4.2 Housing Model

4.2.1 Expenditure Research

The CES was used to determine the national average ratio of families who own, as opposed to rent, their residences. Using the expense data by income range as input into a linear regression analysis, JFA calculated the owner and rent weights shown below.

JFA excluded expenditure data for home owning families without a mortgage because they were not typical of homeowners in the base area or in the allowance areas.

TABLE 4–1.—OWNER/RENTER WEIGHTS

Category	Income levels		
	Lower (percent)	Middle (percent)	Upper (percent)
Homeowner with mortgage	38.41	47.46	61.67
Renter	61.59	52.54	38.33
Totals	100.00	100.00	100.00

The CES data were also used to identify which home-maintenance items to price and to establish the relative importance of those items.

4.2.2 Housing Profiles

To compare housing costs in all locations, six typical housing profiles are used and are assigned to the three income levels, as shown in the table below. OPM requested that at least one criterion for the owner profile be the square footage of the home and at least one criterion for the renter profile be the number of bedrooms in the rental unit.

TABLE 4–2.—HOUSING PROFILES

Income level	Renter profile	Owner profile
Lower	3 rooms, 1 BR, 1 bath, 600 sq. ft. apartment ..	4 rooms, 2 BR, 1 bath, 900 sq. ft. condo or detached house.
Middle	4 rooms, 2 BR, 1 bath, 900 sq. ft. apartment ..	5 rooms, 3 BR, 1 bath, 1,300 sq. ft. detached house (rowhouse in NE DC).
Upper	4 rooms, 2 BR, 2 baths, 1,100 sq. ft. townhouse or detached house.	7 rooms, 3 BR, 2 baths, 1,700 sq. ft. detached house.

The home sizes stated above are the representative sizes used for certain calculations in the model. They are not, however, the only size surveyed for each profile. For rentals, JFA obtained rental rates on any unit, regardless of its size, that otherwise meet the profile characteristics. For home sales, JFA obtained the prices of homes within size range and otherwise meeting the profile specifications. The size ranges are shown below:

TABLE 4–3.—HOME SIZES SURVEYED

Income level	Range
Lower	600 to 1,200 sq. ft.
Middle	1,000 to 1,600 sq. ft.
Upper	1,400 to 2,300 sq. ft.

It should be noted that although the size ranges overlap, no home sale observation could be used at more than one income level. Application of the other criteria (i.e., number and types of rooms) ensured that each observation was assigned to the appropriate income level even though its size was common to two income levels.

4.2.3 Living Community Selection

As discussed briefly in sections 1.2.2 and 2.4.2.1, OPM identified the living communities to be surveyed based on the results of the 1992 Federal Employee Housing and Living Patterns Survey. This resulted in many survey community changes in both the allowance areas and in the Washington, DC, area. The communities surveyed are identified in Appendix 9.

As with previous surveys, nine homeowner and nine renter communities were identified for the Washington, DC, area—one for each income level in each of the three areas (DC, Maryland, and Virginia). In the allowance areas, up to three homeowner and three renter communities were identified—one for each income level.

The three-community owner/renter goal was not achievable in many of the smaller allowance areas due to the relatively few home sales and rental opportunities in these areas. In such areas, OPM directed JFA to collect prices for the entire survey area or allowance area rather than in specific communities. This was done in Hilo, Kailua Kona, Kauai, Maui, Guam, Mayaguez, St. Croix, and St. Thomas. In these areas, all home sales and/or rental rates meeting the housing profile characteristics for the particular income group were included in the analysis.

4.2.4 Housing-Related Expenses

Based on the CES data, housing-related expense items are categorized into one of five groups in the COLA model. These groups are—
—utilities,
—real estate taxes,
—owners/renters insurance,
—maintenance, and
—telephone.

4.2.4.1 Utilities

Electricity, oil, gas, water, and sewer are the utilities used in the model. Most utility companies are able to provide current charges per unit of consumption and average consumption patterns for all households. The companies were not, however, able to provide separate consumption patterns by the size or type of housing.

Because many utility costs vary by size of house, a factor is needed to derive the utility rates at each of the home profiles. The table below shows the standard square foot sizes and utility factors used for each home profile. The factors are calculated by assuming that utility use increases or decreases at half