

**Estimating the Public Costs and Benefits
of HOPE VI Investments:
Methodological Report**

Margery Austin Turner
Mark Woolley
G. Thomas Kingsley
Susan J. Popkin
Diane Levy
Elizabeth Cove

Estimating the Public Costs and Benefits of HOPE VI Investments: Methodological Report

June 2007

Prepared By:

Margery Austin Turner
Mark Woolley
G. Thomas Kingsley
Susan J. Popkin
Diane Levy
Elizabeth Cove

The Urban Institute
Metropolitan Housing and Communities
Policy Center
2100 M Street, NW
Washington, DC 20037

UI No. 07847-00-00

The nonpartisan Urban Institute publishes studies, reports, and books on timely topics worthy of public consideration. The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or its funders.



CONTENTS

| | |
|---|-----------|
| CHAPTER ONE: INTRODUCTION AND SUMMARY OF FINDINGS..... | 1 |
| Organization of the Report | 1 |
| Summary of Findings..... | 2 |
| CHAPTER TWO: THE REMAINING INVENTORY OF DISTRESSED PUBLIC HOUSING DEVELOPMENTS | 4 |
| Severely Distressed Public Housing..... | 4 |
| Three Prototypical Projects | 8 |
| Resident Characteristics..... | 10 |
| CHAPTER THREE: ANALYSIS FRAMEWORK AND METHODOLOGICAL OVERVIEW | 11 |
| Analysis Framework | 11 |
| Alternative Scenarios..... | 13 |
| CHAPTER FOUR: REDEVELOPMENT COSTS AND FUNDING SOURCES..... | 16 |
| HOPE VI Redevelopment Costs..... | 16 |
| Costs of Alternative Scenarios and Prototypes | 20 |
| CHAPTER FIVE: PUBLIC COSTS AND BENEFITS: THE PROJECT | 23 |
| Project Conditions | 23 |
| Public Costs..... | 28 |
| CHAPTER SIX: PUBLIC COSTS AND BENEFITS: THE ORIGINAL RESIDENTS..... | 31 |
| Resident Outcomes | 31 |
| Public Costs..... | 36 |
| Crime | 41 |
| Summary—Resident costs | 43 |



| | |
|---|---------------|
| CHAPTER SEVEN: PUBLIC COSTS AND BENEFITS: THE SURROUNDING NEIGHBORHOOD | 45 |
| Neighborhood Poverty and Distress | 45 |
| Public Revenues: Property Taxes | 48 |
| CHAPTER EIGHT: PUBLIC COSTS AND BENEFITS OF ALTERNATIVE DEVELOPMENT STRATEGIES — TWENTY-YEAR ESTIMATES | 51 |
| REFERENCES | 61 |



CHAPTER ONE: INTRODUCTION AND SUMMARY OF FINDINGS

Over the past decade, the HOPE VI program has invested over \$6 billion in federal funds for the replacement or renovation of severely distressed public housing developments. These federal dollars have leveraged billions more in other public, private, and philanthropic investments. To date, over 78,100 distressed public housing units have been demolished, with another 10,400 units slated for redevelopment (HUD 2007).

The current administration has been critical of the high costs of HOPE VI, proposing that the program should be cut back dramatically or even eliminated. In effect, they argue that the problem of severely distressed public housing has largely been solved and that the country cannot afford to replace or revitalize more properties. However, a growing body of research highlights the damage to families and children of living in dangerous, high-poverty environments and the potential benefits of replacing severely distressed public housing with a combination of high-quality, mixed-income housing and rental vouchers (Popkin et al. 2002, Popkin et al. 2004, Orr et al. 2003, and Briggs and Turner 2006).

Drawing on existing research evidence, this study compares costs (both monetary and nonmonetary) of maintaining severely distressed public housing developments to the potential costs and benefits of effectively renovating or replacing them. It is important to acknowledge that no rigorous evaluation of the costs and benefits of HOPE VI redevelopment has yet been conducted, that the availability of empirical evidence about the likely trajectory of both distressed properties and redeveloped properties is severely limited, and that the future of both market and policy environments is uncertain. The analysis presented here focuses on costs and benefits for which the research evidence is strongest and makes generally conservative assumptions about the likely impacts of public housing redevelopment. Nonetheless, the estimates are by necessity somewhat speculative and should be viewed as approximate.

Organization of the Report

The chapters that follow detail the data sources, assumptions, and analysis upon which these comparisons are based. Specifically:

- Chapter 2 draws upon data from HUD's management information systems to estimate the number of severely distressed housing units remaining in the public housing inventory and to construct three "prototypical" projects for which the costs and benefits of redevelopment will be estimated;
- Chapter 3 presents the analysis framework and methodology for the study;
- Chapter 4 estimates the input costs of alternative redevelopment scenarios for each of the three prototypical projects;



- Chapter 5 estimates the implications of redevelopment (relative to the status quo) for the prototypical distressed public housing projects, and the associated costs or savings for public housing agencies (and HUD);
- Chapter 6 estimates the implications of redevelopment (relative to the status quo) for the original residents of the prototypical developments, and the associated costs or savings for public programs that address resident needs;
- Chapter 7 estimates the implications of redevelopment (relative to the status quo) for the neighborhoods in which the prototypical distressed public housing projects are located, and the associated effects in property tax revenues to local government;
- Chapter 8 summarizes the estimated net present value of the costs of redevelopment (relative to the status quo) over twenty years for all three of the prototypical projects, and tests the sensitivity of these estimates to alternative assumptions about vacancy rates and discount rates.

