

Arlington County 2002 Housing Needs Survey Report

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FINAL REPORT

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Table of Contents

List of Tables and Charts	ii
1. Summary.....	1
Purpose	1
Project Approach	1
Survey Response	1
Analysis of the Survey Data	2
Survey Limitations	4
Alternative Data Collection Approaches.....	5
2. Survey Methodology.....	6
Sample Size	6
Information Collected	6
Development of the Survey Questionnaire	7
Sampling Plan	7
Data Collection Procedures.....	7
Key Methodological Issues Associated with the Survey	8
Sampling Error (Confidence Interval) and Level of Confidence.....	8
3. Data Analysis	10
4. Survey Results	11
Overview of Survey Sample and Representativeness.....	11
Population Characteristics.....	12
Housing and Household Characteristics	14
Persons with Disabilities.....	14
Income Characteristics.....	15
Housing Tenure -- Own or Rent	17
Housing Cost Burden	21
Housing Cost Burden by Household Type	24
Serious Housing Need	28
Analysis of the Survey Data	31
5. Conclusions.....	33
6. Appendicies.....	Error! Bookmark not defined.
Appendix A - Comparison of Survey and Census Data	Error! Bookmark not defined.
Appendix B - Notes on Survey Methodology.....	Error! Bookmark not defined.
Appendix C - Burden Index Grouping and Grouping Logic.....	Error! Bookmark not defined.
Appendix D - Survey Instrument.....	Error! Bookmark not defined.
Appendix E - Tables and Calculations.....	Error! Bookmark not defined.
Appendix F - Recodes and Resolving Data Issues	Error! Bookmark not defined.

List of Tables and Charts

Table 1.	Race of Head of Household	12
Table 2.	Hispanic Ethnicity of Head of Household.....	12
Table 3.	Spanish Speaking Homes	12
Table 4.	Age Distribution	13
Table 5.	Household Size	13
Table 6.	Household Type	13
Table 7.	Type of Residence	14
Table 8.	Part of a condominium or co-operative.....	14
Table 9.	Number of Individuals in the Household with a Permanent Disability	14
Table 10.	Types of Disabilities	15
Table 11.	Household Structure.....	15
Table 12.	Households by Income	16
Table 13.	Households by Income	17
Table 14.	Types of Income.....	17
Table 15.	Housing Tenure	18
Table 16.	Monthly Rent or Mortgage for Households that Rent and Own	22
Table 17.	Housing Cost Burden	23
Table 18.	Households Receiving Rent or Housing Assistance.....	23
Table 19.	Housing Tenure by Household Type – All Households in Survey	25
Table 20.	Housing Burden by Household Type – All Households in Survey	26
Table 21.	Rent Burden by Household type – Households with income equal to or below 40% of median income	29
Table 22.	Mortgage Burden by Household Type – Households with income equal to or below 40% of median income	29
Table 23.	“Housing Need” by Household Type – Households at All Income Levels.....	31
Table 24.	Housing Need: Estimated Number of Households Paying over 40% of Income for Rent or Mortgage	32
Chart 1.	Comparison of Housing Occupancy	19
Chart 2.	Ownership Structure by Race and Ethnicity	20
Chart 3.	Housing Cost Burden by Household Type.....	27
Chart 4.	Households with Serious Housing Needs.....	30

Summary

Purpose

Arlington, like the rest of the metropolitan area and most of the nation, has been facing an increasingly critical shortage of affordable housing in recent years. In December 2000, the Arlington County Board adopted a set of Affordable Housing Goals to address its affordable housing needs. In those goals, the County defines “serious housing need” as “households with income below 40% of median income paying over 40% of income for rent [or mortgage].”

The purpose of the survey was to collect information pertinent to assessing the level of serious housing need in Arlington County and measure progress toward meeting these needs and the County’s affordable housing goals over time. This information was intended to supplement the 2000 Decennial Census data and be replicable in future years to provide comparative data for measuring progress.

It had been hoped that analysis of this survey data would help the County to identify the current level of serious housing need, particularly among elders, persons with disabilities and families with children. Data from the survey, in comparison with prior data, might also be used to identify trends and project future levels of serious housing need.

Project Approach

The selected approach for collecting information on housing need in Arlington was a telephone survey typically lasting under 10 minutes with the head of the household of a randomly selected residence in the County. This approach was intended to produce a survey sample that was broadly representative of the County in terms of key demographic characteristics, such as race/ethnicity, household size, and household structure. A representative sample provides, in effect, a “fair” and comprehensive portrait of the County in that it reflects in proportionate numbers the full diversity of Arlington. A representative sample also facilitates comparison to U.S. Census data which are intended to represent all households in the County.

Survey Response

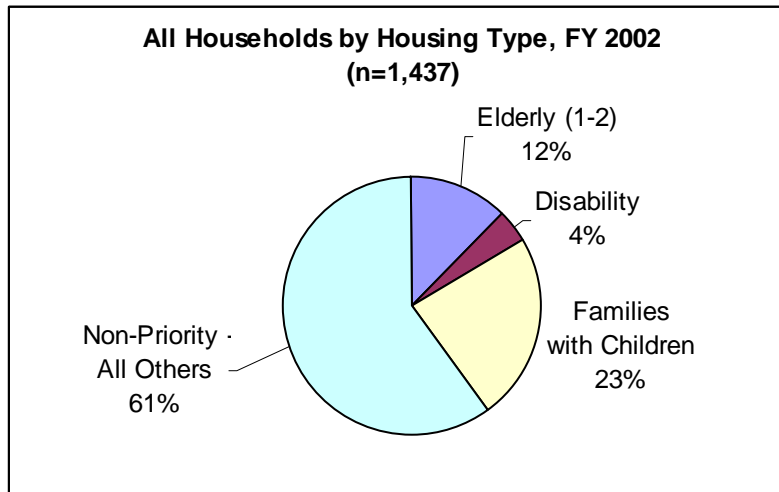
A total of 1,437 households completed the survey and were included in the sample. A survey of this size for Arlington County has a confidence interval of plus or minus 2.6%, meaning that the responses provided by those who answered the survey are 95% likely to be within 2.6% of the actual responses of all heads of household in the County if it were possible to interview all of them.

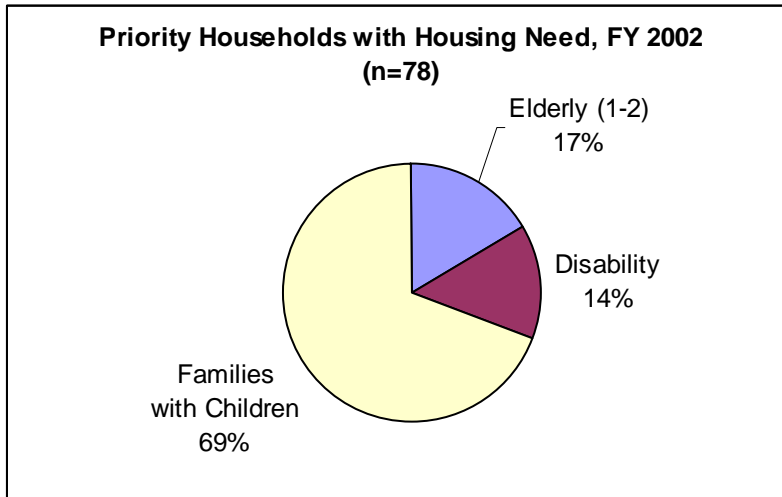
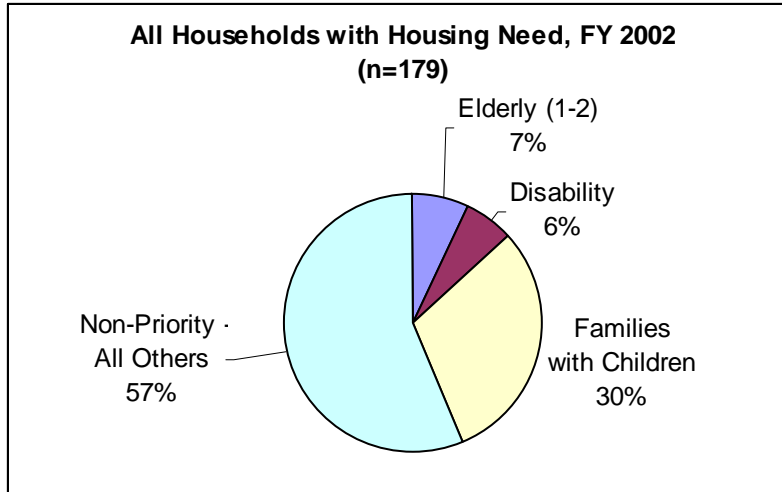
Analysis of the Survey Data

The survey collected data beyond that available from the U.S. Census. A goal of the survey was to extrapolate from the survey data to provide Countywide estimates. A focal point was finding out the level of housing need among the low income households that are a priority for receiving housing assistance: elders, persons with disabilities and families with children. On the following pie charts, Elderly 1 – 2 person households, households with members with disabilities, and small and large families with children are identified as “priority” households.

