (Note that “percentage rentals” refers to the percent of single-family homes that are rented and not the total households that are rentals.

Exhibit 3-33
Predicted Values Compared to Actual Values

	Percentage Rentals	Average Number of Rooms	Average Age (years)	Distance to CSU (miles)	Predicted Value	Actual Value	Difference
Block Group 3, Census Tract 5.02	63.16	4	24	0.50	\$114,231	\$140,800	-\$26,569
Block Group 1, Census Tract 9.01	28.45	6	37	0.56	\$136,980	\$159,700	-\$22,720
Block Group 2, Census Tract 11.12	6.08	7	16	2.50	\$203,162	\$181,300	\$21,862
Block Group 3, Census Tract 16.03	4.52	6	15	4.24	\$164,639	\$160,500	\$4,139

The first two block groups are close to campus and have high proportions of renters. The second two are further away and have very few renters. The average size of the home is close to the same in each of the four groups, but the average age of the homes varies. The median home value predicted by the model gives an idea of how the variables are interpreted. The difference between the predicted values and the actual values can be attributed to error in the regression equation. Note that two of the predicted values are too high and two of the values are too low, exhibiting the fact

that the variables used in the calculation only account for 58.9 percent of the change in home value. Even with this error, though, the expected trend is still reflected in the model.

This data demonstrates that if the number of renters in one area changes, the home values in that area will change. The shifts caused by the enforcement of the ordinance will most likely cause some areas to have more renters and others to have fewer. Neighborhoods with larger homes will probably see the decrease, while areas with smaller homes will experience the increase as students separate from the larger groups and form new smaller households. This could create a shift in home values in different directions in the two areas.

Overall, these factors are known to be influences on the market. Size, age, and the location of a home are important characteristics when houses are valued. There are, however, many other aspects of a property that can affect its worth. It is important to understand that the four features discussed here do not account for all of the change in the market price or value of a home.

IMPACT OF RENTAL RATES ON RENTAL PROPERTY VALUES

Rental property values in the Fort Collins area may be affected if rental prices change as a result of the ordinance. The value of a property that is primarily rented is calculated from several factors. The basic components of value of a property are:¹

- Physical value (land and buildings)
- Property rights (including business value)

When a property is appraised, each of these is considered along with other pertinent factors. For the purposes of this report, only the earned income on rental properties will be considered to determine their value. The purpose of this is to examine the effect that a decrease in rental prices will have on property values in the area.

The expected income from rent is the principal indicator of value for a rental property. If the ordinance becomes effective, larger rental properties may have to reduce their rates as the demand for their units drops. At the other end of the market, however, smaller properties may be able to raise their rates due to an increase in the need for smaller housing units.

The value of a rental property can be estimated based on the income earned. This is calculated from the expected rental rate less a vacancy allowance. Because this is the biggest indicator of a property's value, a small shift in rental rates has the potential to affect property values in an unpredictable way. The actual value of a rental unit is equal to the gross income multiplied by a factor appropriate for that area. This multiplier is called the Potential Gross Income Multiplier (PGIM) and must be estimated for each individual property. The estimate is based on the PGIM of similar properties and their recent resale values. There are other ways to calculate the value of a rental unit using effective gross income and net operating income as well.

To illustrate this calculation, the following is an example of a possible scenario. The table gives possible rental revenues, multipliers, and the resulting home values. Note how the home value changes when a small change is made the rental rate.

Exhibit 3-34
Rental Rates and Changes in Property Values (Hypothetical)

Type of Property	Expected Monthly Rent	Yearly Rent	Potential Gross Income Multiplier	Value
5-bedroom	\$1,800	\$21,600	10	\$216,000
	\$1,600	\$19,200	10	\$192,000
4-bedroom	\$1,400	\$16,800	10	\$168,000
	\$1,100	\$13,200	10	\$132,000
3-bedroom	\$900	\$10,800	10	\$108,000
	\$800	\$9,600	10	\$96,000
2-bedroom	\$800	\$9,600	10	\$96,000
	\$1,000	\$12,000	10	\$120,000

¹ *Income Property Valuation*; Fisher, Jeffrey D.; Martin, Robert S.

In the chart, each type of home is shown with two possible rental rates. This gives an idea of how a small change in rental price can have an effect on the value of the home. All of the values listed in the table are hypothetical. The same hypothetical potential gross income multiplier was used in each calculation to simplify the results and to show the effect when only the rental price is changed and everything else is assumed to be constant. The actual potential gross income multiplier for the homes in Fort Collins would be estimated using information about the surrounding areas and homes.

The real estate market has a sensitivity to outside factors that is different from other markets. For example, real estate reacts slower to shifts in supply and demand. When demand increases, rental rates will rise and vacancy rates will fall. There is a delay before the demand is satisfied because it takes longer to produce new housing. Because decisions are made by numerous individual investors simultaneously, it is possible, even probable, that this will create too much supply and there will be a shift the other way. This contributes to the overall cyclical nature of the real estate market.

