APPENDIX B
Application of the Cost Model to Puerto Rico Public Housing

Most public housing authorities (PHAs) have had their operating funding determined in accordance with the Performance Funding System (PFS). The PFS was instituted in 1975 based on a study of a sample of PHA operating expenditures in the early 1970s. A base year amount – referred to as the Allowable Expense Level, or AEL – was then calculated for each PHA, which, except for minor adjustments, has been updated annually for inflation. In the case of the Puerto Rico Public Housing Authority (PRPHA), its AEL was determined not as a result of the PFS but through an analysis of actual operating expenditures in the late 1980s.

As part of its Cooperative Agreement with HUD, GSD was asked specifically to examine operating costs in locations that have been traditionally exempt from the PFS and that "this work may require a different methodology and may generate a different set of recommendations from other components of the study." Adding to this requirement, Puerto Rico does not have a sufficient number of for-profit FHA properties to generate a geographic coefficient. For these reasons, GSD conducted supplemental field work in Puerto Rico to determine the appropriateness of applying the operating cost model to Puerto Rico public housing. This appendix describes the nature of the supplemental research conducted and accompanying recommendations.

BACKGROUND AND APPROACH

In 2000, the AEL for the PRPHA, $148 per-unit monthly (PUM), was the lowest of any of the nation's 120 largest PHAs and less than half of the median for the ten largest PHAs (Table B.1). [1]

[1] While the PRPHA's formula allocation under the Operating Fund is disproportionately less than other very large PHAs, its formula allocation under the Capital Fund is disproportionately higher. The PRPHA receives about $175 million annually under the Capital Fund, or $3,125 per unit, which compares with around $2,200 per unit for all other PHAs.

Table B.1: AELs of Ten Largest PHAs (2000)

Agency	Units	AEL
New York City	157,170	$495
Chicago	29,703	$466
Philadelphia	15,590	$388
Baltimore	13,699	$323
New Orleans	11,027	$211
Boston	10,829	$353
Cleveland	10,085	$311
D.C. Housing Authority	9,415	$336
Miami-Dade	9,318	$265
Puerto Rico	56,085	$148

Underlying the low AEL assigned to Puerto Rico, relative to other very large PHAs, appears to be an assumption that the cost of operating public housing in Puerto Rico should be considerably less than housing on the mainland. That assumption is based on two undisputed conditions:

- *First, public housing in Puerto Rico has simpler building technologies than public housing on the mainland*. Public housing in Puerto Rico is mostly low-rise slab-on-grade concrete structures with flat roofs and constructed without domestic hot water. Puerto Rico public housing units are also without thermal windows, relying instead on window shutters that are traditional to the tropical climate. Further, Puerto Rico public housing does not universally provide appliances (ranges and refrigerators).

- *Second, wages and incomes in Puerto Rico are substantially lower than wages and incomes on the mainland.* The median household income in Puerto Rico, for example, is just $14,412, compared with $41,994 for the nation as a whole.[2]

While it seems logical that these conditions would lead to lower operating costs, the relevant issue for the purpose at-hand is not the comparative costs between Puerto Rico public housing and housing on the mainland but whether there are material differences between public and assisted housing in Puerto Rico.[3] In other words, because this study

[2] 2000 U.S. Census.

[3] While it is not necessary for this study to solve the issue of whether these differences result in significantly lower costs, anecdotal data suggest that these conditions may not so clearly result in lower costs. Central apartment domestic hot water and complete fire detection systems have been, and are being, added to Puerto Rico's public housing. Also, construction and environmental factors add some unique maintenance costs for this housing. Normally simple plumbing and electrical repairs may necessitate jackhammer demolition in the concrete buildings, and tropical sun, torrential rains, hurricane damage and airborne salt present on much of the island combine to elevate maintenance needs for roofs, windows, electrical and metal components. Also, in the area of wages, while the pay scales in Puerto Rico are lower, there appears to be a greater use of labor in the workforce and there are state-mandated employee benefits that exceed levels found typically on the mainland.

is based on a benchmark approach, the reference is not multifamily housing on the mainland but multifamily housing in Puerto Rico.

In order to determine the appropriateness of applying the operating cost model to public housing in Puerto Rico, GSD sought to answer three questions:

- Is the public housing stock similar in major ways to other multifamily housing in Puerto Rico?

- Absent the requisite number of for-profit FHA properties, can the geographic coefficient be determined in alternative ways? and

- Are there certain market conditions (or absence of market conditions) that would affect the operating costs of multifamily properties in Puerto Rico and that might over/understate what is necessary to maintain good quality housing?

SUMMARY FINDINGS AND RECOMMENDATIONS

1. **The current AEL assigned to the PRPHA is grossly inadequate to maintain well-run public housing.** With an AEL of $148 PUM, the PRPHA is forced to subsidize its operations with contributions from both reserves (which cannot last long) and the Capital Fund. With these contributions, the agency assigns to its private managers (who manage most of the agency's public housing) about $183 PUM for routine costs. However, these amounts were observed to be well below what is required to maintain the properties to adequate standards.