The first pie chart shows all households by household type. The second pie chart defines “housing need” as “households paying over 40% of income for rent or mortgage.” It includes households at all income levels. These data show that:

- While households with persons with disabilities made up 4% of all households, they comprised a slightly larger share (6%) of households in housing need.
- Similarly, families with children make up 23% of all households and 30% of all households in housing need.
- Conversely, 1-2 person elderly households were 12% of the survey sample, but only 7% of the households paying over 40% of income for rent.





The survey found 12.8% of the households in “housing need,” defined as those paying over 40% of income for housing costs (rent or mortgage). Applying the 2002 survey percent in housing need (12.8%) to the CPHD estimated total number of households in 2002 (89,022), approximately 11,398 households are considered to be in housing need. Well over half of these households were not defined as priority households – that is, not households with elders, persons with disabilities or children.

Housing Need: Estimated Number of Households Paying over 40% of Income for Rent or Mortgage

Household Type	Number of Households	Percent (n=11,398)
Elderly (1-2 persons)	805	7.1%
Families with Children	3345	29.3%
Persons w/ Disabilities	681	6.0%
All Others	6,567	57.6%
Total	11,398	100.0%

Note: Using a confidence level of +/-2.6%, the total estimate could range from 9,080 to 13,709.

Survey Limitations

While the survey data collected provide a representative portrait of Arlington County, the goal of obtaining information on the extent of serious housing need in the County at a level of detail sufficient to tailor policy was not achieved. Several factors contributed to this shortfall, as described below:

- **The share of the survey sample meeting the definition of serious housing need was too small.** The County’s definition of “serious housing need” is “households with income below 40% of median income paying over 40% of income for rent [or mortgage].” Because the number of respondents meeting this definition was very small, the confidence intervals associated with estimates based on them are very high.
- **Many people are reluctant to share financial information.** Nearly one out of five respondents (18%) answered “do not know” or refused to answer the question on household income. As a result, the serious housing need for these respondents could not be calculated, creating a potential source of significant bias in the survey data.
- **Arlington County’s policies toward addressing serious housing need are very focused.** The County seeks to consider the amount of serious housing need for very specific populations: elders, families with children and persons with disabilities. The small number of households in these household types in the survey sample meeting the definition of serious housing need severely restricted the ability to conduct meaningful analysis of the housing needs of these subpopulations.

As a result of these factors, the number of households in the survey sample meeting the definition of serious housing need is quite small and the confidence interval associated with these estimates are quite high.

The table below shows how a diminishing sub-sample size is associated with a larger confidence interval:

Household Type	Sample size	95% Confidence Interval
Persons with Disabilities	61	+/- 12.5%
Elderly (1-2 persons)	178	+/- 7.3%
Families with Children	337 ¹	+/- 5.3%
All Others	861	+/- 3.3%
Total	1,437	+/- 2.6%

¹ This figure does not include 19 households of the “Persons with Disabilities” type that also reported having children.

Confidence intervals this large make the data less useful to policymakers. Further, conducting additional future surveys using a similar approach would not likely reveal statistically significant changes in the amount of serious housing need across the County, meaning that any change seen from one year to the next might be the result of the margin of error associated with the survey rather than an actual change in the housing circumstances of the County.

Alternative Data Collection Approaches

The issue of housing need in Arlington County is a very serious one. A solid foundation of reliable, accurate data could help ensure that the County's policies are well targeted and effective in addressing the need that exists. Unfortunately, collecting accurate, timely information at a reasonable cost is not easily achieved.

Collecting data in the future using a similar approach to this survey (random, representative sample) is likely to experience the same shortcomings, which will again limit the usefulness of the data. While the survey could be repeated with a much larger sample size, the cost to conduct it would be significantly higher and issues of respondent refusal or reluctance to provide financial information would remain significant limitations. Three alternative approaches are discussed in the conclusion of the report with their respective advantages, limitations and relative costs.

Although none of the alternative approaches are methodologically simple or inexpensive to conduct, they all provide the prospect of eliminating or significantly reducing the problems which limited the usefulness of this survey.

Survey Methodology

This section of the report describes the methodology used to design and conduct the survey. Additional technical details about the survey, as well as a complete copy of the survey questionnaire, can be found in the Appendices to this report.

Sample Size

The total sample size for this survey was set for 1,400 household units based on a general population design with no oversampling of subpopulations. A survey of this type is intended to produce a representative sample of the County's population with a confidence interval (margin of error) of plus or minus 2.60% for the entire sample. See Appendix B for additional information about the survey's methodology.

The basic unit of the survey sample is the occupied housing unit (household). A household includes all people residing in a housing unit whether related or not. Because the information sought included sensitive information that may not be known by all members of a household, the survey screened for the male or female head of the household in order to increase the accuracy of collected household information. Other members of the household were not eligible to complete the survey regardless of their relationship to the head of the household.

Information Collected

The following information was collected in the survey:

- Number of persons in household
- Number of persons under age 18
- Number of persons age 65 or older
- Number of adults with permanent disability
- Types of disabilities
- Gross household income (includes all earnings)
- Income types
- Number of persons earning wages in household
- Whether household is currently receiving rent assistance
- Housing tenure -- own or rent
- Housing type
- Apartment type (condominium or cooperative)
- Number of bedrooms in unit
- Cost of monthly rent or mortgage
- Household structure
- Race
- Ethnicity
- Zip code

See Appendix D for the complete survey questionnaire including the specific wording and response scales for each question.

Development of the Survey Questionnaire

The survey questionnaire was developed in conjunction with staff from the Department of Community Planning, Housing and Development. The wording for each question was crafted to minimize any leading nature or bias and to be as clear and understandable as possible to the respondent. Most questions were constructed to use close-ended responses from a set list of multiple-choice possibilities. Open-ended responses were limited to questions that asked the respondent to provide a quantitative response, such as the monthly amount of rent. Questions and response scales were constructed to be mutually exclusive (non-overlapping) and comprehensive to facilitate analysis and interpretation. Some of the response scales, such as annual income ranges for households of different size, were provided by the Department of Community Planning, Housing and Development.

The draft survey questionnaire was pre-tested in both Spanish and English to identify any difficulties that respondents were having understanding any of the questions or providing responses. In addition, the pre-test confirmed that the survey typically could be conducted in less than 10 minutes, which was viewed as highly desirable in order to maximize the likelihood of participation by households in the County.

Sampling Plan

The information for this survey was collected during a telephone interview typically lasting under 10 minutes with the head of the household of a randomly selected residence. Residences were selected using a random digit dialing method (RDD) at various times of the day over the course of approximately nine weeks. RDD is the most efficient means of achieving a random survey sample given the high level of telephone service in the County (according to the 2000 Census, fewer than 0.7% of the occupied housing units in Arlington County lacked a telephone in the unit.)

To promote participation in the survey, a press release was disseminated announcing the survey and its purpose. In addition, information announcing the survey was included in The Citizen (a newsletter sent to all residents) and in a letter to civic, religious and other community leaders. A notice in Spanish and English was given to children at school to take home and bilingual notices were distributed at libraries and community outreach centers.