In Fort Collins, there will be an increase in demand for smaller housing units, such as two to three bedroom homes, if the ordinance is strictly enforced. This will raise the rental rates in that sector, while the ordinance enforcement will decrease the demand and rental rates in larger, higher occupancy housing. Based on the general principles of the real estate market, it is expected that the market will balance out, but the process may be slower than it would be in another type of market.

However, the value of a property is not limited by its rental potential. The value of a rental unit is expected to decrease if the rental rate falls, but if such a home is purchased by a single family, the value of the overall neighborhood may actually increase because the percentage of renters in the area will decline, as described in the previous section. Due to the fact that there are so many factors all working simultaneously, including the interrelated individual impacts of landlords determining how to price their units or whether to sell their units in the face of a dramatic market shift, it is nearly impossible to know the effects of all of them together, and that impact will affect different

neighborhoods in different ways. Isolated, each effect has an influence but together, the shift cannot easily be quantified for the city as a whole.

PART 4. LONG-TERM IMPACTS

As seen in the previous section of this report, a strong enforcement of the ordinance would have a significant and immediate impact on the housing market. The next key question is whether this change would permanently alter the housing market in the city.

This section of the report examines case studies of other communities that have experienced similar types of household change, and reports on changes in those markets' rental vacancy rates, rental costs, and home values.

FORT COLLINS GROWTH PROFILE

Fort Collins' population growth was calculated using census data for 1990 and 2000 and county population projections. Two special issues were also addressed:

- The growth in households due to the implementation of the ordinance (without a corresponding increase in population); and
- An estimated growth of the Colorado State University population by 4,000 students between 2005 and 2015.

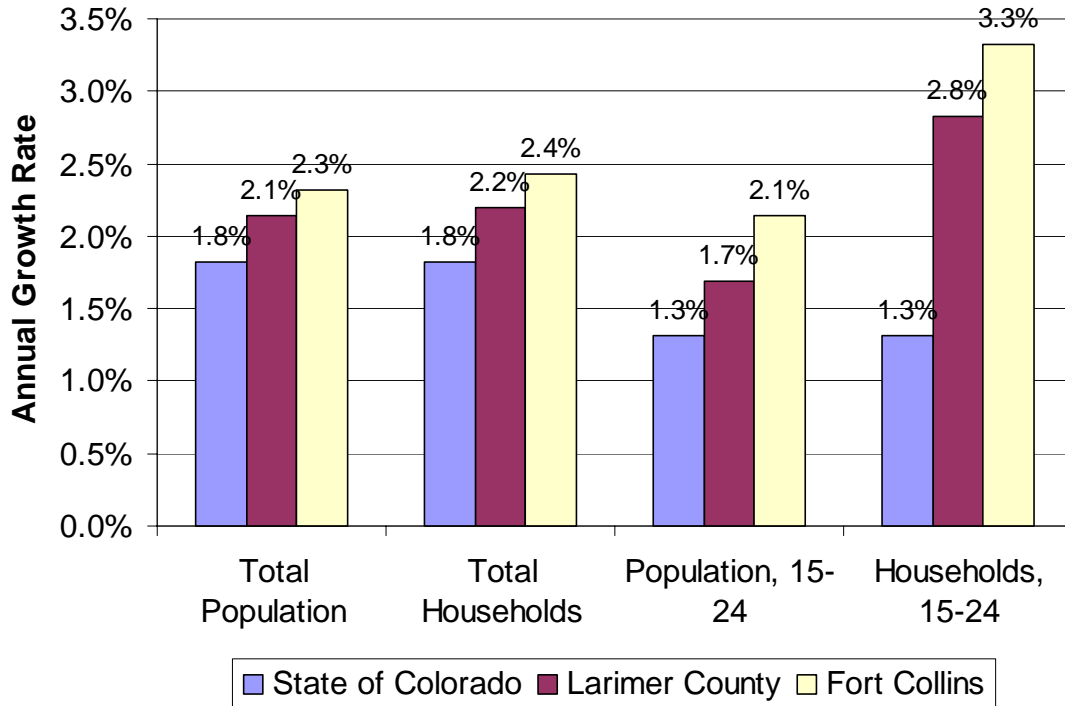
The exhibit below identifies the growth projections for Fort Collins with respect to Larimer County and the State of Colorado.