2. **The physical characteristics between public and FHA assisted housing in Puerto Rico are sufficiently similar for benchmarking purposes.** Although significantly different from housing in the States, the physical characteristics of the PHA and FHA buildings are very similar when high-rise and low-rise buildings are compared to their counterparts. The differences are mostly matters of detail and most of the maintenance cost impacts are small. Further, some of the physical differences are being eliminated over time. For example, while all the FHA housing is equipped with electric tank-type apartment water heaters supplying kitchens and baths, public housing managers are presently installing the same equipment. PRPHA estimates that this work will be completed during the next year. Similarly, the PRPHA's aggressive modernization program is installing modern central station fire detection systems in every development receiving modernization.

3. **Absent the requisite number of FHA for-profit properties to generate a separate geographic coefficient for Puerto Rico, GSD recommends using the entire FHA inventory, with the caveat disused under #4, below.** There are 123 FHA properties in Puerto Rico in HUD's 1998-2000 FHA database that have at least two years of operating cost data. Since this geographic coefficient is

substantially based on non-profit owners, the PRPHA's model-produced estimate would then not receive the add-on for non-profit ownership, as is done elsewhere. Use of this alternate measure results in a 2000 model-predicted AEL for Puerto Rico of $271 PUM.[4]

4. **There appear to be a number of special market forces that are inflating reported operating costs of FHA assisted housing in Puerto Rico. Because of these conditions, GSD recommends that the model estimate for the PRPHA be adjusted downward slightly, to around $250 PUM (7.6% reduction).** However, GSD's field research was limited and additional study could improve on this estimate. This recommended figure presumes that the PRPHA would provide and maintain apartment appliances, which, currently, are not generally provided to residents.

COMPARING THE PHYSICAL CHARACTERISTICS OF PUBLIC AND ASSISTED HOUSING IN PUERTO RICO

To compare the physical characteristics of Puerto Rico public housing with other assisted housing in Puerto Rico, GSD conducted physical inspections of certain prototypical public and assisted housing properties (see Appendix A for listing of properties reviewed). The GSD team included both building and property management specialists. GSD also met with representatives of the PRPHA, the local office of HUD (both public and assisted housing branches), staff from the Puerto Rico Housing Finance Agency (PRHFA), and other local property management experts. The observations and recommendations contained in this report stem from both the physical inspections and informed discussions (see Attachment B.1 for list of properties reviewed).

Table B.2 compares basic statistics on the characteristics of the public and assisted housing stocks in Puerto Rico. As can be noted, the public housing stock tends to include more garden or walk-up structures than the assisted stock and to have slightly more bedrooms per unit (2.38 versus 1.73, respectively). Public housing is also older, with an average age of approximately 35 years compared with 18 years for assisted housing.

[4] Amount excludes Payment in Lieu of Taxes.

Table B.2: PRPHA and FHA Property Characteristics

Item	PRPHA	FHA
Number of Units	56,445	17,480
Average Number of Bedrooms per Unit	2.38	1.73
Average Age	Approx 35 years	18 years
Number of Properties by Building Type		
Detached	39	2
Rowhouse	16	10
Walkup	255	3
Highrise	9	52
Mixed	15	81
Total Properties	334	149

FINDINGS/OBSERVATIONS

The following presents an analysis of our findings and observations, by building element, comparing the physical characteristics of public housing in Puerto Rico with FHA assisted housing.

Building Type

Because of population pressure and limited available land, most housing in Puerto Rico has been built to higher densities than those found in the States. Also in part because of a tradition of extended family living, housing designated as elderly is uncommon.

Perhaps because much of the Island's public housing stock was built over a relatively short period, many of the public housing developments are very similar. The familiar double loaded corridor or town house configurations common in the States are seldom found here. The typical building type consists of two to four story low rise "walk up" concrete apartment buildings where four to eight units share an open stairwell for access. Many typical buildings have two such entries. The apartment layouts are rather conventional, often include a small balcony, and because each building is only one apartment deep, they lend themselves to cross ventilation. In this regard, both public housing and FHA low-rise housing are similar, and building type issues should not in themselves represent differences in operating costs.

Construction Type

Public housing, FHA housing and for that matter market rate apartments in Puerto Rico are all built with identical construction techniques. The buildings are cast in place reinforced concrete frame with masonry infill. Occasionally pre-cast sections have been substituted in high-rise construction. Foundations for low-rise housing are concrete footings and stem walls, with cast in place floor slabs and roof decks. Non-bearing interior partitions are masonry and bearing walls are concrete. Both interior and exterior finish is a fine texture skim coat concrete applied directly to the structure and painted. A

number of roofing systems are in use, with built up systems and roll roofing the most common.