Summary of Findings

By our estimates, between 47,000 and 82,000 severely distressed units remain in the public housing inventory that are not currently scheduled for demolition and replacement. The lower bound estimate includes properties located in census tracts with poverty rates above 30 percent (reflecting serious neighborhood distress), scores from HUD's Real Estate Assessment Center (REAC) below 75 (reflecting serious problems of physical deterioration or mismanagement), and more than 30 percent of residents relying primarily on welfare income, which indicates resident distress. The upper bound includes properties with REAC scores below 80 and more than 25 percent of residents relying primarily on welfare income.

Empirical evidence indicates that investing in demolition and mixed-income redevelopment can reasonably be expected to yield dramatically better outcomes than would inaction—for the project, its original residents, and the surrounding community. And all these outcomes have cost implications for the public sector.

For a prototypical project, mixed-income redevelopment has been shown to result in dramatically improved physical conditions, much lower vacancy rates, and substantial reductions in crime. As a consequence, the newly built public housing development can be expected to have much lower annual operating and capital costs per unit, and its higher rates of occupancy would yield larger per-unit tenant rent contributions. Altogether, estimated annual housing subsidy costs are \$3.9 million lower per year after demolition and mixed-income redevelopment than they would be if the distressed project was left standing.

For the original residents (both those who use vouchers to relocate permanently and those who return to the mixed-income development), redevelopment has been demonstrated to



result in higher housing quality and improved safety. Other research indicates that, with enhanced supportive services, residents can also be expected to enjoy significantly lower rates of obesity, better mental health, and higher rates of employment and earnings. These improvements in the well-being of low-income families translate into lower expected welfare and unemployment insurance costs, an increase in the Earned Income Tax Credit, higher local income tax revenues, lower costs to the criminal justice system, and lower Medicaid spending—saving the public sector an estimated \$313,000 per year.

For the surrounding neighborhood, mixed-income redevelopment has the potential to yield substantial reductions in poverty and unemployment, increases in property values, and—as a consequence—higher property tax revenues. Empirical research on the impacts of HOPE VI investments on property values is extremely limited, but suggests that the effective redevelopment of the prototype project could reasonably be expected to increase local property tax revenues by an average of \$492,000 annually compared with the status quo.

Thus, although the redevelopment of distressed public housing is expensive, in many circumstances, the costs to taxpayers of *inaction* may be even higher. In fact, for a prototypical distressed public housing project, mixed-income redevelopment—effectively implemented—can be expected to save the public more than \$20 million over 20 years. Although more modest rehabilitation strategies are less expensive in the short-term, they yield lower expected savings for taxpayers over the long-term. The estimated level of taxpayer savings generated by mixed-income redevelopment can vary quite widely, depending on the characteristics and location of the project. But in every case, the *net* public costs of redevelopment (after accounting for the costs of inaction) are much lower than the initial, up-front investment required. Moreover, high quality resident services—including relocation assistance, case management, and work supports—not only yield better life outcomes for families and children, but essentially pay for themselves over the long-term.



CHAPTER TWO: THE REMAINING INVENTORY OF DISTRESSED PUBLIC HOUSING DEVELOPMENTS

Although much of the most troubled public housing that existed in the early 1990s has been demolished, a substantial number of severely distressed properties remain in the public housing inventory. The characteristics and location of these properties vary considerably, suggesting that the relative costs and benefits of redevelopment may not be the same for all of them. This chapter draws upon data from HUD's management information systems to estimate the number of severely distressed public housing units remaining. We then define three "prototypical" projects that reflect important segments of the distressed inventory and describe the characteristics of their residents. These prototypical projects provide the basis for our estimates of the likely costs and benefits of alternative redevelopment strategies.

Severely Distressed Public Housing

The Commission on Severely Distressed Public Housing estimated that there were about 86,000 housing units that it classified as severely distressed category in 1990. Through June 2006, HOPE VI had demolished 78,100 units, with another 10,400 in the pipeline, bringing its total to 88,500 (HUD 2007). Moreover, HUD has approved plans to demolish at least an additional 62,000 units through Section 202 mandatory conversions and other allowable dispositions, 36,200 of which had been taken down by early 2003 (HUD 2003).

It is important to note that the Commission's 86,000 figure was an aggregate estimate, rather than the result of a property-by-property assessment of the inventory at the time. Given the rules and procedures governing demolition, there is no reason to suspect that a significant share of properties approved for demolition did not actually warrant it. Thus, it appears that either the Commission underestimated the total number of severely distressed units or the problem has grown over the years since the Commission did its work. Most likely, both factors played a role.

But does the evidence indicate, as some have argued, that all the severely distressed public housing has been (or will soon be) demolished and replaced? Our starting point for addressing this question is the official definition of "severe distress" as provided in QHWRA, which includes four criteria: (1) requires major redesign, reconstruction, or redevelopment or partial or total demolition...; (2) is a significant contributing factor to the physical decline of and disinvestment ... in the surrounding neighborhood; (3) is occupied predominantly by ... families with children that are very low income, whose members are unemployed and dependent on various forms of public assistance, or has high rates of vandalism and criminal activity; and (4) cannot be revitalized through assistance under other programs.



It is impossible to operationalize these criteria fully without site-by-site assessments, entailing information available only at the local level. However, a rough assessment using nationally available data can be instructive. The estimate (developed by Kingsley et al, 2004) drew upon two HUD data sets to estimate the number and basic characteristics of severely distressed projects remaining in the public housing inventory. The first was a special database on physical inspection scores of public housing, produced by HUD's Real Estate Assessment Center (REAC). REAC conducts recurrent inspections of all properties in the public housing inventory according to a rigorously defined assessment system. Ratings relate to key health, safety, and habitability factors in a property. Ratings for individual indicators are weighted and the results are added to obtain the overall score, with 100 being the best possible score.¹

Given their purpose, one would not necessarily expect low REAC scores to be good proxies for the first QWHRA indicator of severe distress (requires major redesign, reconstruction, or redevelopment or partial or total demolition). For example, a building could be in generally good physical condition, but receive a poor REAC score because of problems that are important from a safety standpoint but do not cost much to repair (such as smoke-alarms with dead batteries, the absence of recent inspection stickers on fire extinguishers). Additional characteristics that could reduce a property's REAC score may reflect outdated design standards. For example, developments would lose points if entryways and hallways were not a standard width.