**Exhibit 4-1
Projected Population and Household Growth**

		1990	2000	2005	2010	2015
Population	State of Colorado	3,294,394	4,301,261	4,706,754	5,149,140	5,640,005
	Larimer County	186,136	251,494	270,127	299,460	333,969
	Fort Collins	87,758	118,652	127,460	143,931	160,243
Households	State of Colorado	1,285,119	1,659,308	1,815,736	1,986,396	2,175,759
	Larimer County	70,574	97,128	104,324	116,317	129,645
	Fort Collins	33,810	45,769	49,167	56,187	62,479
Population Age 15-24	State of Colorado	454,565	608,737	691,063	753,148	787,282
	Larimer County	33,190	46,087	47,173	54,276	55,757
	Fort Collins	21,935	30,236	31,020	37,260	38,329
Households Age 15-24	State of Colorado	80,994	105,322	119,566	130,308	136,213
	Larimer County	6,822	9,655	9,883	12,743	13,053
	Fort Collins	5,549	7,704	7,904	10,685	10,957

These growth rates translate into the annual growth rates shown below. The local college-age population tends to grow more slowly than the general population, even with a 4,000 student increase at Colorado State University over the next ten years. However, the addition of those students, combined with the net addition of nearly 1,200 new households because of the ordinance, creates a large growth rate in college-age households. This change in households will have a greater impact on housing than the change in population.

**Exhibit 4-2
Growth Rates by Region and Population**



The question to be answered in this section of the report is whether other cities have experienced similar levels of household growth in the past, and how it impacted their housing markets. The goal of this analysis is to find cities that experienced a growth profile from 1990 to 2000 that was similar to the projected future growth profile for Fort Collins, and then examine changes in vacancy rates, housing costs, and housing stock in those cities during that time period.

CASE STUDIES – COMMUNITIES WITH SIMILAR PAST GROWTH

As of the Year 2000, there were 243 cities in the United States and its protectorates with population of 100,000 or more, which made up the initial population of eligible comparable cities. From that initial list, Corona pared down the candidates as follows:

- Corona eliminated from consideration 41 cities that had population over 400,000,
- Corona eliminated two cities that radically changed their boundaries between 1990 and 2000, and thus acquired large pre-existing populations and housing stocks.
- Corona eliminated 34 cities that experienced declines in population from 1990 through 2000.
- Corona eliminated 7 cities that experienced phenomenal growth from 1990 through 2000, with rates of over 6.8 percent per year.
- Corona eliminated two cities in Puerto Rico for which standard data were not available.

These cuts pared the list from 243 cities to 157 cities. Data was then gathered on those cities to identify specific growth patterns between 1990 and 2000. From that list, 16 cities were identified to have exhibited highly similar household growth patterns to those projected for Fort Collins, based on total household growth, household growth among traditional college-age students, and a higher growth rate among the second group than the first. Interestingly, one of these similar cities was Fort Collins itself.

**Exhibit 4-3
Cities with Similar Past Growth Patterns**

	Annual Household Growth	Annual Household Growth, Ages 15-24	Ratio of Young/Total Household Growth
Fort Collins, 2005-2015	2.43%	3.32%	1.38
Communities with Similar Growth, 1990-2000			
Greensboro, North Carolina	2.12%	3.34%	1.58
Provo, Utah	2.13%	3.06%	1.44
Sioux Falls, South Dakota	2.22%	2.93%	1.32
Salem, Oregon	2.09%	3.39%	1.63
Winston-Salem, North Carolina	2.49%	2.94%	1.18
Eugene, Oregon	2.26%	3.68%	1.63
Durham, North Carolina	2.95%	3.33%	1.13
Fort Wayne, Indiana	1.86%	3.20%	1.72
Fort Collins, Colorado	3.07%	3.34%	1.08
Joliet, Illinois	3.06%	3.10%	1.01
Lincoln, Nebraska	1.83%	2.73%	1.49
Raleigh, North Carolina	2.77%	2.69%	0.97
Lexington-Fayette, Kentucky	1.93%	3.73%	1.93
Mesquite, Texas	2.03%	2.52%	1.24
Columbia, South Carolina	2.19%	4.14%	1.89
Lakewood, Colorado	1.59%	2.74%	1.73

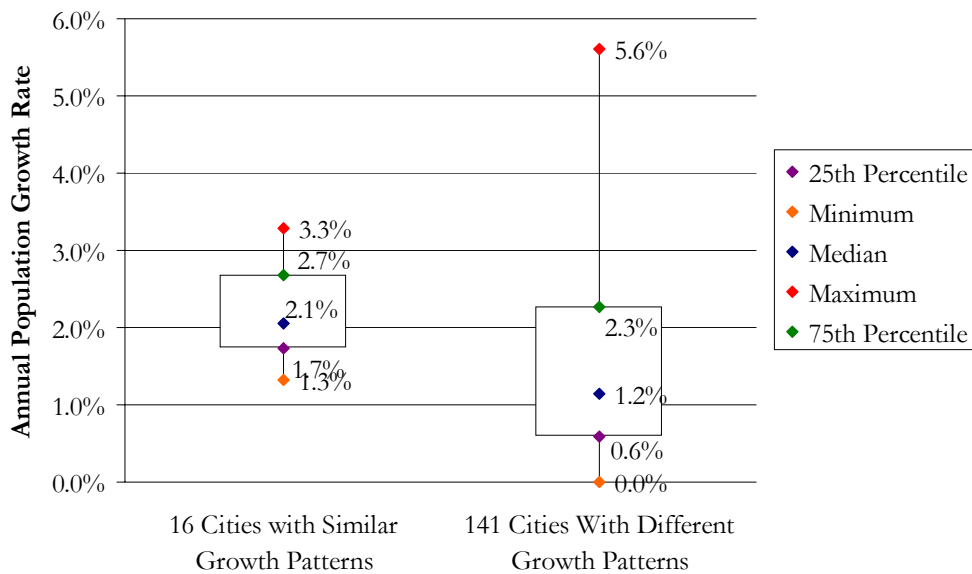
How to Read “Box Plots”