Because the construction systems are the same, there should be no cost difference between Public and FHA housing attributable to this factor.

Doors and Windows

Doors in both types of housing are typically steel or solid core exterior doors and solid or hollow core wood on interiors in walk up buildings. Public housing apartments were usually built with no closet doors, while in the FHA properties closet doors are often bi-fold style resulting in some maintenance cost difference.

Windows in most buildings in Puerto Rico have traditionally been aluminum louvered jalousies (with no glass), designed principally to provide shading or ventilation. In recent years, there has been a trend to glazed aluminum windows in more modern buildings and for higher end uses. The public housing developments still have the traditional aluminum jalousies. In the FHA housing inspected, these aluminum windows were also the norm, but in one case the builder had chosen glass louvered jalousies. In another FHA development, the builder had installed glazed double hung windows in living rooms only.

Again, there should be no difference in costs. While the very limited use of glass in FHA property windows could impose a cost for breakage, no broken windows were observed, and this cost should be offset because these double hung or sliding windows will require less repair than the mechanisms in the louvered aluminum jalousies.

Kitchen Cabinets

Like most modest homes in Puerto Rico, kitchens in both public housing and FHA housing are equipped with the same type of cabinets. These are typically ½ inch plywood cabinet units with plywood and high-pressure laminate countertops. Cheaper particle board cabinets, widely used in the States, are avoided because this material fails rapidly in the local climate. In the European tradition, base cabinets are set on four inch metal risers to permit floor cleaning under the cabinet and to eliminate potential deterioration due to moisture.

Because both public and FHA housing use the same products, there should be no cost difference attributable to this building element.

Electrical Systems

Because Puerto Rico has used the National Electrical Code for many years, housing built under both programs has typical apartment building wiring utilizing on-site transformers feeding main building disconnects and load centers in the apartments. Capacity is likely to vary with the age of the building, rather than with the type of housing. One difference is that in the FHA properties inspected, owners provided inexpensive glass light fixtures

in living rooms and bedrooms, while in the public housing these fixtures were simple porcelain sockets. Many of the FHA projects also provided ground fault receptacles in kitchens and baths, a feature lacking in public housing that has not been modernized.

In this case, while the equipment theoretically imposes a higher maintenance cost on the FHA housing, this cost difference should be minimal because repair costs are small. These are very inexpensive fixtures. A typical light fixture may cost twelve dollars, while the glass cover alone may be purchased for half that amount or less. Installation takes minimal time most of which is used going to and from the apartment and, in a well managed property, many of the repair costs will be successfully charged to tenants.

Similarly, ground fault receptacles have modest failure rates low costs and short installation times.

HVAC

All buildings in Puerto Rico are built without heat, and most but not all buildings have been designed to allow natural cross ventilation. Additionally, even when closed, the typical aluminum jalousie windows allow considerable infiltration. In the buildings examined, less than half provided mechanical ventilation for kitchens or baths, and in each case these were FHA buildings. In two of the FHA properties, sleeves and electrical receptacles were provided for tenants to provide their own window unit air conditioner. Aside from this, air conditioning in both types of housing was found to be limited to management offices, and occasionally to program spaces or community rooms.

Cost differences here should be limited to maintenance replacement of motors powering extraction fans used for kitchen or bathroom ventilation.

Appliances

Public Housing in Puerto Rico does not presently provide residents with any appliances. In most of the FHA housing inspected, the owners provided both ranges and refrigerators. The arrangements for washers and driers varied by property. None of the owners provided apartment washers and dryers, although the FHA high-rise properties offered central laundry rooms. Although in Public Housing the policy is to not provide washer or dryer connections, residents had installed their own washer connections in several of the apartments inspected. Where there are central laundry facilities, the operating and maintenance costs of these installations should be more than offset by the coin-op revenues produced by these installations.

The PRPHA's present plans are to provide ranges and refrigerators in the future. In both portfolios the acquisition and replacement of these items should be treated as a capital cost. Nonetheless, routine appliance maintenance is a cost factor which is currently borne by FHA housing owners but which does not presently occur in the public housing.

Plumbing

In general plumbing systems and fixtures are similar to stateside housing and are basically the same in both FHA and Public housing. One difference is that public housing units were originally built without a central hot water source, and instead utilized an electric point of use heater in line with the showerhead. Other apartment fixtures lacked hot water.[5] Conversely, FHA properties were equipped with 20 gallon residential electric water heaters located in a closet and feeding both kitchen and bath plumbing. However, because of recent HUD requirements, the PRPHA has removed the point of use heaters and is in the process of installing systems identical to the FHA buildings. Another difference is that public housing units were built with showers, while the FHA buildings inspected were generally equipped with bathtubs.