To create scores that would be reflective of more fundamental physical deterioration and distress, the authors asked REAC staff to run their scoring algorithms after excluding the indicators listed in table 2.1. The resulting measures, termed "adjusted REAC scores," were used in the remainder of the analysis. These adjusted scores are higher than the standard REAC scores for nearly 65 percent of the 14,000 properties included in HUD's database. While the increases were on average very minor (with an average 5-point increase on a scale of 100), the adjustment had a significant impact on some scores. For example, the scores for nearly 850 properties went up by at least 10 points.

¹ For a complete list of deficiencies and their definitions, see Federal Register, Vol. 66, No. 27, Pages 59084-59124. http://www.hudclips.org/sub_nonhud/cgi/pdf/29266a.pdf



Table 2.1.
Deficiency Criteria Excluded from Adjusted REAC Scores

| AREA | Inspectable Item | Observable Deficiency |
|---|---|--|
| Site | Health and Safety | Flammable Materials—Improperly Stored |
| | | Garbage and Debris—Outdoors |
| | | Hazards—Other |
| | | Hazards—Sharp Edges |
| | | Hazards—Tripping |
| | | Infestation—Insects |
| | Infestation—Rats/Mice/Vermin | |
| | Market Appeal | Graffiti |
| Litter | | |
| Building Exterior | Fire Escapes | Blocked Egress/Ladders |
| | Health and Safety | Emergency Fire Exits—Emergency/Fire Exits Blocked/Unusable |
| | | Flammable Materials—Improperly Stored |
| | | Garbage and Debris—Indoors |
| | | Garbage and Debris—Outdoors |
| | | Hazards—Other |
| | | Hazards—Sharp Edges |
| | Hazards—Tripping | |
| Infestation—Insects | | |
| Infestation—Rats/Mice/Vermin | | |
| FHEO—32” Wide Main Entrance | Main Entrance is Less than 32” Wide | |
| FHEO—Accessibility to Main Floor Entrance | Obstructed or Missing Accessibility Route | |
| Building Systems | Electrical System | Blocked Access/Improper Storage |
| | Emergency Power | Run-up Records/Documentation Not Available |
| | Health and Safety | Air Quality—Mold and/or Mildew Observed |
| | | Emergency Fire Exits—Emergency/Fire Exits Blocked/Unusable |
| | | Emergency Fire Exits—Missing Exit Signs |
| | | Flammable Materials—Improperly Stored |
| | | Garbage and Debris—Indoors |
| | | Garbage and Debris—Outdoors |
| | | Hazards—Other |
| | | Hazards—Sharp Edges |
| Hazards—Tripping | | |
| Infestation—Insects | | |
| Infestation—Rats/Mice/Vermin | | |
| Common Area | Basement/Garage/Carport | Electrical System—Blocked Access to Electrical Panel |
| | | Smoke Detector—Missing/Inoperable |
| | Closet/Utility/Mechanical | Electrical System—Blocked Access to Electrical Panel |
| | Community Room | Electrical System—Blocked Access to Electrical Panel |
| | | Smoke Detector—Missing/Inoperable |
| | Day Care | Electrical System—Blocked Access to Electrical Panel |
| | | Electrical System—Blocked Access to Electrical Panel |
| | Halls/Corridors/Stairs | Electrical System—Blocked Access to Electrical Panel |
| Graffiti | | |
| Smoke Detector—Missing/Inoperable | | |
| | | Pedestrian/Wheelchair Ramp |



| AREA | Inspectable Item | Observable Deficiency |
|---------------------------------|---|--|
| Common Area (Continued) | Health and Safety | Air Quality—Mold and/or Mildew Observed |
| | | Emergency Fire Exits—Emergency/Fire Exits Blocked/Unusable |
| | | Emergency Fire Exits—Missing Exit Signs |
| | | Flammable Materials—Improperly Stored |
| | | Garbage and Debris—Indoors |
| | | Garbage and Debris—Outdoors |
| | | Hazards—Other |
| | | Hazards—Sharp Edges |
| | | Hazards—Tripping |
| | | Infestation—Insects |
| | | Infestation—Rats/Mice/Vermin |
| | Kitchen | Electrical System—Blocked Access to Electrical Panel |
| | | Smoke Detector—Missing/Inoperable |
| | Laundry Room | Electrical System—Blocked Access to Electrical Panel |
| | Lobby | Electrical System—Blocked Access to Electrical Panel |
| | | Smoke Detector—Missing/Inoperable |
| | Office | Electrical System—Blocked Access to Electrical Panel |
| | | Smoke Detector—Missing/Inoperable |
| | Other Community Spaces | Electrical System—Blocked Access to Electrical Panel |
| | Patio/Porch/Balcony | Electrical System—Blocked Access to Electrical Panel |
| Restrooms/Pool Structures | Electrical System—Blocked Access to Electrical Panel | |
| | Smoke Detector—Missing/Inoperable | |
| Storage | Electrical System—Blocked Access to Electrical Panel | |
| FHEO—36" Wide Interior Hallways | Multi-story Building Hallways/Common Areas Less than 36" Wide | |
| Unit | Electrical System | Blocked Access to Electrical Panel |
| | Health and Safety | Air Quality—Mold and/or Mildew Observed |
| | | Emergency Fire Exits—Emergency/Fire Exits Blocked/Unusable |
| | | Emergency Fire Exits—Missing Exit Signs |
| | | Flammable Materials—Improperly Stored |
| | | Garbage and Debris—Indoors |
| | | Garbage and Debris—Outdoors |
| | | Hazards—Other |
| | | Hazards—Sharp Edges |
| | | Hazards—Tripping |
| | | Infestation—Insects |
| | | Infestation—Rats/Mice/Vermin |