A box plot allows you to quickly identify differences between groups of populations. It shows the median value of each population as a point, and then a box around that median stretches from the 25th to the 75th percentile, enclosing the “middle half” of observations within that population. The lines above and below the box then show the range of the top 25 percent and bottom 25 percent, respectively.

In the example below, we can see that annual population growth rates in the 16 similar cities tend to be more closely packed than growth rates in the 141 dissimilar cities. The top one-fourth of similar cities have growth rates ranging from 2.7 percent to 3.3 percent. Half of the 16 cities have growth rates between 1.7 and 2.7 percent, and the bottom one-fourth have growth rates between 1.3 and 1.7 percent. In contrast, we see much wider ranges of growth among the cities defined to have dissimilar growth patterns, ranging from extremely high growth to stagnation. (Cities with population declines were taken out of the database, as were a small number of cities that experienced phenomenal growth rates.)

As seen below, the similar cities tend to have a very tight range of population growth, primarily because household growth rates (which are closely linked to population growth rates) were how they were defined as “similar cities” in the first place. In comparing these cities to the other 141 cities, it is seen that the similar cities have a much higher growth rate, despite the fact that cities with population declines were eliminated from the data. While 25 percent of the dissimilar cities have growth rates above 2.3 percent per year, it is generally recognized that the similar cities have experienced faster growth, on average.

Exhibit 4-4
Total Population Growth in Similar Cities and Dissimilar Cities



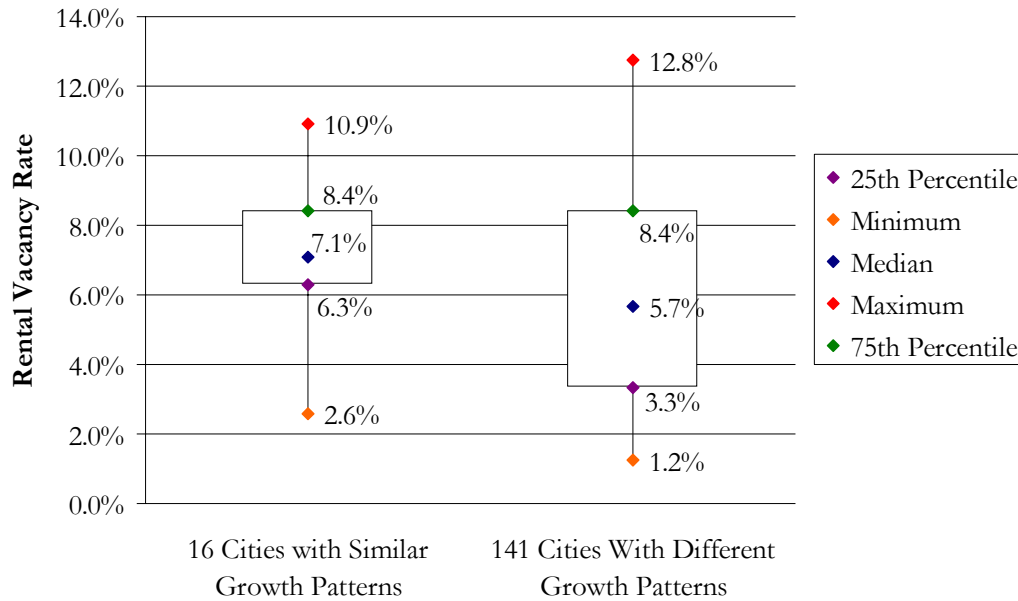
Since those communities have already lived through similar growth patterns to those projected for Fort Collins, changes in their housing markets may be of interest in foreseeing the future of Fort Collins over the next ten years. The following set of exhibits describes their housing situations and compared them to those of the 141 cities that were deemed to be not highly similar in growth.

RENTAL VACANCY RATES

Among the sixteen cities with similar growth patterns, the median rental vacancy rate at the end of the time period was 7.1 percent. Half of the cities had vacancy rates between 6.3 and 8.4 percent, and the extreme measures were 2.6 and 10.9 percent.

Interestingly, the median rental vacancy rates in these similar cities was higher than those of the 141 dissimilar cities. The “core” vacancy rates for the dissimilar cities was 3.3 to 8.4 percent, and the extremes were 1.2 percent and 12.8 percent. This implies that local housing industries were willing and able to meet the increased demand caused by the household growth in the similar cities.