Any cost differences here are small, difficult to estimate and likely to balance each other out. After the PRPHA completes its water heater installations in the next year, there will be no cost difference related to hot water. And although some number of the bathtubs used in the FHA housing may require resurfacing, it is not uncommon for the shower pans and related tile work used in the public housing to become troublesome because of leakage. There is no way to predict with certainty because costs vary too much for particular installations, but the costs could likely balance each other out.

Apartment Finishes

Walls and ceilings in both types of housing are finished with fine texture concrete skimcoat and latex paint. Most floors in the FHA housing were found to be the vinyl composition tile (VCT) tile commonly used in the states, while, in public housing, older floors were traditional "criolla" brown and white ceramic tile, and newer installations were terrazzo tile. While some original common area floors in public housing were polished concrete, most of these surfaces have now been covered with terrazzo tile. Kitchen countertops in all cases are high-pressure laminate.

Maintenance costs for walls and kitchen countertops are identical. The ceramic and terrazzo tile floors in public housing are superior products and will last indefinitely. The VCT tile in FHA housing is also a durable product requiring minimal maintenance, although this will increase if it is used beyond its useful life of 20 years.[6] Repair costs are low, however, under two dollars per square foot, and do not require highly specialized workers. Both flooring systems must be thoroughly cleaned at turnover and, while VCT requires waxing, ceramic tile requires special attention to its grout lines.

Fire Detection Systems

Perhaps because the concrete buildings are extremely fireproof, regulatory requirements for fire detection and fire suppression systems have in the past been less stringent in

[5] Incoming (cold) water temperatures are moderate in Puerto Rico, generally over seventy-five degrees.

[6] Because of the concrete substrate, frequency of repair for this material is considerably lower here than when installed on wood flooring systems as is common in stateside housing.

Puerto Rico than in the states. All apartments inspected were equipped with smoke detectors, with the majority of installations hardwired and others battery powered. Only a few of the buildings inspected had central building systems installed. Housing Authority staff reported that in the PRPHA portfolio these systems were being upgraded to modern standards in the course of modernization projects. While the annual cost for inspection and maintenance by a specialty contractor is significant, estimating this item is chasing a moving target. PRPHA has for some years been adding these systems in the course of their large modernization program, and will continue to do so. Unfortunately no data is available to quantify the number of central systems presently installed and, if available, would soon become obsolete.

Fire Suppression (sprinkler and standpipe) Systems

Normally required only for high-rise construction, these items were also less evident than would be expected in the States. As would be expected none of the low rise properties had systems, and a number of the high rise buildings had less than the full suppression systems currently required in most states. Some buildings had no sprinklers, others had installations in corridors only, and others had full modern systems. Since code requirements have progressively increased over time on the island, this variation seems most likely related to the date of a building's construction

While it would be difficult to estimate cost differences based on these differing conditions, several issues do emerge as clear. First, these safety systems are present to a lesser extent than in stateside housing. Second, Puerto Rico's code now requires upgrading for both detection and suppression systems, and while the PRPHA portfolio may presently have a larger backlog necessary to comply with these requirements, it also has a much larger and more aggressive capital program than the FHA housing. In the end, all of these properties should have the same types of systems given the differences between these building types. Finally, because of the very low incidence of high rise buildings in the public housing portfolio, differences here are unlikely to heavily impact overall costs.[7]

General High Rise Equipment

Both Public Housing and FHA high-rise buildings inspected contained the same basic equipment packages. Elevators, emergency generators sized for elevator and common area lighting, and cisterns with booster pumps were present in all cases.

Apartment Sizes

Based on an analysis of the properties inspected, there is virtually no difference in apartment sizes between the Public Housing and the FHA housing. A tabulation of these sizes for the properties inspected is presented in Table B.3. Here, one can see that neither the Public Housing nor FHA housing had substantially or consistently larger apartments.

[7] Based on PRPHA's statistics, only 9 of 334 projects, or under 3%, are classified as high-rise. Fifteen other properties are classified as mixed building type.

Further, even if there were more variation in unit size, this is not a large factor of maintenance costs. Until apartments get to be much larger, size differences mean only the cost of cleaning the middle of a floor, or painting the center of a wall or ceiling. This cost is usually too little to estimate.

Table B.3: Comparison of Apartment Sizes in PRPHA and FHA Housing

FHA Properties	**1 Bedroom**	**2 Bedroom**	**3 Bedroom**	**4 Bedroom**
Las Americas Park Section I	517	673	837	941
Las Americas Park Section II		646	842	
San Juan Park Apts. II		697		
Colinas de San Juan		710	859	
Average FHA Apartment Size	**517**	**681.5**	**846**	**941**
Public Housing Properties	**1 Bedroom**	**2 Bedroom**	**3 Bedroom**	**4 Bedroom**
Torres de Sabana	523	635	900	1024
El Flamboyan	576	744	884	
Torre de Francia		561	775	
Los Mirtos		720	840	1080
Average PH Apartment Size	**549.5**	**665**	**849.75**	**1052**

Community and Program Space

Many of the FHA properties inspected provided community rooms. These were typically modest in size, about 1,500 to 2,000 square feet, and often contained a residential range, counter and refrigerator. No commercial kitchens were observed in any of the housing.