Data Collection Procedures

All interviews were conducted by experienced interviewers fluent in both English and Spanish using computer aided telephone interviewing (CATI) workstations. CATI systems expedite the screening of survey participants, automate the survey skip pattern

(logical flow of questions), and allow direct data entry as the interview is being conducted. This technology reduces data errors and allows for real-time assessment of the completion rate for the survey. Interviews were conducted from January 24, 2002 through April 1, 2002.

Key Methodological Issues Associated with the Survey

The key methodological issues associated with this survey were possible selection bias and treatment of sensitive information.

Selection bias is the possibility of having certain portions of the target survey population not participate, resulting in a survey sample that is not representative of the overall population of interest. There are several possible sources of selection bias associated with this survey. First and foremost, households lacking an active telephone line were excluded from the survey. As noted earlier, this possibility is unlikely to create significant bias given that the 2000 Census found that 99.3% of all Arlington households had telephones. Another potential source of bias is the fact that the survey was conducted in only two languages. Although these are the most commonly spoken languages in the County, households whose head was not comfortable or able to answer the survey questions in either English or Spanish were not included in the sample. Finally, certain groups within the overall population, such as illegal immigrants, may be highly reluctant to provide any information for use by the County, even when collected anonymously by an independent third party.

The second methodological issue concerns the treatment of sensitive information including information related to household structure and financial issues such as housing expenditures and income. To minimize the possibility of abandonment by the respondent prior to completing of the interview or intentionally inaccurate responses, questions related to sensitive information were placed at the end of the survey. In addition, the respondent was generally provided with a list of possible choices read by the interviewer rather than required to provide an unprompted response. For annual income, the respondent answered the question by identifying the range in which the household's income fell.

Sampling Error (Confidence Interval) and Level of Confidence

All surveys entail some amount of error arising from controllable or uncontrollable sources. Controllable sources have to do with systematic errors such as only conducting interviews during the day so that persons who work normal business hours are missed. Systematic errors can generally be eliminated or minimized by careful sampling techniques. For example, the County survey was conducted during evening as well as daytime hours.

Uncontrollable errors include the error inherent in any sampling of a population. This sampling error consists of two factors:

- The **confidence interval** (sometimes called the sample error) is the amount of variation of the result of a sample from the actual result for the entire population of interest. For example, a confidence interval of plus or minus 4% means that if a survey sample response is 52%, then the actual value for the entire population would be expected to be between 48% and 56%.
- The **confidence level** is the likelihood that the sample selected is actually representative of the total population of interest. The 95% confidence level means that if 100 samples were drawn from the same population, the responses of 95 of those samples will fall within the confidence interval. For public policy surveys, a 95% confidence level is most commonly used.

The confidence interval for this survey is +/- 2.6% at the 95% level of confidence. The confidence interval for certain subgroups within the survey sample is somewhat higher. For example, for different income subgroups, the confidence intervals are greater, as shown on the following table:

Income Level	95% Confidence Interval
Households at all income levels	+/- 2.6%
Households with incomes below 50% of median income	+/- 6.5%
Households with incomes below 40% of median income	+/- 7.8%

Assuming a truly random sample, the reason why the confidence intervals is greater for income subgroups has to do with the diminished size of the sample subgroups. In general, the smaller the sample size, the larger the corresponding confidence interval (noting that the relationship is not linear). Hence, a subgroup with income below 40% of the median income will result in a larger confidence interval. Therefore the wide intervals may indicate that more data should be collected before anything more accurate can be said about the subgroups.

This is especially the case when cross-tabulations are used. A cross-tabulation is a table that shows how the answers to one poll question break down according to the answers to another poll question. For example, if the people with incomes below 40% of the median of their household type were cross-tabbed against housing burden groups, the crosstab would show how much each household type with income below 40% of the median income spends on rent relative to income. A quality answer would only come from a respondent who gave a quality answer to all of the questions. Not answering even one of the questions would effectively diminish the subgroup sample size. Cross-tabulations also tend to result in frequencies that do not match the total number in the survey because some questions in a survey are asked of only a sub-group of respondents rather than of the entire sample (skip patterns). Hence there is a built-in potential for error that may make the cross-tabulation unrepresentative of the population.

Data Analysis

Prior to analysis of the survey data, certain recoding and reclassification of survey responses were required. These adjustments are explained in detail in Appendix F, *Explanatory Notes Related to Arlington County Housing Survey Dataset*. Some recoding of responses was needed to resolve internal inconsistencies across questions, such as discrepancies between the total number of household members reported and the sum of the members by age group. In some cases, responses of “other” were reclassified into existing categories based on the nature of the response provided.

Most of the analysis related to the collected survey data concerned calculation of the housing cost burden for each household in the survey. The calculation of housing cost burden is described in the section on survey results, and the definition of serious housing need is provided above. In addition, most of the analysis was performed by dividing the survey sample into the following eight groups:

- Elderly households of 1 or 2 persons
- Households of 1 or 2 persons with disabilities
- Households of 3 or more persons with at least one person having a disability
- Small families of 2-4 persons with children
- Small families of 2-4 persons without children
- Large families of 5 or more persons with children
- Large families of 5 or more persons without children
- Other

These eight groups were constructed to be all-inclusive, meaning that all households in the survey were placed in one of these groups. If a household met the criteria for several groups, it was placed according to the order hierarchy listed above so that it was included in only one group. The criteria for creating these burden groups are summarized in a table included in Appendix C, *Burden Index Grouping*. Appendix C also contains a complete description of the criteria for each group.

Survey Results

This section presents the key results of the 2002 Arlington County Survey on Housing Need, including a comparison of the survey results with select countywide statistics from the 2000 U.S. Census. The section is organized as follows:

- Overview of Survey Sample and Representativeness
- Housing and Household Characteristics
- Housing Tenure -- Own or Rent
- Housing Cost Burden
- Housing Cost Burden by Household Type
- Serious housing need

A complete set of the tabulations and analyses produced from the survey results is included in Appendix E.

Overview of Survey Sample and Representativeness

A total of 1,437 households representing 3,367 residents were surveyed, corresponding to 1.6% of all occupied housing units in the County and 1.7% of its residents. The breakdown of the households surveyed by key demographic characteristic is provided in a table in Appendix A along with the corresponding data from the 2000 Census.

Relative to the Census, the survey sample is:

- Underrepresented in single-person households, which results in the survey showing a higher average household size (2.34) than the 2000 Census (2.15);
- Underrepresented in apartments and overrepresented in single-family detached units compared to the 2000 Census;
- Overrepresented in part of the Rosslyn-Ballston Corridor (zip code 22201) and underrepresented in parts of South Arlington (zip codes 22204 and 22046); and
- Slightly underrepresented in African-American households and in Asian-American households.

See the graphic in Appendix A for the geographic distribution of households in the survey sample relative to all households in the County.

Based on a comparison of these demographic characteristics, the survey results appear to present a reasonably representative sample of the County's households and thus, a valid portrait of the housing circumstances of the County's population.

Population Characteristics

Table 1 shows the race of the heads of household who participated in the survey. Table 2 shows Hispanic ethnicity of the same persons. (A person of Hispanic ethnicity may be of any race). The survey respondents appeared to represent a reasonable cross-section of the County's population, correlating reasonably well with the 2000 Census data on race and ethnicity.

Table 1. Race of Head of Household

	Frequency	Percent
White/Caucasian	1,098	76.4%
Black/African American	88	6.1%
American Indian/Alaskan Native	13	0.9%
Asian/Pacific Islander	84	5.8%
Multi-racial	119	8.3%
Don't Know	7	0.5%
Refusal	28	1.9%
Total	1,437	100.0%

Table 2. Hispanic Ethnicity of Head of Household

	Frequency	Percent
Yes	174	12.1%
No	1,257	87.5%
Not identified	6	0.4%
Total	1,437	100.0%

Table 3 shows whether the language spoken at home is English, Spanish or Other. Roughly 85% of all households speak English at home, almost 9% speak Spanish and about 6% speak another language.