**Exhibit 4-5
Vacancy Rates of Cities with Similar and Dissimilar Growth Patterns, 2000**

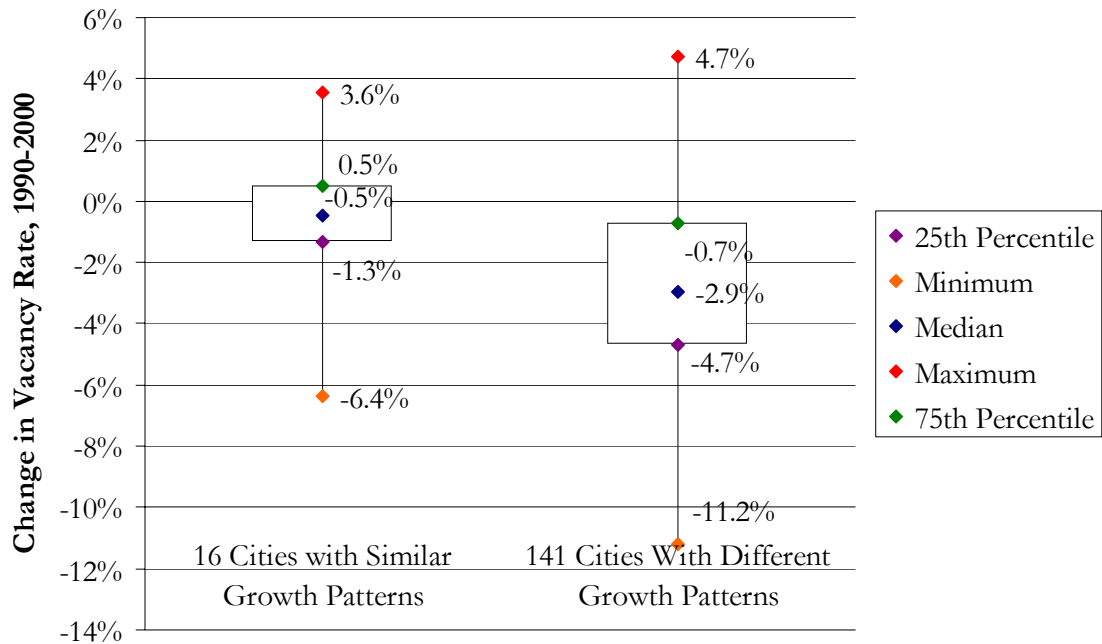


CHANGES IN VACANCY RATES

When changes in rental vacancy rates were compared over the 10-year time period from 1990 to 2000, a majority of cities in both groups saw declines in vacancies. However, more than 75 percent of dissimilar cities saw declines, and the median decline was higher in those cities. One-fourth of the cities with similar growth patterns actually saw an increase in vacancy rates.

The implications of this for Fort Collins are that, in the long term, a strong growth in households will in most cases be met, with only minor decreases in vacancy rates. The unique twist for Fort Collins, of course, is that enforcement of the ordinance would produce different vacancy scenarios for different price levels of rental properties.

Exhibit 4-6
Changes in Rental Vacancy Rates of Cities with Similar and Dissimilar Growth Patterns, 1990-2000