By contrast the public housing developments were built with a high priority on tenant programs. While this factor varies greatly from property to property, PRPHA has often allocated much larger areas for such uses; one property, Torres de la Sabana, includes almost 30,000 square feet for these purposes.

While one would think that these building spaces imply high maintenance costs, in reality the picture is less clear for several reasons. First, some of these spaces are recreational buildings with large volumes, essentially a large empty shell. In other cases program users such as Head-Start, computer learning centers or basketball leagues have taken over cleaning and maintenance responsibilities for "their" building.

CONCLUSION ON PHYSICAL DIFFERENCES

There is not much of a difference in the physical characteristics or required maintenance costs for public and FHA housing in Puerto Rico. Attachment B.2 summarizes these differences, and Attachment B.3 hypothesizes typical maintenance costs attributable to these items. While some of the estimating assumptions used here could be refined with more data from the field, GSD does not recommend additional research here because the

prospect of improved results from more research is poor. Getting statistically useful numbers for these small items from actual maintenance costs would be daunting. Many records are kept in two languages, by fifteen different management organizations, and likely without reporting of this level of detail to regional supervisors.

Specifically:

- There are not large differences in the construction or systems for public housing and FHA housing in Puerto Rico. Basic building construction and elements are the same; most maintenance cost differences are small.

- For the items that are consistently present in the FHA housing, but missing from public housing, the additional maintenance costs for the FHA housing are in the range of $2 PUM. To the extent fire detection systems are not installed in the public housing, this item could add an additional $2 PUM.

- While some potentially useful data regarding the extent of sprinkler systems is not available, the limited number (3%) of high-rise buildings present in the public housing portfolio much diminishes the importance of this result.

- Some of the differences between the public and FHA housing that exist today will diminish over the next several years, as PRPHA's modernization program continues to update many projects. Other differences are offsetting, i.e., some elements will cause FHA housing to cost more to operate, and in other cases the Public Housing will be more expensive.

- Costs related to many of the differences found are so small as to be within the normal variation found in housing generally. For example, the maintenance cost differences between tubs and showers in Puerto Rico should be no larger than the differences between fiberglass tubs and cast iron tubs in the States. Similarly, the differences between terrazzo and VCT tile are less than those between tile and carpet, and the differences between appliance maintenance and no appliance maintenance are still less than the difference between different types of heating systems found in many stateside public housing projects.

PUERTO RICO'S GEOGRAPHIC COEFFICIENT

There are 123 FHA-insured properties in Puerto Rico with at least two years of operating cost data (for the years 1998-2000).[8] Only six of these properties, however, are for-profit. The remaining FHA properties are fairly evenly divided between non-profit and limited-dividend (Table B.4).

[8] There are a total of 148 FHA properties overall. The difference, 25, either do not have a full two years of operating cost data or are missing other important variables.

Table B.4: FHA-Insured Properties in Puerto Rico, by Ownership Type (Two or more years of Operating Cost Data, 1998-2000)

Ownership Type	Properties
For-profit	6
Limited-dividend	60
Non-profit	57
Total	123

Under the operating cost model, the single greatest determinant of cost is the geographic area where the property is located. The geographic coefficient is more important, for example, than the average number of bedrooms or the building type. To estimate an area's geographic coefficient, GSD has used a decision rule that there be at least 25 for-profit properties. GSD has found that the for-profit properties provide a more reliable index of operating costs than properties that might be systematically constrained or influenced by government regulation.

Given that the FHA database does not include 25 for-profit properties in Puerto Rico, GSD considered three alternatives:

- The first would be to supplement the FHA database with for-profit properties that may have been financed by the PRHFA and not included in FHA's database. Unfortunately, there are few properties that the PRHFA has financed without FHA insurance. The PRHFA database is, essentially, the FHA database for Puerto Rico.

- The second would be to run an entirely separate operating cost model for Puerto Rico based on the cost relationships found among the 123 FHA properties, which might result in coefficients that are unique to Puerto Rico. GSD decided not to pursue this option on the larger policy grounds that it would be beneficial to maintain a cost model that applied universally, even if it required modest modifications (see below) for Puerto Rico.

- The third would be to construct a geographic coefficient based on the entire inventory of FHA housing in Puerto Rico. Under this approach, however, GSD would not apply the 10% add-on for non-profit ownership (done for other PHAs) because the geographic coefficient would include non-profit properties (not done for other PHAs).