Table 3. Language Spoken at Home

	Frequency	Percent
English	1,223	85.1%
Spanish	128	8.9%
Other	85	5.9%
Not identified	1	0.1%
Total	1,437	100.0%

Table 4 shows the distribution of the survey population by age.

Table 4. Age Distribution of Household Members

	Frequency	Percent
Under age 5	218	6.5%
5-17	390	11.6%
18-61	2,448	72.7%
62-74	190	5.6%
75 or greater	116	3.4%
Not identified	5	0.15%
Total	3,367	100.0%

Table 5 shows the number of respondent households by the number of persons in the household. Single-person households were underrepresented among survey respondents, which contributed to an average household size (2.34) that is substantially higher than found in the 2000 Census (2.15). Both the survey and the Census found that nearly 93% of all households have four or fewer residents.

Table 5. Household Size

Number of Persons	Frequency	Percent
1	424	29.5%
2	528	36.7%
3	214	14.9%
4	166	11.6%
5	68	4.7%
6	25	1.7%
7-or-more-person household	11	0.8%
Not identified	1	0.1%
Total	1,437	100.0%
Average Household Size	2.34	

Table 6 shows households by type (elderly, small families with children, persons with disabilities, etc.). "Others" include singles, unrelated persons and families without children.

Table 6. Household Type

	Frequency	Percent
Elderly (1-2)	178	12.4%
Small Families with Children (2-4)	252	17.6%
Large Families with Children (5+)	85	5.9%
Persons w/ Disabilities	61	4.2%
All Others	861	59.9%
Total	1,437	100.0%

Housing and Household Characteristics

Table 7 presents the primary housing characteristics for the survey sample for the information collected. Just over half (52.1%) of the residences surveyed are apartments, followed by single-family detached houses at 36.6%. Multi-family units, which were 57.9% of the stock in the 2000 Census, are somewhat underrepresented in the survey.

Table 7. Type of Residence

	Frequency	Percent
Apartment	749	52.1%
Townhouse	120	8.4%
Duplex	37	2.6%
Single-family detached	526	36.6%
Not identified	5	0.3%
Total	1,437	100.0%

As shown in Table 8, approximately one-quarter of these residencies are part of a condominium or cooperative.

Table 8. Part of a Condominium or Co-operative

	Frequency	Percent
Yes	378	26.3%
No	1,016	70.7%
Don't Know	43	3.0%
Total	1,437	100.0%

Persons with Disabilities

The survey found that 88 households (6.1%) reported having members with disabilities. Seventeen of those households included elders. Eighteen households (1.3%) reported that a member used a wheelchair. Table 9 shows 104 persons with disabilities, some with multiple disabilities. Table 10 shows the types of disabilities reported. The number of persons with mental disabilities may be underreported due to the stigma associated with mental illness.

Table 9. Number of Individuals in the Household with a Permanent Disability

Number of Persons	Frequency	Percent
0	1,348	93.8%
1	75	5.2%
2	10	0.7%
3	3	0.2%
Not identified	1	0.1%
Total	1,437	100.0%

Table 10. Types of Disabilities

	Frequency	Percent of All Survey Households*	Percent of Represented Residents**
Physical	67	4.7%	1.99%
Visual	17	1.2%	0.50%
Auditory	15	1.0%	0.45%
Mental	14	1.0%	0.42%
Developmental	6	0.4%	0.18%
Other	4	0.3%	0.12%

*Some households may have multiple residents with similar disabilities.

**Figure may be underreported as some households may have multiple residents with similar disabilities.

Table 11 presents the survey results for household structure. Married couples are the most common form of household structure (40.5%) followed by single adults at 32.9% and unrelated individuals at 10.3%. Non-married couples and single parents represent 6.1% and 4.3% of the households in the survey respectively.

Table 11. Household Structure

	Frequency	Percent
Single Adult	473	32.9%
Married Couple	582	40.5%
Non-Married Couple	87	6.1%
Multi-Generational Family	56	3.9%
Multiple Family	11	0.8%
Single Parent (Male)	11	0.8%
Single Parent (Female)	51	3.5%
Unrelated Individuals	148	10.3%
Other structure	6	0.4%
Not identified	12	0.8%
Total	1,437	100.0%

Income Characteristics

Annual gross household income was defined as all earnings from all sources before taxes have been taken out. Income information was recorded as ranges that differed by household size. The ranges were provided by Arlington County and were derived from the HUD estimates of median family income for the Washington Metropolitan Area. If an exact income value was provided by the respondent, this information was recorded in the appropriate corresponding range.

Table 12 shows the number of households reporting incomes by the income range, e.g., 0-30% of median family income, 31-40% of median family income, etc. Table 13 shows the distribution of the households reporting both income and household size.

However, neither data in Table 12 nor 13 can be used to derive reliable estimates of households at different income levels of the total population of Arlington County. This is because of the high percentage (18.4%) of respondents who did not provide the needed income data. For example, Table 12 shows that at least 15.4% of the respondents have incomes below 50% of median family income. However, that percentage might be higher if some of the heads of households who did not know the family income or refused to provide the information actually had incomes at that level.

A separate, but less significant factor is that the sample may not be representative of the population. Inferences can only be made about the population if the sample parameters are good, the number of replies sufficiently large, and the sample is picked accurately so as to get a representative cross section of the public. Any sampling procedure has the potential to one kind of person or another, resulting in non-response bias. Telephone interviews, in particular, tend to underrepresent or exclude the wealthy as well as the poor who do not have telephones.

Table 12. Households by Income

Income range relative to median income for that household size	Number of households	Percent	Cumulative number of households	Cumulative %
Less than 30%	99	6.9%	99	6.9%
31-40%	58	4.0%	157	10.9%
41-50%	65	4.5%	222	15.4%
51-60%	84	5.8%	306	21.3%
61-80%	137	9.5%	443	30.8%
81-100%	137	9.5%	580	40.4%
101-110%	73	5.1%	653	45.4%
>110%	516	35.9%	1,169	81.4%
Do Not Know	68	4.7%	1,237	86.1%
Refused to Provide	197	13.7%	1,434	99.8%
Missing Household Size	3	0.2%	1,437	100%
Total	1,437	100.0%		

Table 13. Households by Income

Income range relative to median income for that household size	Number of households	Percent	Cumulative number of households	Cumulative %
Less than 30%	99	8.5%	99	8.5%
31-40%	58	5.0%	157	13.4%
41-50%	65	5.6%	222	19.0%
51-60%	84	7.2%	306	26.2%
61-80%	137	11.7%	443	37.9%
81-100%	137	11.7%	580	49.6%
101-110%	73	6.2%	653	55.9%
>110%	516	44.1%	1,169	100%
Total	1,169	100.0%		

Prior to asking the question on household income, respondents were asked questions as to the total number of wage earners in the household and types of income received by the household (see Appendix D for the complete survey questionnaire). These questions were intended to prompt the respondent to consider all household residents with earnings and all forms of earnings (e.g., wages, social security, pensions, public assistance) prior to answering the question of total household income.

Table 14 shows the types of incomes represented. For example, 9.1% of the population reported receiving social security or retirement income. Less than 1% reported receiving public assistance.

Table 14. Types of Income

	Frequency	Percent
Wages, salary, commissions, bonus, and or tips	1,149	49.5%
Self-employment income	231	9.9%
Interest, dividends, rental income, royalties, or trusts	451	19.4%
Social security or retirement	211	9.1%
Supplemental security	43	1.9%
Pension, disability, or survivor benefits	154	6.6%
Public assistance or welfare	19	0.8%
Unemployment	29	1.2%
No income	35	1.5%
Total	2,322	100.0%

Note: Totals more than 1,437 because respondents could select multiple answers

Housing Tenure -- Own or Rent

Housing tenure denotes whether the household owns or rents the residence. Survey respondents were asked which of the following applied to their household:

- Rented;
- Owned by respondent or someone in this household with a mortgage or a loan;
- Owned by respondent or someone in this household free and clear without a mortgage or a loan; or
- Occupied without payment of rent.

These responses were established to be mutually exclusive and all-inclusive, meaning that only one of the four forms of ownership would apply to each household in the survey. Table 15 presents the results.