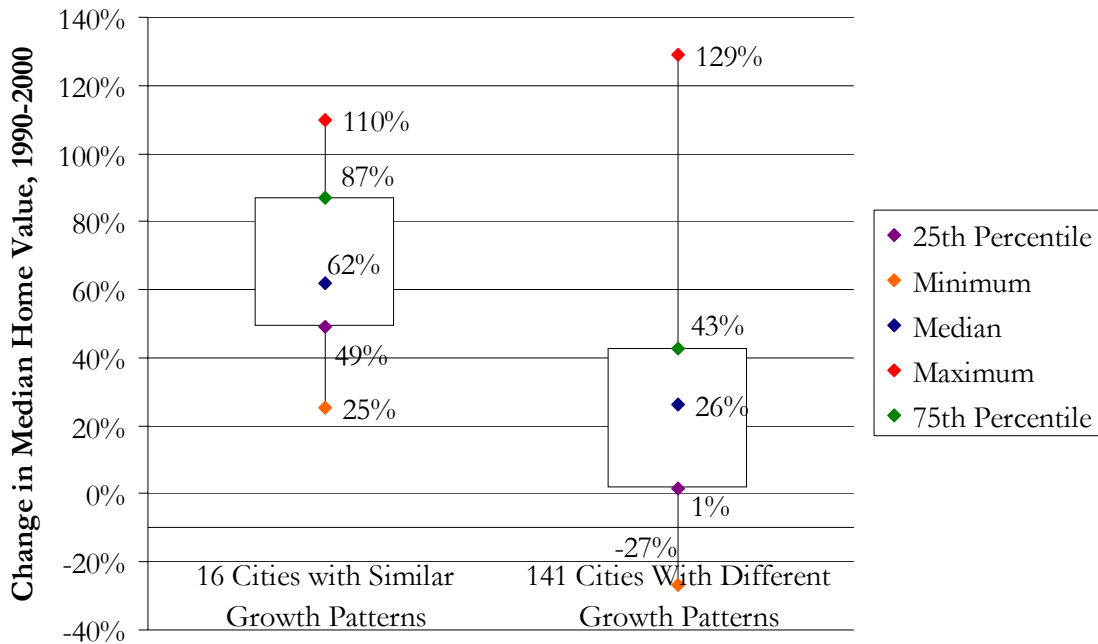


CHANGES IN HOME VALUES

Home values were an area where cities with similar growth patterns stood apart from other cities. Half of these cities saw an increase in median home value of 62 percent or higher, and 75 percent of the markets appreciated by 49 percent or more. In contrast, the median appreciation in the 141 dissimilar cities was only 26 percent, roughly equal to the worst-performing market among similar cities. A full one-quarter of dissimilar cities were either stagnant or saw home values fall.

This is perhaps less relevant for Fort Collins than some other analyses, because of the strong growth in rental demand that the ordinance will generate. Nonetheless, the pattern shows that cities with proportionally high household growth among college-age populations can see significant housing appreciation in the long term.

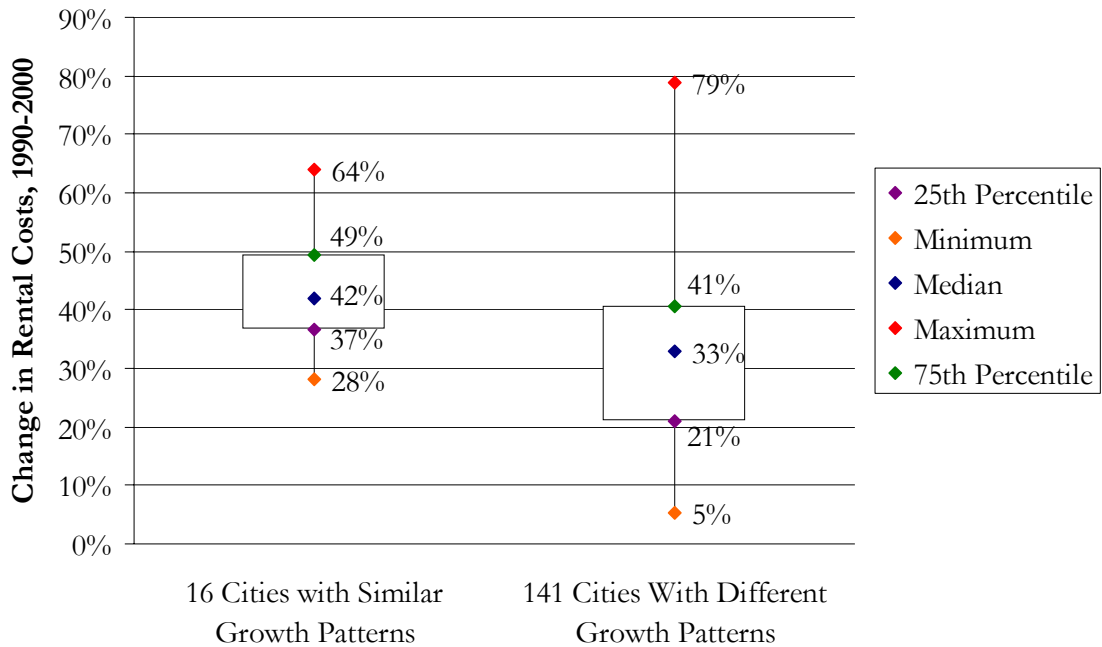
Exhibit 4-7
Changes in Home Values of Cities with Similar and Dissimilar Growth Patterns, 1990-2000



CHANGES IN RENTAL PRICES

While cities with differing growth patterns saw rental increases of 33 percent over their ten-year period of growth, cities with growth patterns similar to those predicted for Fort Collins saw higher increases on average. Half of the cities with similar growth patterns saw rental increases of 42 percent or more, and half of the cities saw increases within a narrow band of 37 to 49 percent.