The third option is the recommended one. Using this approach, the effect is a geographic coefficient for Puerto Rico of -15%, meaning that its cost structure is -15% less than the reference group of non-central city Cleveland. This coefficient then compares with Jackson, MS (-18%), Albuquerque, NM (-16%), and San Antonio, TX (-12%).

Based on this geographic coefficient that is constructed using all FHA properties, the cost model estimate for Puerto Rico PRPHA is $271 PUM for 2000. It assumes, however, that the PRPHA will supply and maintain apartment appliances.

SPECIAL MARKET CONDITIONS

Approximately 72% of Puerto Rico households own a home, compared with 66% for the country as a whole. Further, most of the rental housing that exists is found in small structures, or what might be referred to as the informal rental sector. There are few traditional apartment complexes of more than 50 units outside the assisted and public housing programs. This less-developed multifamily rental sector has a number of consequences:

- First, there are far fewer management companies than what would normally be the case for an area of comparable size. Moreover, much of the multifamily management experience is limited to public and assisted housing.

- Second, with fewer rental units overall, and even fewer in multifamily units, it is difficult for HUD to establish Fair Market Rents (FMRs), affecting not just the setting of rents for the housing voucher program but also for project-based programs. Hence, project-based rent levels are more subject to negotiation than elsewhere.[9]

- Third, because of the strong demand for homeownership, and because of the scarcity of land, a large percentage of FHA owners are "opting-out" at the end of their subsidy contracts and converting their properties to condominiums. It appears that, under these circumstances, owners may be "upgrading" their properties through the operating budgets in the years immediately prior to opt-out.

Because the above conditions provide for a less competitive environment, and therefore a possible distortion of operating costs, GSD conducted a limited review of several FHA properties in Puerto Rico, examining costs, management practices, and service levels. GSD conducted a similar examination of several PRPHA properties, which are all under private management.[10] Finally, GSD held discussions with representatives from various property management organizations in Puerto Rico as well as staff from the PRPHA, PRHFA, and the local HUD office. GSD observed the following from this field research:

- GSD found that the FHA managers produce a very good result according to Puerto Rico standards. Curb appeal standards are lower than in the States, which

[9] Some FHA managers believe that this situation results in lower budget-based rent increases, not higher. They claim that the HUD cost comparability tests are using condo costs/rents as the market comparables since there are no "pure" market rentals and FMRs are being reduced. These FHA managers contend the condo rents are lower than the assisted rents because their staffing is different (no social workers, very little maintenance – condo owners/renters take care of).

[10] The PRPHA privatized the management of its housing stock in the early 1990s. Presently, one "management cluster" is managed by the PRPHA as a result of replacement of a non-performing agent.

includes landscaping, playgrounds, erosion problems, and parking lot maintenance. However, common areas are painted as frequently as 3-4 times annually, offices are inviting and clean and in appearance, laundry rooms are in good condition, and there was little evidence of trash or graffiti. The properties also exhibited strong lease enforcement/lease compliance and low levels of crime. The standards of upkeep and the level of lease enforcement were substantially less in the public housing, and the level of crime much greater (see, however, resource comments, below).

- FHA managers are paid well (around $37 PUM in management fees and another $11 PUM in bookkeeping fees) by standards in the States. The public housing managers were equally well compensated, some extraordinarily so.

- Everyone talked about the level of criminality in the society, which resulted in significant security measures and costs. Most FHA properties had protective fences and manned security gates and/or controlled access to building entrances. These measures appeared to be quite effective in that there was little evidence of crime. Not surprisingly, though, these security expenses are quite large. Of the 149 properties in the database, 104 reported security costs. Of those 104, the median was $38 PUM and the mean $37 PUM. If all properties are included, the median and mean are $27 PUM. Only the New York City market has higher figures ($50 PUM for those reporting security expenses). Nationally, the mean security costs in the FHA portfolio are $13 PUM, with a median of $4 PUM. The public housing also had a modified form of controlled access, but it was much less effective, it was not coordinated/supervised by the agency's contract managers (administered centrally), and it tended to include police as opposed to contract guards; however, the PRPHA also spends far less on security (an agency average of around $9 PUM), which partly explains why the public housing security measures appeared less effective.[11]

- While wage levels are substantially less than found in the States, staffing levels in FHA housing in Puerto Rico (measured in terms of number of units per employee) were much higher. The same range of ratios were found in both FHA housing and public housing. There is also a custom in Puerto Rico of utilizing licensed/certified social workers to assist in resident selection, screening, activities, and lease enforcement. This custom was true in both FHA and public housing.