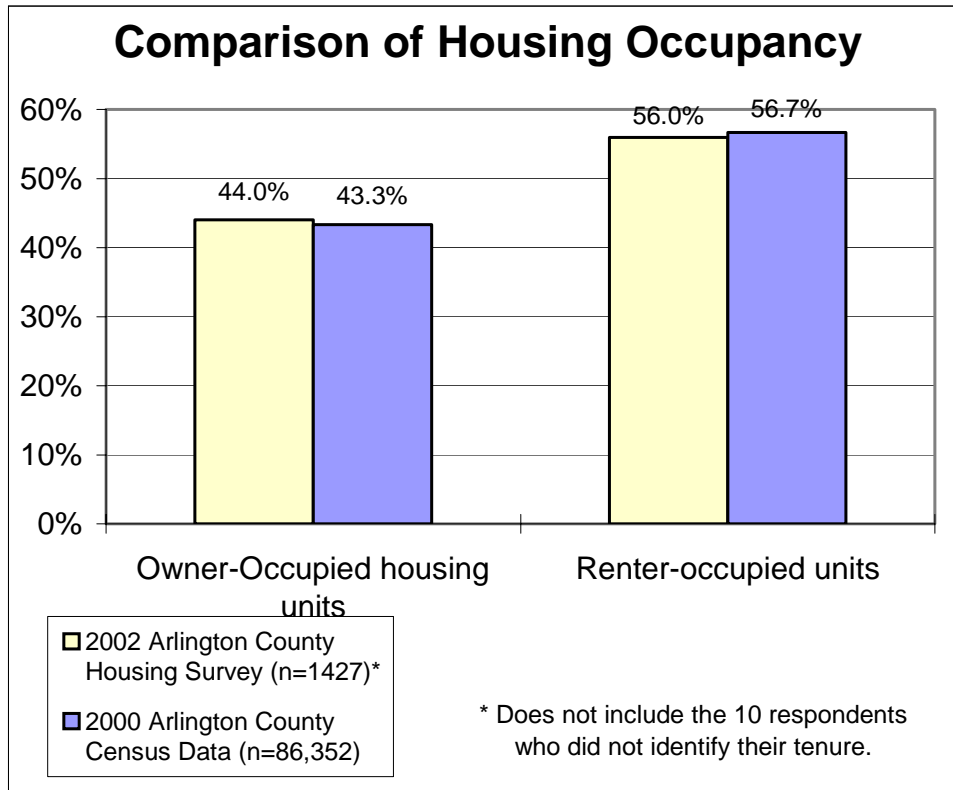
Table 15. Housing Tenure

	Frequency	Percent
Rented	786	54.7%
Owned with mortgage	491	34.2%
Owned without mortgage	137	9.5%
Occupied without payment	13	0.9%
Do Not Know/Refusal	10	0.7%
Total	1,437	100.0%

For purposes of analysis, “occupied without payment of rent” was considered to be an unidentified ownership structure (with rental or mortgage cost of zero dollars).

Chart 1 presents the percentage of owner-occupied and renter-occupied units according to the survey and 2000 Census.

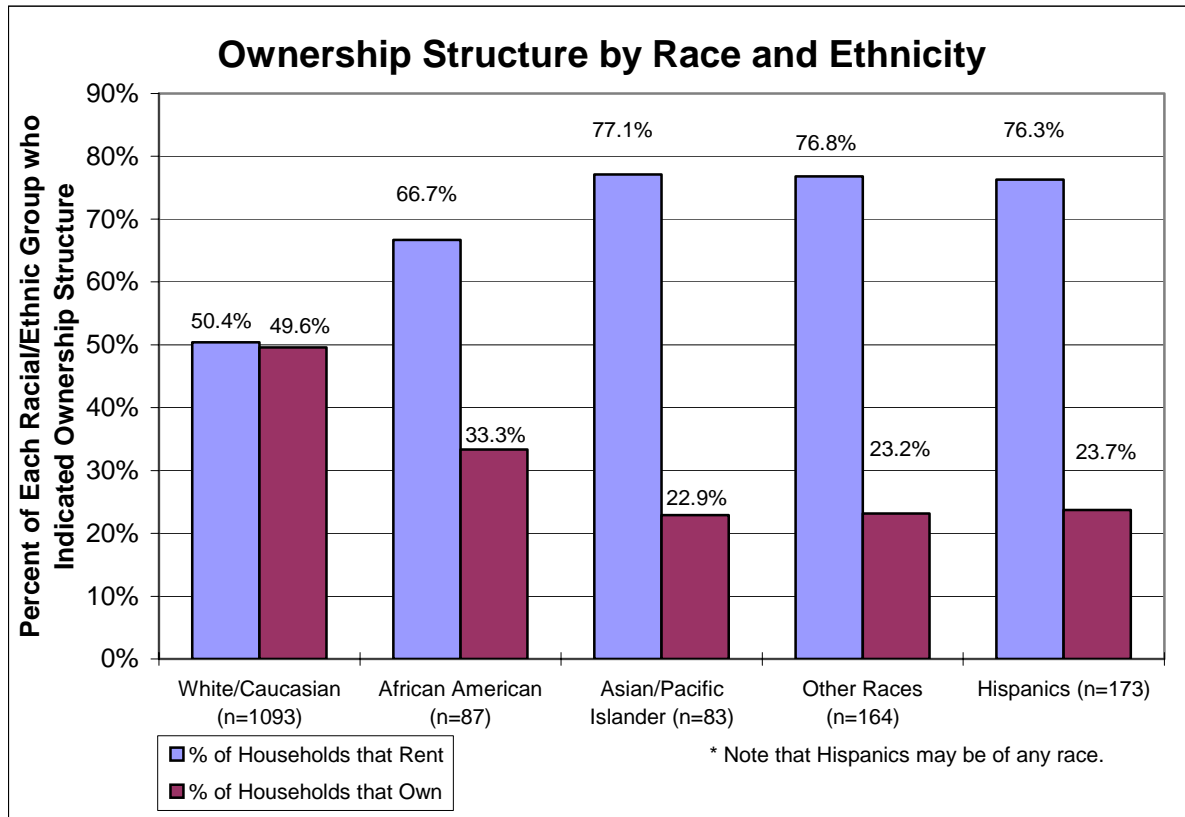
Chart 1.



Based on the survey results, the overall home ownership rate across the County is 44.0%, just slightly higher than the 43.3% reported by the Census. Home ownership rates in the County differ by race and ethnicity as shown in Chart 2. Home ownership is highest for White/Caucasian households at just under 50%, followed by African-American households at 33.3%, “Other” (which includes multi-racial) at 23.2%, and Asian/Pacific Islander at 22.9%. Hispanic households, which may be of any race, had a home ownership rate of 23.7%.

Since these estimates are based on virtually the entire sample (all but 10 households who did not identify their housing tenure (n=1,427)), the confidence interval is +/- 2.6%

Chart 2.



Housing Cost Burden

While the survey supplements the information on housing in Arlington County available from the U.S. Census, a major purpose of this survey was to collect information to allow for the calculation of housing cost burden for County residents and to use this information on housing cost burden to estimate serious housing need.

For purposes of this survey, housing cost burden is defined as the percentage of gross household income expended on housing. Housing cost burden was calculated based on the information reported by the survey respondents for their monthly rent or mortgage and annual gross household income.

The following important notes are relevant to the housing cost burden estimates calculated from these survey data:

- Monthly rent or mortgage is the amount self-reported by the survey respondent and was not independently verified. As a result, the reported values may or may not include such costs as utilities in the case of rental amount or property tax and homeowners' insurance in the case of mortgage amount.
- Rental and mortgage information was recorded as the exact value provided by the respondent.
- As referenced earlier, income information was recorded as ranges that differed by household size.
- To estimate housing cost burden, the midpoint of the income range recorded was used in lieu of exact values for all income categories except the highest one. For the highest income category, the lower bound of the range was used.
- Not all respondents provided either monthly rent or mortgage amounts or household incomes and thus, no housing cost burden could be calculated for these households.