These adjusted REAC scores were linked to data from HUD's A Picture of Subsidized Households (APSH) which reports on the characteristics of the public housing inventory and its residents, in order to approximate the third QHWRA criterion of severe distress (occupied predominantly by ... families with children that are very low income, whose members are unemployed and dependent on various forms of public assistance, or has high rates of



vandalism and criminal activity).² The APSH data on residents were derived from the income certifications for each assisted household in the system. The reporting of these data by PHAs to HUD was quite uneven in the early 1990s, but by 1998 reporting rates were fairly high overall. The authors considered the share of resident households that received a majority of their income from welfare as a reasonable indicator of resident distress.

These two proxies for QHWRA criteria were applied to all non-HOPE VI public housing properties not already on a HUD-provided list of developments scheduled for demolition (Section 202 mandatory conversions and others). A total of 46,900 units had REAC scores below 75 and more than 30 percent of households dependent on welfare, while 81,900 units had REAC scores below 80 and more than 25 percent of households dependent on welfare. Note that the proxies used here for the QHWRA criteria are imperfect and approximate. The purpose was not to designate particular properties as requiring demolition and redevelopment, but rather to produce rough estimates of the approximate number of units remaining in the public housing inventory that may qualify as severely distressed.

Three Prototypical Projects

The public housing developments that fall within these two definitions of distress vary quite widely with respect to size, location, and resident characteristics. And correspondingly, it seems likely that the costs and benefits of redevelopment may also vary. Therefore, instead of focusing on the average (or modal) unit in the distressed inventory, we explore the implications of alternative redevelopment strategies for three “prototypical” projects, defined to reflect potentially important variations in the remaining inventory.

To define these prototypes, we begin with the broader definition of distress discussed above: REAC scores below 80 and more than 25 percent of resident households dependent on welfare. We then zoom in on the sub-set of projects that are located in high-poverty census tracts (poverty rates above 30 percent) and that account for at least 30 percent of all housing units in the tract. Many scholars and practitioners consider a neighborhood poverty rate above 30 percent to be a strong indicator of disinvestment and distress (Ellen and Turner 1997). And when more than three of every ten housing units in a tract are public housing units, it seems likely that the public housing is contributing to the neighborhood’s overall distress (Schill and Wachter 1995). Due to data limitations, it is not possible to determine these locational attributes for all of the potentially distressed units that remain in the public housing inventory. Specifically, projects managed by the housing agencies of New York City, Chicago, and Puerto Rico, as well as other projects without census tract identifiers, and projects with units scattered across more

² At the time this analysis was conducted, the most current APSH data were for 1998.



than two census tracts are all excluded from this analysis. Thus, a subset of 92 projects (29,471 units) is used to define the prototypical projects for the analysis in this report.

Table 2.2 presents the distribution of these projects by their size and their distance from the closest low-poverty census tract. It seems likely that the size of a project is relevant to the costs and benefits of redevelopment both because of possible economies of scale and because larger projects may have a bigger impact on the neighborhoods in which they are located. Distance from the closest low-poverty tract represents a proxy for a neighborhood’s revitalization potential and the likelihood that public housing redevelopment will generate significant spill-over effects in the surrounding community.

Table 2.2:
Distribution of Public Housing Projects¹ by Project Size and Average Distance to Low Poverty Tracts

| Public Housing Project Size ³ | Projects Total | Average Distance to Low Poverty Tract (in miles) ² | | |
|---|-------------------|---|-----------|-----------|
| | | 0.26-1.24 | 1.25-3.34 | 3.35-64 |
| Total | 92 | 28 | 43 | 21 |
| < 100 units | 10 | 4 | 3 | 3 |
| 100-249 units | 31 | 6 | 19 | 6 |
| 250-499 units | 33 | 11 | 12 | 10 |
| 500 or more units | 18 | 7 | 9 | 2 |

Source: Public Housing Building file from the PIC System as of March 2005

¹ *Public housing project* is defined as a group of buildings that belong to the same project (as defined by a project code ID). Table includes public housing projects that meet several criteria: (1) have 25% or more hhlds receiving majority of income from welfare, (2) have REAC scores of 80 or less, (3) are located in Census tracts with poverty rate of 30% or more, and (4) where percent of public hsg units as percent of total units in tract is 30% or more.

Projects selected for the analysis are generally located within a single Census tract, but never cross more than two tracts. For projects scattered across two tracts we use the geographic characteristics of the tract where most of the project buildings are concentrated.

Projects under the housing authorities of NYC, Chicago and Puerto Rico are excluded from the list of public housing projects. Also excluded are projects without Census tract identifiers.

² The projects are categorized (see table columns) according to their *Average Distance* from Census tracts where poverty rate is below 10% and minimum total population is 500.

³ *Project Size* is determined based on the total number of available units in a project.

Three categories of projects represented in this table were used to define prototypical projects for subsequent analysis: (1) very large projects (500 or more units) close to low-poverty tracts (less than 1.24 miles); (2) small projects (100 to 249 units) at an intermediate distance from low-poverty tracts (1.25 to 3.34 miles); and (3) large projects (250 to 499 units) far from



low-poverty tracts (more than 3.35 miles). Table 2.3 summarizes the average project characteristics for these groups of projects, which have been assigned to the three prototypes.