[11] The agency has an arrangement with local police for sub-stations and manned booths at various "high-profile" properties. The private managers do not supervise these officers or control how the officers are deployed. Consistent with other findings and recommendations on the larger research project, GSD finds these centralized arrangements far less effective. Apparently, the agency pays for half of these law enforcement costs and local government assumes the rest. Possibly because some of these services are "free", the agency may feel somewhat reluctant in demanding higher standards. Presumably, with the higher operating funding recommended in this report, the agency could demand higher service in that it would have a true arms-length relationship and either continue to procure local law enforcement or deploy contract guard service. GSD would recommend, however, that the management companies ultimately be responsible for procuring and monitoring those security arrangements.

- Most FHA properties appear to be managed by identity-of-interest divisions of the owners. These owner-managers rarely manage for others. They generally maintain their properties to a good standard because they are selling their buildings as condos when their mortgages expire. Indeed, GSD observed at a number of properties significant levels of expenditures that were capital in nature but were "expensed" and not capitalized. In several of these cases, the owner appeared to be "upgrading" the property through the operating budget before the expiration of the subsidy contract.

- The FHA properties operate for an average of $246 PUM (2000 figures), an amount that is fairly consistent regardless of location, building type, number of bedrooms per unit, etc.[12] (See Attachment B.4 for cross-tabulations.) In contrast, the PRPHA spends around $242 PUM to operate its public housing, considering contributions from the Capital Fund, the Drug Elimination Program, and operating reserves (see Attachment B.5), representing $211 PUM on routine expenditures and $31.33 in non-routine/extraordinary expenditures. Of the routine expenses, the private managers are assigned about $174, with another $9 PUM spent centrally on security. The balance of these routine costs consists of indirect expenses ($22 PUM) and centralized resident program costs ($6 PUM). At roughly $183 PUM in direct routine costs (assuming the $174 PUM assigned to the firms and the $9 PUM in security costs), the resources available to operate public housing were seen to be less than necessary to maintain well-run public housing.

- Of the five FHA properties examined, operating costs varied significantly, from $218-$370 PUM.[13] As noted above, while all of these properties were well-maintained, the properties with the higher costs appeared to be funding capital repairs through the operating budget. Two properties that were quite similar in design to public housing (although somewhat smaller in average number of bedrooms and also somewhat younger in age), and that were not nearing the end of their subsidy contracts, had operating costs of between $216-$260 PUM. These two properties appeared to be operating reasonably within the context of local practice.

- Because of the low levels of income in Puerto Rico generally, and the high rate of poverty and public assistance in the overall population, the "relative" poverty of Puerto Rico public housing is much less than found in the States. Additionally, the public housing properties in Puerto Rico appear to be in stronger locations.

[12] The exception appears to be Section 8 new construction and Section 202 properties which , though younger in age and having smaller bedrooms per unit, have among the highest costs.

[13] For confidentiality reasons, the names of these properties are not identified. They are not necessarily the same properties included in the comparative review of physical characteristics.

In all, GSD believes that there are special market forces in Puerto Rico that are resulting in reported operating costs within the FHA portfolio that are somewhat higher than would be necessary to maintain good quality public housing.

CONCLUSION

The FHA cross-tabulations indicate "average" costs in Puerto Rico (in 2000) of $246 PUM. These reported FHA costs appear higher than necessary due to special market conditions. On the one hand, public housing is older and has more bedrooms per unit. While more field research in this area might prove beneficial, GSD recommends that the model estimate be reduced to around $250 PUM, which would equate into a 7.6% reduction from the model estimate of $271 PUM.

Attachment B.1:
List of properties examined for on-site comparative analysis of physical characteristics

Public Housing Properties	FHA Properties
Los Mirtos	Las Americas Park Section I
Torre de Francia	Las Americas Park Section II
El Flamboyan	San Juan Park Apartments II
Torres de Sabana	Colinas de San Juan
	Santa Paula Apartments
	La Morada