Table 16 presents the distribution of monthly rent or mortgage for all households in the survey that rent or own. In general, the average monthly rents are somewhat higher than the amounts reported in the 2000 Census, most likely reflecting actual increases in rent over the two-year period. For both renters and owners, payments of less than \$500 are quite uncommon. Nearly half of the renters in the survey reported monthly rents between \$750 and \$1,249. An additional 6.7% of all renters reported monthly rents of \$2,000 or more. In general, average monthly mortgage payments were higher than rents, as would be expected. Nearly one-third of all owners with a mortgage reported paying between \$1,000 and \$1,749 each month in mortgage. An additional 14.5% reported paying between \$1,750 and \$2,250 per month. None of the households in the survey indicated either a monthly rent or mortgage greater than \$5,000.

Table 16. Monthly Rent or Mortgage for Households that Rent and Own

Amount of Monthly Rent or Mortgage	Rent		Owners Mortgage	
	Frequency	Percentage of renters	Frequency	Percentage of mortgage paying owners
No Payment	19	0.8%	148	2.2%
\$1 - \$499	13	1.7%	12	2.4%
\$500 - \$749	64	8.1%	37	7.5%
\$750 - \$999	220	28.0%	36	7.3%
\$1000 - \$1249	160	20.4%	57	11.6%
\$1250 - \$1499	102	13.0%	48	9.8%
\$1500 - \$1749	88	11.2%	51	10.4%
\$1750 - \$1999	28	3.6%	25	5.1%
\$2000 - \$2249	22	2.8%	46	9.4%
\$2250 - \$2499	11	1.4%	20	4.1%
\$2500 - \$2749	8	1.0%	20	4.1%
\$2750 - \$2999	2	0.3%	5	1.0%
\$3000 - \$3249	6	0.8%	12	2.4%
\$3250 - \$3499	0	0.0%	4	0.8%
\$3500 - \$3999	1	0.1%	6	1.2%
\$4000 - \$4999	2	0.3%	2	0.4%
>\$5000	0	0.0%	0	0.0%
Refusals	42	5.3%	81	16.5%
Don't Know	11	1.4%	18	3.7%
Total	799	100.0%	628	100.0%

Note: Not all respondents reported ownership type. The table does not count the 3 households who did not know their ownership type nor the 7 households who refused to report their ownership type.

Table 17 indicates the calculated housing cost burden for those households providing sufficient information for this estimate. The relevant information required was household size (relevant for income range categories), monthly rent or mortgage, and annual income. Because annual incomes were reported as ranges, the midpoint of the range was typically used to estimate the housing cost burden. This use of midpoint values is a necessary approximation but is a source of error since the exact annual household incomes were not provided by respondents.

Over two-thirds of the households pay no more than 30% of income for rent or mortgage. Roughly 16% pay between 31% and 40% of income for rent or mortgage. Another 16% pay over 40% of income for rent or mortgage.

Table 17. Housing Cost Burden

Rent/Mortgage costs as a percentage of gross income	Frequency	Percentage
<10%	127	11.7%
10-20%	239	21.7%
21-30%	380	34.5%
31-40%	179	16.3%
41-50%	60	5.4%
51-60%	24	2.2%
61-80%	29	2.6%
81-100%	26	2.4%
>100%	37	3.4%
Total	1,101	100.0%

Note: Not all respondents provided either rent/mortgage amount or household income so housing cost burden could not be calculated for all households in the sample.

37 households reported a housing cost burden greater than 100%, suggesting that more money is spent on housing than is earned. There are several possible explanations for this seemingly contradictory result, including:

- The household might receive rent or housing assistance that was not taken into account in reporting the monthly rent or mortgage;
- Household income may not have been reported accurately because certain forms of income such as government assistance, gifts, or other non-wage income may not have been included in the information reported by the respondent; and/or
- Use of the midpoint of the income range may underestimate the actual household income for that household.

Table 18 indicates that only 35 households of the 1,437 in the survey sample reported receiving rent or housing assistance, corresponding to 2.4% of the entire sample.

Table 18. Households Receiving Rent or Housing Assistance

	Households receiving rent/housing assistance	Percent of total
Yes	35	2.4%
No	1,398	97.3%
Don't Know	2	0.1%
Refusal	2	0.1%
Total	1,437	100.0%

Housing Cost Burden by Household Type

As described in the section on *Data Analysis*, most of the analysis related to housing cost burden and housing need addressed by the survey was performed after dividing the survey sample into eight mutually exclusive groups corresponding to household types of interest for possible support and assistance. The eight groups are:

- Elderly households of 1 or 2 persons (total of 178 households);
- Households of 1 or 2 persons with disabilities (total of 27 households);
- Households of 3 or more persons with at least one person having a disability (total of 34 households);
- Small families of 2-4 persons with children (total of 252 households);
- Small families of 2-4 persons without children (total of 337 households);
- Large families of 5 or more persons with children (total of 85 households);
- Large families of 5 or more persons without children (total of 6 households); and
- Other² (total of 518 households).

The chart below shows the percentage distribution of all households in the sample by the household categories used in the analysis.

Because some of these groups consist of very few households from the survey, caution is required in interpreting the analysis for these groups. First, because of the small number of households, the estimated results of housing cost burden and need for these groups may not be representative of all households in the County meeting those criteria for that group. The reason for this is that one or two anomalous households in the survey could severely skew the survey results for this group. Secondly, very large differences in results between these small groups and other groups are necessary before a statistically significant difference in results can be reasonably concluded.

² "Other" households include single-person households and households of non-elderly, unrelated adults.

The distribution of housing tenure for all households in the survey sample by these eight groups is presented in Table 19 below.

Table 19. Housing Tenure by Household Type – All Households in Survey

Household Type	Rent	Own with Mortgage	Own Free & Clear	Occupy w/o Payment	Not Identified	Total
Elderly (1-2 persons)	49	47	73	7	2	178
Small Families (2-4) with Children	94	139	16	2	1	252
Small Families (2-4) no Children	177	131	25	1	3	337
Large Families (5+) with Children	29	52	4	0	0	85
Large Families (5+) no Children	2	2	2	0	0	6
Persons w/Disabilities (1-2)	17	8	1	0	1	27
Persons w/Disabilities (3+)	15	16	3	0	0	34
Others	403	96	13	3	3	518
Total	786	491	137	13	10	1,437