Table 2.3.
Severely Distressed Public Housing—Three Prototypical Projects

| | Prototype #1 | Prototype #2 | Prototype #3 |
|------------------------|--------------|--------------|--------------|
| Number of Units | 701 | 157 | 348 |
| REAC Score | 68 | 68 | 67 |
| Vacancy Rate | 37.1% | 20.1% | 15.6% |

It is somewhat surprising that the REAC scores are essentially the same for these three prototypes. Scores certainly vary across projects within each of the three groupings, but average scores do not vary systematically by project size and distance from low-poverty areas.

Resident Characteristics

Resident characteristics for the three prototypical projects were similarly assigned, based on the average characteristics of residents in the actual developments upon which these prototypes are based (see table 2.4). In fact, differences with respect to resident characteristics are quite small. All three prototypes are occupied by extremely low-income households, the vast majority of whom are female-headed families. Roughly one of every ten households is headed by an elderly person. Only about one quarter obtain the majority of their income from wages, and between 35 and 42 percent rely primarily on welfare income. Incomes are extremely low for all three prototypes, though lowest for prototype 3, which is farthest from a low-poverty neighborhood.

Table 2.4.
Characteristics Of Public Housing Residents—Prototypical Projects

| | Prototype #1 | Prototype #2 | Prototype #3 |
|------------------------------------|--------------|--------------|--------------|
| % Female-Headed Households | 84.7 | 86.4 | 87.7 |
| % Elderly-Headed Households | 11.7 | 10.6 | 11.1 |
| Average Household Income | \$8,913 | \$7,909 | \$7,336 |
| % w/Maj Income from Wages | 24.4 | 25.7 | 26.8 |
| % w/Maj Income from Welfare | 42.3 | 39.6 | 34.5 |



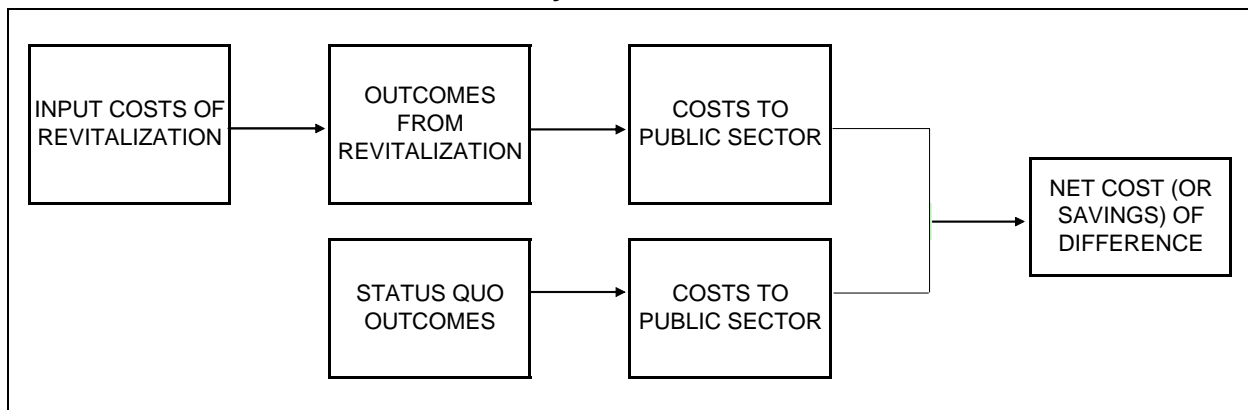
CHAPTER THREE: ANALYSIS FRAMEWORK AND METHODOLOGICAL OVERVIEW

The purpose of this study is to compare the costs of maintaining severely distressed public housing developments to the potential costs and benefits of effectively revitalizing these developments. This chapter provides a framework for identifying and estimating these costs, including costs to the public housing developments themselves, costs associated with the original residents, and costs for the surrounding neighborhood. It then describes two alternative public housing revitalization scenarios—a demolition and mixed-income redevelopment scenario and a substantial rehabilitation scenario—which reflect stylized versions of strategies implemented under HOPE VI. The chapters that follow estimate costs and benefits for both of these scenarios.

Analysis Framework

Redeveloping a severely distressed public housing development requires a substantial up-front investment, a large share of which must be paid by the public sector. But over time, this public investment has the potential to significantly change the physical conditions of the public housing development itself, the quality of life and well-being of residents, and the vitality of the surrounding neighborhood. Similarly, leaving a distressed public housing development in place has consequences—for the project itself, its residents, and the surrounding community. The expected costs of these consequences, as well as the potential benefits of revitalization, should be considered in evaluating the initial investment. Figure 3.1 provides a framework for thinking systematically about the cost and benefit implications of action versus inaction for a severely distressed public housing development.

Figure 3.1:
Analysis Framework





First, redevelopment requires upfront expenditures—for demolition, for new construction or rehabilitation, and for resident services. Chapter 4 presents estimates of these costs for the three prototypical developments introduced earlier. No upfront expenditures are involved in simply leaving a distressed public housing development standing and occupied. Over time, conditions in the revitalized public housing project can be expected to differ from what they would be given the status quo. Specifically, the revitalized project may consist of fewer housing units, but these units are likely to be better designed and constructed and to offer a higher quality living environment. Chapter 5 discusses our analysis of the impacts of redevelopment on project conditions.

These differences in project conditions have consequences for the original residents and for the surrounding neighborhood. Leaving a severely distressed public development in place means that families continue to live in physically deteriorated housing, victimized by disorder, crime, and violence, and that the surrounding neighborhood is blighted by the project's continued distress. In contrast, redevelopment has the potential to yield better housing conditions and a more orderly and safe environment for residents, and to contribute to the revitalization of the surrounding neighborhood. Chapters 6 and 7 discuss the evidence regarding potential impacts of public housing revitalization on residents and the surrounding neighborhood.