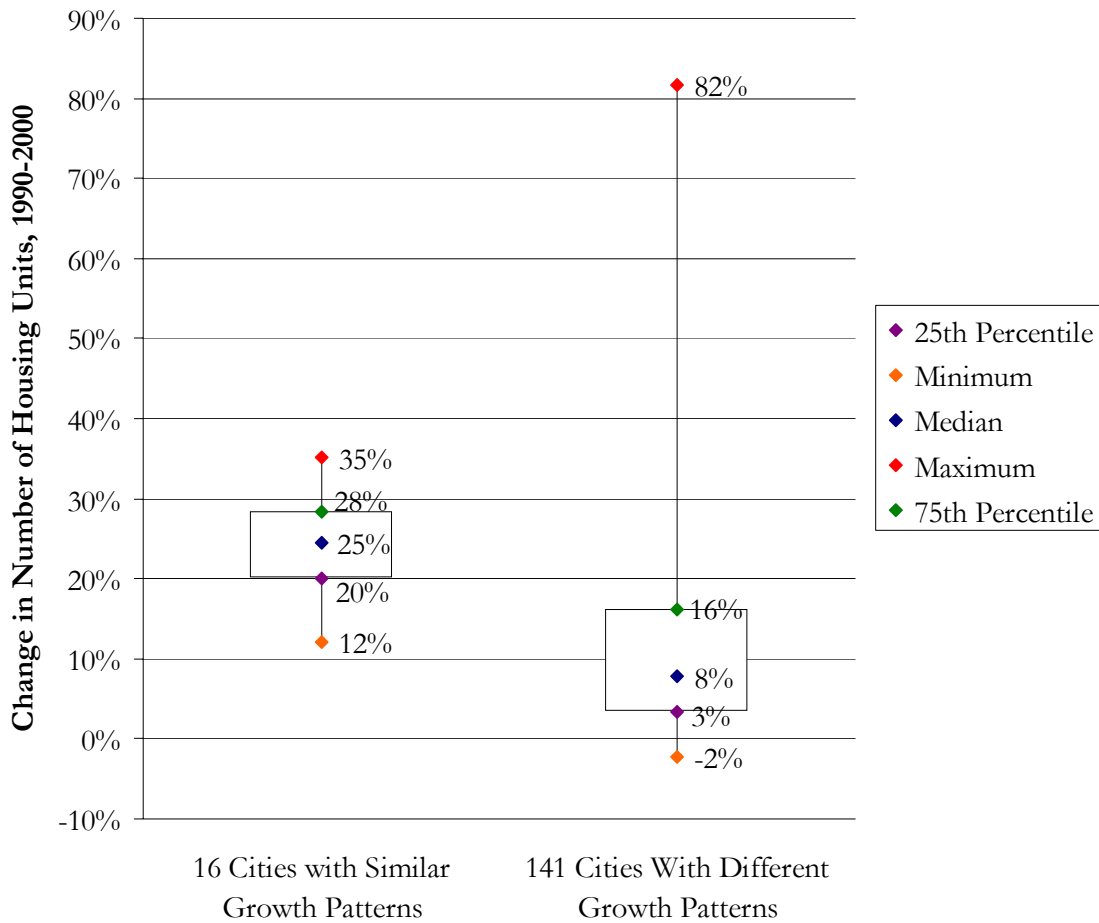
Exhibit 4-8
Changes in Rental Prices of Cities with Similar and Dissimilar Growth Patterns, 1990-2000



CHANGES IN HOUSING STOCK

Cities that have experienced growth patterns similar to the pattern forecast for Fort Collins have seen significant housing growth. On average, these cities saw increases in their entire housing inventory of 25 percent or more, on average, over the course of the ten-year growth period. This is more than three times higher than the typical growth of other cities.

Exhibit 4-4
Changes in Numbers of Housing Units of Cities with Similar and Dissimilar Growth Patterns, 1990-2000



A CASE STUDY: PROVO, UTAH

Provo, Utah was selected as a case study because it represents a somewhat similar situation to that of Fort Collins. First and foremost, the college-aged population in Provo is rising faster than the rest of its population, and the city is experiencing strong overall growth as well. Provo is also a good fit because of its location in relation to Fort Collins. It is expected that the two cities would experience similar shifts resulting from outside factors, as they are both western cities that are standalone metro areas near a larger capital metro area, and home to a large university.

The city's largest university, Brigham Young University (BYU), has been growing over the past several years. In 1998, the university made a decision to increase the student enrollment by 500 students each year for four years. This resulted in a 2,000-student influx by the end of the four-year term. In an effort to accommodate the new students, the school decided to give freshmen priority choice for on-campus housing. This left several hundred upper class students searching for housing off campus, creating new households. Provo was faced with more students than the market could handle and many were forced to live in illegal situations with more students to a unit than permitted by zoning laws. (This information is as reported on the university newspaper's archive website.⁶)

Utah Valley State College (UVSC) is also located in Provo and is open to anyone who wants to attend. During the 1990s, enrollment at UVSC was steadily growing until the school reached its capacity. After turning away 2,000 students in 1997, when enrollment was about 16,000, the college expanded its facilities and was again able to support the increasing student load. By 2000, student enrollment was up to 21,000. This increase of students created new households and kept Provo's vacancy rates low. Fort Collins faces a similar situation having a large university as well as a community college in the city limits with multiple student bodies forced to live in available housing.

Zoning decisions have also affected the housing situation in Provo.⁷ The city of Provo has been actively making changes for the past several areas. In many areas, the city has shifted zoning from multiple family units to single family units. If Fort Collins begins enforcing the ordinance and shifting residents into smaller households, this will have a similar impact by increasing the demand for smaller housing and decreasing the demand for larger housing.