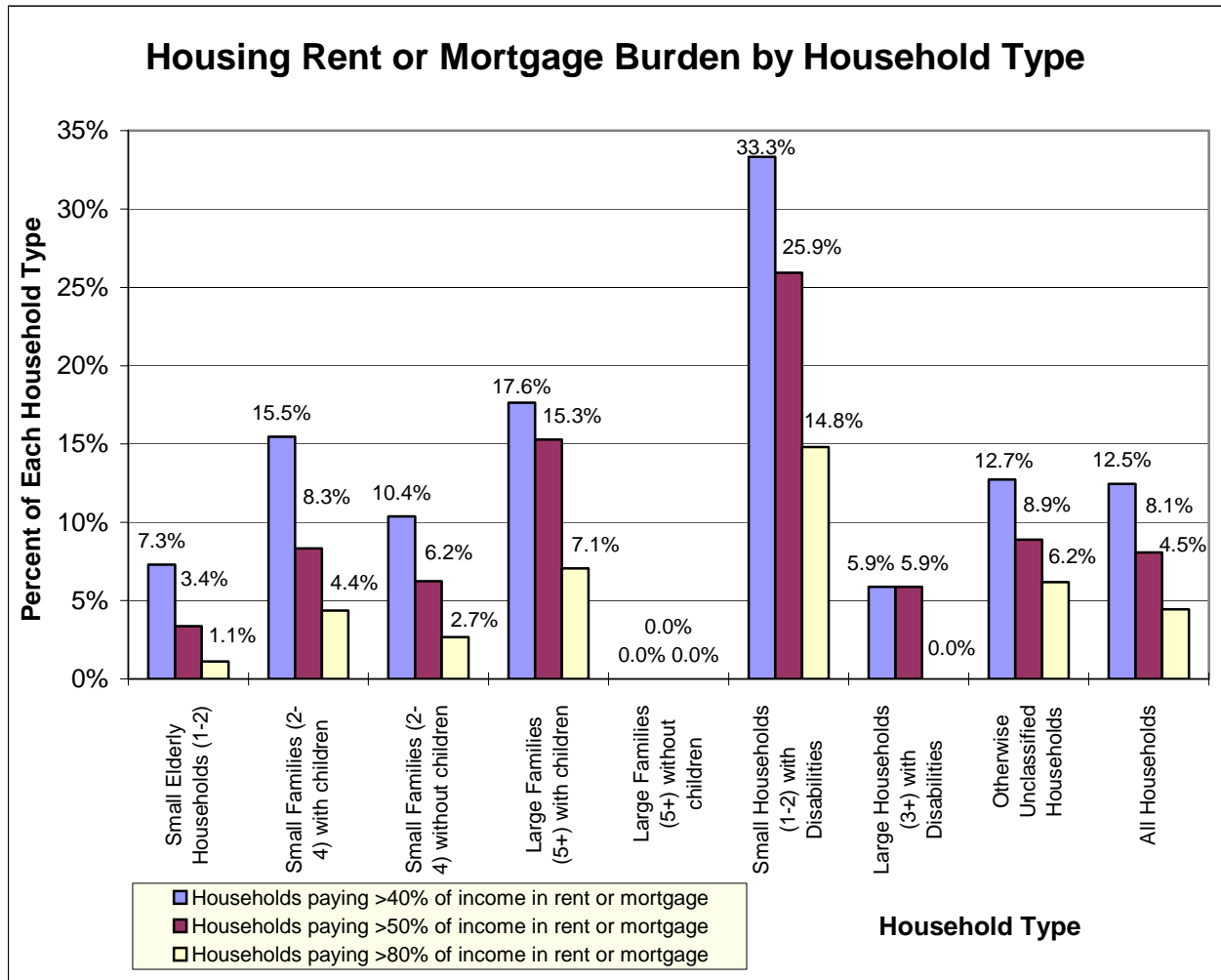
Table 20 presents the housing cost burden at three thresholds for the eight categories of household types. The thresholds are those households paying greater than 40% of income in rent or mortgage; greater than 50%; and greater than 80%. The percentages indicated in the table correspond to the row and thus present the percentage of all households of that type that face a housing cost burden equal to or greater than the threshold percentage. For example, the largest number of households facing a housing cost burden greater than 40% of income is in the categories of Other (66 households), Small families with children (39), and Small families without children (35) but these are also the categories of household types most represented in the survey sample. The highest percentage of households facing a housing cost burden greater than 40% of income is in the category of Persons with Disabilities (1-2). Only 27 total households in the survey sample meet the criteria for 1 or 2 persons with a disability, but exactly one-third of these households face a housing cost burden of greater than 40%.

The information in Table 20 is presented graphically in Chart 3.

Table 20. Housing Burden by Household Type – All Households in Survey

Household Type	Total Households		Households paying >40% of income in rent or mortgage		Households paying >50% of income in rent or mortgage		Households paying >80% of income in rent or mortgage	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Elderly (1-2 persons)	178	100%	13	7.3%	6	3.4%	2	1.1%
Small Families (2-4) with Children	252	100%	39	15.5%	21	8.3%	11	4.4%
Small Families (2-4) no Children	337	100%	35	10.4%	21	6.2%	9	2.7%
Large Families (5+) with Children	85	100%	15	17.6%	13	15.3%	6	7.1%
Large Families (5+) no Children	6	100%	0	0.0%	0	0.0%	0	0.0%
Persons w/Disabilities (1-2)	27	100%	9	33.3%	7	25.9%	4	14.8%
Persons w/Disabilities (3+)	34	100%	2	5.9%	2	5.9%	0	0.0%
Others	518	100%	66	12.7%	46	8.9%	32	6.2%
Total	1,437		179	12.5%	116	8.1%	64	4.5%

Chart 3. Housing Cost Burden by Household Type



Serious Housing Need

In addition to developing a set of reliable, representative data on housing cost burden in the County, this survey was intended to provide data to assess the specific level of serious housing need in Arlington County and to provide a baseline for subsequent measurement in order to gauge the effectiveness of public policy efforts focusing on affordable housing. Arlington County defines serious housing need as households with income below 40% of median income that are paying over 40% of income for housing.

Tables 21 and 22 indicate the number of households by household type that meet the definition of serious housing need. Table 21 includes only those households that rent while Table 22 includes households that own. As would be expected, the number of renter households meeting the definition of serious housing need is considerably greater than the number of owner occupied households. In addition, for most household types, a majority of the renter households at or below the 40% of median income level face a housing cost burden greater than 40% and thus face a situation of serious housing need. (See page 31 for information on some of the limitations on this data.)

The numbers and percentages for owner occupied households are much lower than for renter households but the numbers in the survey sample are so small that interpretation is fraught with uncertainty. Excluding the Other category, a total of 67 households, representing 4.6% of the entire sample, meet the definition of serious housing need.

Chart 4 presents the percentage of all households in a household type category that meets the definition of serious housing need. For households consisting of 1 or 2 persons with a disability, just over a quarter of these households meet the test of serious housing need. Only for Large families of 5 or more persons with children does the percentage of households meeting the definition of serious housing need also exceed 10%.

The County is also concerned about households living in substandard conditions, which includes living in overcrowded housing units. This survey did not seek information on housing conditions from respondents. To get a general approximation of potential overcrowding, the County defined a unit in the survey as "overcrowded" if the unit had more than two residents per bedroom. The number of people per bedroom was calculated by dividing the total number of reported residents in the household by the total number of bedrooms. Out of the 1,437 households in the survey, 54 of them indicated housing need based on this overcrowding definition, representing 3.8% of the survey sample.

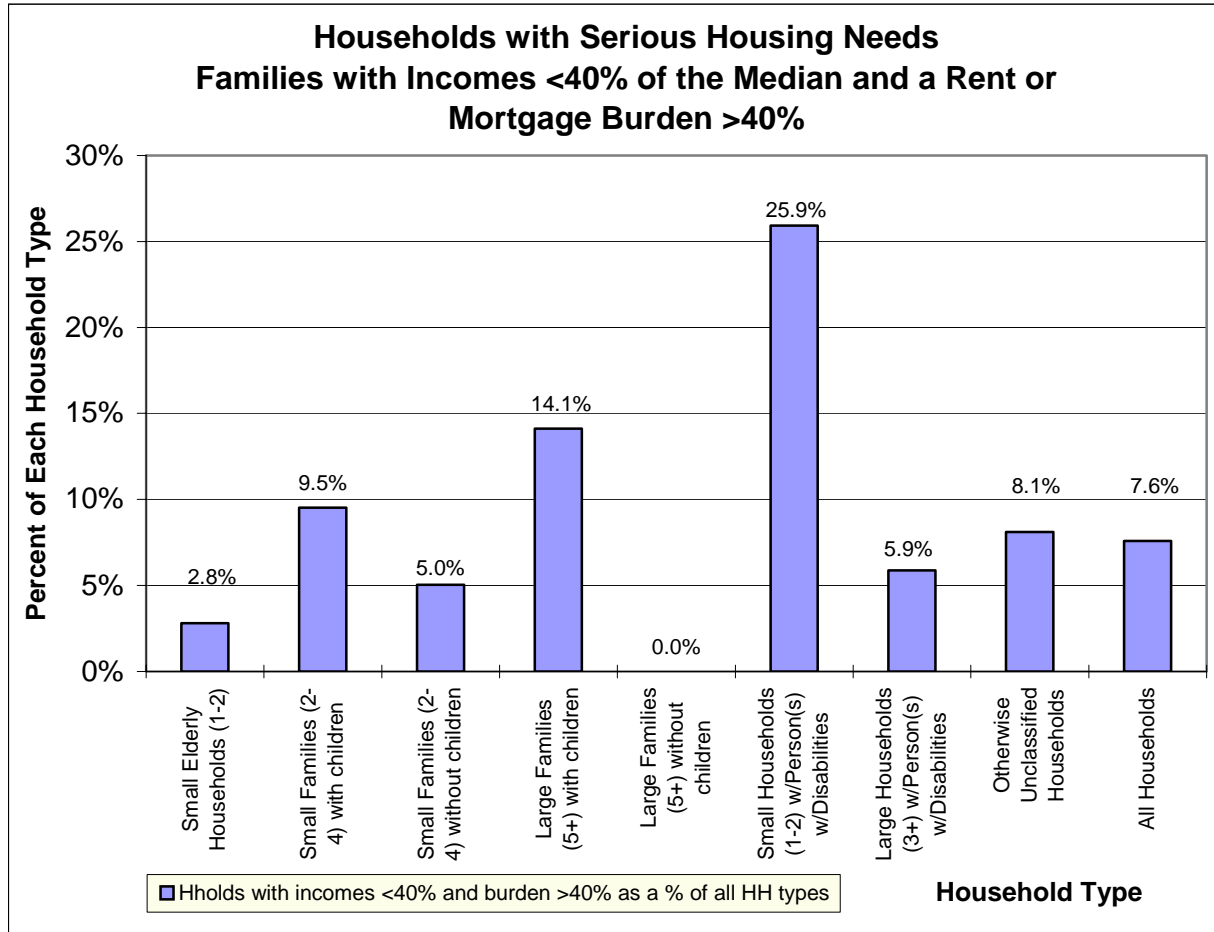
Table 21. Rent Burden by Household type – Households with income equal to or below 40% of median income