All of these outcomes affect public sector expenditures and some have implications for public revenues as well. They affect the costs of operating and maintaining the public housing development itself, the costs of public services and benefits received by project residents, and property taxes from the surrounding neighborhood. We estimate these costs to the public sector over a twenty-year period, and the present discounted value of differences between the estimated costs of redevelopment and the estimated costs of the status quo yield the net public cost -- or saving -- associated with action. These net estimates are presented in chapter 8.

One of the complexities of estimating the costs and benefits of public housing revitalization is that the number of public housing units—and in some cases, the number of very low-income households served—may change as a consequence of redevelopment. How should the long-term costs of a 701-unit public housing project in which only 442 units are occupied (all by very low-income households) be compared to the costs of a fully occupied, 467-unit development, in which only one third of the units have deep, public housing subsidies? For comparability purposes, the analysis presented in this report estimates the costs of serving the same number of very low-income households in deeply subsidized housing under the status quo (inaction) and the two alternative scenario. More specifically, the number of very low-income households served for each prototypical project is set at the number of households living in that project at the outset (the number of occupied housing units). If the number of replacement units receiving long-term public housing operating subsidies falls short of this number of households, the estimated costs of Housing Choice Vouchers for the balance are



included in the project costs. This approach is not intended to imply that all of the new public housing units are necessarily occupied by original project residents, or that the combined number of new public housing units and vouchers should (as a matter of policy) be set at the number of original households. Instead, it is intended simply to ensure that cost comparisons across alternative scenarios are, in effect, normalized to a constant number of very low-income households.

Alternative Scenarios

For each of the prototypical projects discussed in chapter 2, we have estimated likely outcomes and costs under two stylized revitalization strategies (summarized in table 3.1). Both of these strategies were developed in consultation with experts on HOPE VI practices and financing mechanisms, and are intended to reflect (in simplified terms) contrasting redevelopment options. It is important to note that the analysis of costs and benefits reported in the chapters that follow assumes that both of these redevelopment interventions are effectively implemented. In fact, not all HOPE VI grants have been well administered by local housing agencies; problems with implementation delays, public controversy, ineffective resident services, and mismanagement have all been extensively documented and discussed elsewhere (Kingsley et al. 2004; Popkin et al. 2004). This implementation history and its implications for the *actual* costs and benefits of public housing revitalization investments to-date are not the focus of the analysis reported here.³ Instead, this report focuses on estimating the likely consequences for public housing projects, residents, and neighborhoods of *effectively implemented* redevelopment plans, compared to the likely consequences of the status quo.

The first strategy involves demolition of the original distressed development and its replacement with a combination of mixed-income housing and vouchers. The total number of new housing units built on-site is one third smaller than the original number of units, reflecting the “de-densification” that has been typical of many HOPE VI investments. In addition, only one third of the replacement units are traditional public housing units—with long-term subsidies that cover the difference between what very low-income residents can afford to contribute (at 30 percent of their income) and the rental income needed to make the development financially viable. These “ACC” units are, of course, financed by the HOPE VI grant, but their development costs are also subsidized by Low Income Housing Tax Credits (LIHTC). Another third of the new housing units under this redevelopment scenario are “affordable” rental units, subsidized by LIHTC. Rents for these units will be set at or below levels that are affordable for households

³ In fact, the data necessary to produce a historic cost-benefit analysis are not available from existing systems. In the future, HUD could systematically collect data to inform such an analysis, providing further insight to guide both policy and practice.



with incomes at 60 percent of area median.⁴ The remainder of the new units are market-rate rental or for-sale units that receive no public subsidies.⁵ Under this scenario, Housing Choice Vouchers make up for the reduction in the number of deeply subsidized housing units, so that the total number of very low-income households receiving deep, gap-filling housing subsidies remains the same.

Table 3.1: Redevelopment Strategies for the Prototypical Developments

| Demolition and Mixed-Income Redevelopment | Prototype #1 | Prototype #2 | Prototype #3 |
|--|---------------------|---------------------|---------------------|
| Original number of units | 701 | 157 | 348 |
| Number of households | 441 | 125 | 294 |
| Number of new units | 468 | 105 | 231 |
| <i>Public housing</i> | 156 | 35 | 77 |
| <i>LIHTC</i> | 156 | 35 | 77 |
| <i>Market rate</i> | 156 | 35 | 77 |
| Substantial Rehabilitation | Prototype #1 | Prototype #2 | Prototype #3 |
| Original number of units | 701 | 157 | 348 |
| Number of households | 441 | 125 | 294 |
| Number of new units | 701 | 157 | 348 |

The second redevelopment strategy involves the substantial rehabilitation of the original public housing development. All of the original units are renovated under this scenario, and all remain traditional public housing. The HOPE VI grant covers the full redevelopment cost under this scenario.

For both redevelopment scenarios, we estimate the costs and consequences of two different levels of resident services. The “basic” service package corresponds to standard practices of local housing agencies over the last decade, and includes relocation assistance for the original residents and five years of community and supportive services in the new development. We also draw upon evidence emerging from research on other programs and demonstrations to estimate the potential impacts of an “enhanced” service package that would

⁴ The cost to the public sector of the LIHTC-only units is *not* included in the total estimate of the public costs of the mixed-income redevelopment strategy because these tax credits would have been used for similar units elsewhere in the state, even if the HOPE VI redevelopment had not occurred.

⁵ The rental or sale of the market-rate units is assumed to fully cover their capital and operating costs. In other words our cost estimates include no public subsidies to finance or maintain these units, nor do they generate excess revenues to cross-subsidize the affordable units.



provide high-quality mobility counseling and housing search assistance comparable to the assistance delivered under the Moving to Opportunity Demonstration (Orr et al. 2003), five years of case management services for all the original residents comparable to the services provided under HUD's Family Self-Sufficiency Program (Lubell 2004), and a combination of employment services and incentives comparable to the approach implemented in the Jobs-Plus Demonstration (Bloom, Riccio, and Verma 2005).