Attachment B.2: PRPHA Comparative Analysis

Building Element	Public Housing	FHA Housing	Cost Impact	Comment
Predominant Building Type	1-4 Story Walkup	Hi Rise most common	Accounted for in analysis	
Construction Type	Concrete and Masonry	Concrete and Masonry	No difference	
Typical Apartment Size	2 bedroom is 665 square feet	2 bedroom is 681 square feet	No significant difference	See Table 3 for other apartment sizes
Windows	Aluminum louvered jalousies	Same with occasional use of glass	Usually no difference	Jalousie mechanism repair offsets glass replacement costs.
Kitchen Cabinets/ Countertops	Plywood/ laminate	Plywood/ laminate	No Difference	
Electrical distribution, Light Fixtures, Receptacles	To national electric code, Porcelain socket, Conventional	To national electric code, Glass fixture, Convention w/ GFCI in K&B	No difference, fixture breakage, GFCI failures	Identical to wiring in the States
HVAC	No exhaust fans in low rise	Sometimes exhaust fans	Fan replacement	Costs offset by absence of window
Appliances	None supplied	Range and refrigerator	Appliance repair	PHA plans to supply appliances in future
• General plumbing • Domestic hot water • Bathing	• PVC, cast iron, copper • Installations underway • Shower	• PVC, cast iron, copper • 20gl elec heater typical • Tub	• No difference • Will be the same • Shower repair, tub resurfacing	• Identical to plumbing in the States • Completion scheduled for 2003 • Offsetting costs
Apartment finishes	Paint, terrazzo or ceramic tile	Paint, VCT tile	VCT has very low maint. cost, Terrazzo tile nearly maint. free	Cost increase after useful life
Fire detection systems	Sometimes	Sometimes	Varies by property	PHA behind but upgrading quickly
Nondwelling space	Sometimes extensive	Modest community rooms	Community space cleaning, maint.	Varies greatly by property
Closet doors	None	Steel or wood bi-fold	Hardware repairs and adjustment	Occasional replacement
Items Found only in High Rises				
Sprinkler systems	Sometimes	Often	Sprinkler maint.	Only in small number of buildings
Elevators	Electric traction	Electric traction	No difference	
Emergency Generator	Diesel	Diesel	No difference	
Domestic water (cold)	Cistern and booster pumps	Cistern and booster pumps	No difference	

Attachment B.3: Hypothetical Costs Attributable to Building Differences

	Incidence/yr for 100 du	Material	Labor	Total	Cost/yr/100du	PUM
Light fixture Repair (glass)	20	5.00	5.00	10.00	200.00	0.17
Light Fixture Replacement	5	12.00	10.00	22.00	110.00	0.09
Exhaust fan motors	3	50.00	40.00	90.00	270.00	0.23
GFCI failures	10	10.00	5.00	15.00	150.00	0.13
Refrigerator repair, contract	2	25.00	75.00	100.00	200.00	0.17
Refrigerator repair, staff	0				0.00	0.00
Range repair, contract	2	25.00	75.00	100.00	200.00	0.17
Range repair, staff	15	22.00	10.00	32.00	480.00	0.40
Appliance cleaning at turnover	10	0.00	10.00	10.00	100.00	0.08
Closet Door, repair	10	2.00	10.00	12.00	120.00	0.10
Closet Door replace	5	50.00	20.00	70.00	350.00	0.29
					Subtotal	**$1.82**
Items not always present						
Fire alarm system service	4			600.00	2400.00	2.00
Sprinkler, fire pump service*	4				1685.00	1.40

Under 3% of properties identified as high rise

Attachment B.4:
FHA Cross-tabulations for Puerto Rico, 2000

	Projects	PUM
Units		
less than 50	24	234
51-100	55	262
101-250	50	248
251 or more	20	210
Total	149	246
Location		
Aguadilla	4	246
Arecibo	4	255
caguas	13	240
Mauaguez	9	258
Ponce	13	240
San Juan	84	245
Rural	7	250
Missing	15	252
Total	149	245
Building Type		
Detached	2	-
Rowhouse	10	230
Walkup	3	-
Highrise	52	239
Mixed	81	258
Total	148	245
Program		
202/8 NC	43	269
HFDA/8 NC	15	237
LMSA	17	212
PAC/202	5	276
Section 8 NC	50	236
Section 8 SR	6	247
Total	136	246
Average Number of Bedrooms per Unit Mean: 1.73 Median: 1.25		
0 to 1	63	$261
1+ to 1.25	11	$214
1.25+ to 2.6	39	$245
2.6+	35	$233
Total	148	$247
Building Age Mean: 18 Median: 17		
0 to 10	4	$247
11 to 15	24	$258
16 to 20	85	$247
21 to 25	12	$220
26+	10	$236
Total	135	$246

Attachment B.5:

PRPHA Operating Costs, 2002

(Constructed from 2002 Agency Budget Documents)

Description	Annual	PUM
Operating Receipts		
Dwelling Rentals	$20,589,918	$30.54
Non-dwelling Rentals	$44,976	$0.07
Interest on General Fund Investments	$4,659,165	$6.91
Operating Subsidy	$92,802,814	$137.65
Capital Fund Transfer	$34,998,197	$51.91
Provision from Operating Reserves	$13,093,832	$19.42
Drug Elimination Grant (estimate)	$6,000,000	$8.89
Total Receipts	**$170,361,149**	**$252.68**
Expenditures		
Utility Expenses	$7,150,544	$10.61
Private Management Budgets	$117,177,558	$173.80
Indirect Costs	$14,821,745	$21.98
Central Resident Programs	$4,088,022	$6.06
Security (estimate)	$6,000,000	$8.89
Total Routine Expenses	**$149,237,869**	**$221.35**
Non-routine Expenses (also assigned to private firms)	**$21,123,280**	**$31.33**
Total Expenses	**$170,361,149**	**$252.68**
Total Non-Utility Expenses	**$163,210,605**	**$242.07**