Household Type	Households with Incomes Equal to or Below 40% of Median		Households paying >40% of income in rent		Households paying >50% of income in rent		Households paying >80% of income in rent	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Elderly (1-2 persons)	9	100%	5	55.6%	3	33.3%	2	22.2%
Small Families (2-4) with Children	28	100%	23	82.1%	19	67.9%	11	39.3%
Small Families (2-4) no Children	16	100%	14	87.5%	14	87.5%	8	50.0%
Large Families (5+) with Children	14	100%	10	71.4%	10	71.4%	6	42.9%
Large Families (5+) no Children	0	N/A	0	N/A	0	N/A	0	N/A
Persons w/ Disabilities (1-2)	7	100%	7	100.0%	7	100.0%	4	57.1%
Persons w/ Disabilities (3+)	6	100%	2	33.3%	2	33.3%	0	0.0%
Others	43	100%	38	88.4%	34	79.1%	28	65.1%
Total	123		99	80.5%	89	72.4%	59	48.0%

Table 22. Mortgage Burden by Household Type – Households with income equal to or below 40% of median income

Household Type	Households with Incomes Equal to or Below 40% of Median		Households paying >40% of income in mortgage		Households paying >50% of income in mortgage		Households paying >80% of income in mortgage	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Elderly (1-2 persons)	3	100%	0	0.0%	0	0.0%	0	0.0%
Small Families (2-4) with Children	3	100%	1	33.3%	1	33.3%	0	0.0%
Small Families (2-4) no Children	4	100%	3	75.0%	1	25.0%	1	25.0%
Large Families (5+) with Children	5	100%	2	40.0%	1	20.0%	0	0.0%
Large Families (5+) no Children	0	N/A	0	N/A	0	N/A	0	N/A
Persons w/ Disabilities (1-2)	0	N/A	0	N/A	0	N/A	0	N/A
Persons w/ Disabilities (3+)	0	N/A	0	N/A	0	N/A	0	N/A
Others	7	100%	4	57.1%	3	42.9%	3	42.9%
Total	22		10	45.5%	6	27.3%	4	18.2%

Chart 4.



Analysis of the Survey Data

The survey collected data beyond that available from the U.S. Census. A goal of the survey was to extrapolate from the survey data to provide Countywide estimates. A focal point was finding out the level of housing need among the low income households that are a priority for receiving housing assistance: elders, persons with disabilities and families with children.

Because the confidence interval for the subgroup, “households with incomes below 40% of median income,” is high (+/- 8.1%), the confidence interval of a further subgroup, the portion of those households who are paying over 40% of income for housing costs, is even higher. Confidence intervals this large make the data less useful to policymakers. Further, conducting additional future surveys using a similar approach would not likely reveal statistically significant changes in the amount of serious housing need across the County, meaning that any change seen from one year to the next might be the result of the margin of error associated with the survey rather than an actual change in the housing circumstances of the County.

To take advantage of the lowest confidence intervals, “housing need” was defined as “households at any income level paying over 40% of income for rent or mortgage.” The confidence interval for the full survey is +/- 2.6% at the 95% level of confidence, as is the confidence interval for “households at all income levels.”

Table 23. “Housing Need” by Household Type – Households at All Income Levels

Household Type	Households at All Income Levels		Households paying >40% of income in rent or mortgage	
	Freq.	% out of 1437	Freq.	% out of 1437
Elderly (1-2)	178	12.4%	13	0.90%
Families with Children	337	23.5%	54	3.76%
Persons w/ Disabilities	61	4.2%	11	0.77%
Others	861	59.9%	101	7.03%
Total	1,437	100%	179	12.46%

The survey found 12.80% of the households meeting the definition of “housing need.” Applying the 2002 survey percent in housing need (12.80%) to the CPHD estimated total number of households in 2002 (89,022), approximately 11,400 households are considered to be in housing need, as shown in Table 24 below.

Table 24. Housing Need: Estimated Number of Households Paying over 40% of Income for Rent or Mortgage

Household Type	Number of Households	Percent of those in Housing Need
Elderly (1-2 persons)	805	7.1%
Families with Children	3,345	29.3%
Persons w/ Disabilities	681	6.0%
All Others	6,567	57.6%
Total	11,398	100.0%

Conclusions

This survey is a reasonably good composite of Arlington County's demographics. In that respect, it is much more detailed than the Census and can hence be very useful in showing additional information that the Census does not. Unfortunately, not all of the objectives of the project were achieved.

The survey was designed to be a cross-sectional study where subjects were randomly chosen. This resulted in a sample representative of Arlington County's actual household composition. However, the sample groups of greatest interest for addressing serious housing need are relatively small in size and when that number was further reduced for analysis, the resulting sample sizes were not large enough to yield high statistical significance. Consequently, these small sample sizes for these groups of particular interest provide an inadequate basis for making policy decisions in those areas. Moreover, they cannot be used with confidence to generalize characteristics to the general population. The resulting confidence intervals were large and impeded the survey's application. Similarly, while the survey could be replicated in future years, small changes in outcomes might be masked by the relatively large confidence intervals, preventing the County from determining whether the change seen is the product of sampling error or the effects of County programs.

To achieve more representative results, it would be possible to extrapolate results to the total population by "weighting" the data to that obtained by the US Census for Arlington County since the discrepancies between comparable criteria are small (e.g. age, race, household type). However, doing so will still not lend itself to the prediction of an outcome for an underrepresented (or non-sampled unit), and the use of those weighted observations often result in increased variability, particularly with small samples and large variation of the weights. In general, these techniques rarely change the results of the survey by more than one or two percentage points.

There are a number of steps that can be taken in future surveys to provide more robust estimates for subpopulations of greatest concerns. One possibility is to increase the overall sample size and/or oversample these populations. A larger overall sample would still provide a representative portrait of households across the County on important characteristics of their housing situation but would provide larger numbers of households of greatest concern in the sample. An alternative is to sample these households of concern in greater proportion than their actual occurrence across the County and then weight the results. Both of these options may prove of limited utility however because of the higher costs associated with either a larger overall sample or a sample with oversampling of specific populations.

Alternative methods of collecting this information would be to conduct a telephone survey using lists specific to the households of greatest concern rather than random digit dialing. Generating more focused call lists however may not be feasible or easily achieved. Another alternative would be to first identify specific geographic areas where households are expected to potentially face circumstances of serious housing need by a

technique known as cluster sampling and do detailed quota sampling within these more narrowly defined areas rather than across the entire County. While such a methodology would likely not yield a representative sample or one that could be easily statistically adjusted to be representative, it would be provide a methodology that could be repeated in future years with sufficient precision to be able to accurately identify trends and changes over time for the specific subgroups of greatest concern to policymakers.