CHAPTER FOUR: REDEVELOPMENT COSTS AND FUNDING SOURCES

The first step in comparing the public costs of alternative treatments for severely distressed public housing is to estimate the up-front investment involved in HOPE VI transformations. Drawing from data in HUD's management information systems, this chapter estimates the initial costs to the public sector of both the mixed-income redevelopment scenario and the substantial rehabilitation scenario for the three prototypical properties.

HOPE VI Redevelopment Costs

It would be ideal if authoritative data were available on all of the actual expenditures that have occurred so far. However, since only a relatively small share of all HOPE VI projects have been completed, very few final expenditure reports are available at this point. We decided that a more representative sense of redevelopment costs could be gained by using the "cost-to-complete" estimates made for HOPE VI projects by their local development teams.

These data were drawn from the HOPE VI program management system (maintained for HUD by Bearing Point) and include full estimates as of the last quarter of 2003 for all 192 projects that had been initiated in HOPE VI by then (covering the program's first 10 years of operation). When completed, these projects will have demolished 83,300 original housing units and relocated 62,800 original resident households. They will provide a total of 95,100 new and renovated housing units post revitalization, 48,800 (51 percent) of which will be "ACC" units (with deep-subsidies as provided in traditional public housing).

There are two main categories of up-front costs in HOPE VI: 1) development costs -- all costs associated with the physical development process including the costs of demolition, relocation and site preparation as well as construction and/or renovation; and 2) the costs of Community and Supportive Services (CSS)—which may include expenditures on a full range of social service supports as well as employment related services.

Across the 192 projects in our database, the median development cost per housing unit provided post-revitalization was \$160,400; 37 percent of this amount was covered by the HUD grant and the remainder was leveraged from other sources. The median CSS cost was \$7,620 per original resident household. The vast majority of all HOPE VI housing was provided by new construction. Only 5 projects relied solely on rehabilitation and 55 involved a mix of new construction and rehabilitation. The median development cost for the new construction projects was \$165,800 and for the rehab projects \$131,800, 21 percent less.

Variations in Total Development Cost. Table 4.1 reports data on costs for all projects combined and three sub-categories: all new construction, all rehabilitation, and mixed. As noted, the median cost for all grants was \$160,400 per post renovation unit. The middle half of the



distribution fell between \$127,800 and \$191,600. In other words, the bottom 25 percent of all projects had costs below \$127,800 and the top 25 percent had costs exceeding \$191,600.

Table 4.1:
Analysis of Total Development Costs

| | All Grants | | Development Cost | | |
|---|------------------|-----------------|-----------------------|----------------------------|-------|
| | Develop. Cost | % HUD funded | All New Constr. | All Rehabili- tation | Mixed |
| No. of grants | 192 | | 132 | 5 | 55 |
| <i>Total development cost per post revitalization unit (2005 \$ in thousands)</i> | | | | | |
| All grants | | | | | |
| Median | 160.4 | 37 | 165.8 | 131.8 | 153.9 |
| 25th percentile | 127.8 | 32 | 135.3 | 127.2 | 116.8 |
| 75th percentile | 191.6 | 44 | 200.1 | 153.6 | 180.1 |
| Highest | 896.1 | - | 896.1 | 294.2 | 400.6 |
| Lowest | 31.3 | - | 31.3 | 118.5 | 63.9 |
| Medians by HOPE VI cohort | | | | | |
| 1993–1995 | 158.4 | 58 | 163.6 | 142.7 | 154.8 |
| 1996–1998 | 166.0 | 34 | 168.5 | . | 159.1 |
| 1999–2002 | 162.1 | 32 | 165.3 | 127.2 | 150.4 |
| Medians by project size | | | | | |
| Less than 300 units | 166.0 | 40 | 170.4 | 127.2 | 155.1 |
| 300–499 units | 165.3 | 40 | 176.0 | - | 144.7 |
| 500–999 units | 160.1 | 34 | 160.6 | 153.6 | 160.7 |
| 1,000 units or more | 138.9 | 28 | 132.4 | 131.8 | 158.2 |
| Medians by area type | | | | | |
| Metro. > one million pop. | 157.5 | 38 | 161.8 | 153.6 | 152.1 |
| Other, largest 100 metros | 172.8 | 35 | 174.3 | - | 144.1 |
| All other | 169.7 | 34 | 170.4 | 118.5 | 172.2 |

Development costs vary quite substantially across groups of projects differentiated by three indicators that one might expect would influence cost levels. When analyzed by the first



factor, date of project initiation (HOPE VI cohort), the results do not yield a consistent trend. The earliest projects (1993–1995) had the lowest median cost (\$158,400). Costs were higher in the next period (1996–1998 at \$166,000), but then went down again for the most recent cohort (1999–2002 at \$162,100). Variations using the second indicator, project size, conform to expectations related to economies of scale: costs decline as project size increases. The median for projects producing fewer than 300 units was \$166,000 while that for projects with 1,000 units or more was \$138,900, 16 percent lower. Finally, development costs were lowest in the largest and smallest cities where HOPE VI was implemented. The median in metropolitan areas with over one million population was \$157,500 and, at the low end, in areas outside of the 100 largest metropolises, was \$169,700. It was notably higher in the group of middle range metropolitan areas (\$172,800).