These changes have occurred in a market that has had historically low rental vacancy rates. Although vacancy rates increased between 1990 and 2000 from 3.3 percent to 4.1 percent (similar to Fort Collins' 2000 vacancy rates), they were still less than half of the Year 2000 national average of 7.99 percent. Provo has chosen to combat this problem by constructing new low cost housing near the university. Programs are currently being researched to find the best solution to the housing shortage.

While this situation is still developing, Provo may emerge to be a good example of a city to observe as a laboratory for Fort Collins, as Provo appears to be facing these issues a few years ahead of Fort Collins.

⁶ *BYU NewsNet*; newsnet.byu.edu, archives

⁷ *The Daily Herald*; www.harktheherald.com, archives

KEY FINDINGS

The key findings of this section include the following:

- The growth pattern predicted for Fort Collins is not unique. Sixteen cities of similar size experienced similar growth patterns between 1990 and 2000, and can be studied to learn best practices. (One of these sixteen cities was Fort Collins itself.)
- In cities that have experienced similar growth patterns in the past, new housing construction has risen to meet demand. In fact, cities with this growth pattern are almost as likely to see increases in vacancy rates over the long term as decreases.
- Over a ten-year period with the growth pattern predicted for the city, one would expect to see an increase in the housing inventory of 20 to 28 percent.
- Home values in cities with this type of growth pattern tend to rise quickly, with increases that are more than double the rate seen in growing cities with other types of growth patterns.
- Rental prices in cities with similar past growth patterns have risen at a rate about one-third faster than in cities with different growth patterns.

BACKGROUND INFORMATION FOR THIS SECTION

This portion of the report documents the methodology used to prepare the growth profiles and identify comparable cities. Readers interested in the data used to develop the estimates may read this section at their own discretion.

METHODOLOGY

In order to identify comparable communities, a projected growth profile was created for Fort Collins, including population, number of households, growth rates, and ratios of those growth rates by age group. This profile was then compared with other cities' historic growth rates to find cities with similar patterns.

Phase One. Development of Projected Household Profile in Fort Collins

As a first step, household projections were prepared for the City of Fort Collins by age of householder. Initial population projections by age were gathered for Larimer County, as prepared by the Colorado State Demographer. (City growth projections by age are not available.) Next, the proportion of countywide growth that took place in the city of Fort Collins from 1990 to 2000 was calculated and assumed to be constant through the year 2015. Using those figures and assumptions, Fort Collins's population growth was estimated based on the county projections.

Once the city projections were developed, the projected growth in the number of households was calculated. The average numbers of people per household in 2000 were used as estimates for 2005, 2010, and 2015, so that the projected number of households could be calculated for both college-age people and the total population.

These estimates represent baseline demographic projections, and do not take into account unique local events that might affect population, except in instances where those changes are widely known and accepted as inevitable. Therefore, Corona made three adjustments to the projections:

- Corona studied two main age brackets, those aged 18-24, and the total population. Both groups' populations and households were adjusted to account for 4,000 new students projected over the next 10 years. (The baseline estimates assume no growth in college enrollment.)
- Based on discussions with and recommendations of the Colorado State demographer, Corona estimated that the 4,000 new students would create 350 more jobs over the total population. A population adjustment was added to the projections to adjust for this increase. The number was calculated from a projected number of jobs per person, and then added to the total population.
- Existing student household figures were revised upward by 1,191 households, with no change in population, to reflect the impact of ordinance enforcement.

Finally, the Annual Growth Rate was calculated for the number of households for both age groups.

Phase Two. Identification of Cities with Similar Past Growth Patterns

A list of 243 cities with populations over 100,000 was compiled, based on the total population for 2000. (Note that these figures reflect city populations and not metro area populations.) Several cities were removed from consideration due to negative population growth, irrelevantly large populations, and other factors. For each of the 157 remaining cities, Corona calculated the following:

- Annual Growth Rate of the total number of households;
- Annual Growth Rate of college aged households; and
- The ratio of the two (with the goal of identifying cities where the college age adult household population has grown significantly more quickly than the rest of the adult household population, as projected in Fort Collins).

The objective was to identify cities with a similar (high) level of growth in college age households, growth in the general population, and, more specifically, faster growth in the number of college aged households than other households, during the period from 1990 to 2000. This could occur for various reasons, but is reflective of the growth patterns predicted in Fort Collins due to the city ordinance. A total of 25 such cities were identified for further study.

Once identified, these cities could now be studied in terms of long-term changes in vacancy rates, housing stock, and rental prices. Since actual data on those values are available for both 1990 and 2000, changes can be examined in detail. This provides a reasonable portrait of the long-term future of Fort Collins's housing market if the ordinance enforcement and the significant student population increases both occur. It can be assumed that the housing market will follow a similar pattern in Fort Collins over the next 10 years as the target cities followed during the 1990 to 2000 time period.