The HUD Share. Table 4.1 also shows how much the HUD grant contributed to total development costs in each of these categories. For the median project, 37 percent was covered by the HUD grant and the remainder was leveraged from other sources. There were notable differences in this ratio, however. Interestingly, HUD funds covered a larger share of the total for higher cost projects (44 percent at the 75th percentile) than for lower cost projects (32 percent at the 25th percentile). It is not surprising that the HUD share was much higher for the early projects (58 percent for the 1993-1995 cohort) than the later ones (32 percent for the 1999-2002 cohort), since leveraging resources was given much greater policy emphasis in the later stages of the program. Similarly, the HUD share was much higher for smaller projects (40 percent for those with less than 500 units) than for larger ones (28 percent for those with 1,000 or more).

Composition of Development Costs. The shares of total development costs accounted for by various components of the work are shown in table 4.2. As would be expected, the construction/rehabilitation component was dominant, accounting for 78 percent of all costs in the median case. Another 9 percent went to up-front planning and professional services and 9 percent also was spent on financing costs. Demolition and relocation together accounted for only 5 percent of total costs.

This basic breakdown shows surprisingly little variation across categories of projects. The most notable difference was for the rehab-only projects; not surprisingly, demolition and relocation costs were negligible so rehabilitation itself accounted for by far the highest share (88 percent). It is also of interest that nonconstruction components were lower on larger projects, accounting for 18.5 percent for projects with over 1,000 units compared to 23 to 25 percent for projects below that level. Again, this is presumably the effect of economies of scale in cost elements that one expects to be at least comparatively fixed.



Table 4.2:
Analysis Of Development Cost Components

| | Total Development Costs (thous.) | Percent of Total Costs | | | | |
|---|--|------------------------|-------------------|--------------------|-------------------|----------------------|
| | | Planning/ Prof.Svcs | Demol./ Remed. | Constr./ Rehab. | Reloc./ Reocc. | Leveraged Finance |
| By type of development | | | | | | |
| All grants | 14,570,477.2 | 9.0 | 3.7 | 77.6 | 1.2 | 8.5 |
| All new construction | 10,178,692.3 | 9.1 | 3.7 | 77.0 | 1.2 | 8.9 |
| All rehabilitation | 336,570.1 | 9.3 | 0.4 | 88.8 | 0.3 | 1.2 |
| All mixed | 4,055,214.8 | 8.8 | 4.0 | 78.3 | 1.1 | 7.9 |
| New construction by HOPE VI cohort | | | | | | |
| 1993–1995 | 1,668,868.6 | 10.3 | 5.1 | 77.1 | 1.3 | 6.2 |
| 1996–1998 | 3,234,829.4 | 8.6 | 5.1 | 77.9 | 1.4 | 7.1 |
| 1999–2002 | 5,274,994.2 | 9.0 | 2.5 | 76.5 | 1.1 | 10.9 |
| New construction by project size | | | | | | |
| Less than 300 units | 2,578,058.7 | 11.1 | 2.4 | 76.8 | 1.0 | 8.7 |
| 300–499 units | 1,798,845.7 | 10.4 | 3.8 | 75.9 | 1.3 | 8.6 |
| 500–999 units | 3,900,579.7 | 8.2 | 3.9 | 75.4 | 1.5 | 11.0 |
| 1,000 units or more | 1,901,208.1 | 7.1 | 5.1 | 81.5 | 0.9 | 5.4 |
| New construction by area type | | | | | | |
| Metro. > one million pop. | 7,782,158.5 | 8.5 | 3.8 | 77.9 | 1.3 | 8.6 |
| Other, largest 100 metros | 1,179,763.8 | 11.1 | 4.0 | 73.7 | 1.2 | 10.0 |
| All other | 1,079,444.0 | 10.8 | 2.9 | 75.3 | 1.1 | 10.0 |

Community and Supportive Services (CSS) Costs. As noted earlier, the median CSS cost in HOPE VI was \$7,620 per original resident household. The variation in this category was greater than was the case for development costs. Table 4.3 shows that the interquartile range (from the 25th to the 75th percentile) extended from \$5,470 to 17,400. This wide variation reflects the fact that the nature of CSS programs have varied across HOPE VI developments, in terms of content as well as size. Within fairly broad HUD guidelines, program designs were determined by local decision makers and could be quite idiosyncratic. Therefore, there is no reason to expect them to vary uniformly with the indicators that drive development costs. The only progression that appears orderly on table 4.3 is with respect to project size. Per household CSS costs drop consistently as one proceeds from small developments (fewer than 300 units at a median cost of \$12,800) up to the largest developments (1,000 units or more at \$6,780).



Table 4.3:
Analysis of Community Supportive Service Costs

| | All Grants | All New Constr | All Rehabilitation | Mixed |
|---|------------|----------------|--------------------|--------|
| No. of grants | 192 | 132 | 5 | 55 |
| <i>Total CSS cost per pre-revitalization resident household (2005 \$)</i> | | | | |
| All grants | | | | |
| Median | 7,620 | 7,150 | 3,680 | 11,130 |
| 25th percentile | 5,470 | 5,180 | 2,120 | 6,450 |
| 75th percentile | 17,400 | 15,260 | 8,500 | 20,890 |
| Medians by HOPE VI cohort | | | | |
| 1993–1995 | 11,580 | 7,170 | 19,750 | 13,560 |
| 1996–1998 | 6,580 | 6,320 | . | 7,230 |
| 1999–2002 | 12,190 | 12,800 | 2,120 | 20,320 |
| Medians by project size | | | | |
| Less than 300 units | 12,800 | 13,040 | 2,120 | 31,470 |
| 300–499 units | 8,240 | 7,250 | . | 9,310 |
| 500–999 units | 7,120 | 6,740 | 30,990 | 8,260 |
| 1,000 units or more | 6,780 | 5,110 | 8,500 | 12,280 |
| Medians by area type | | | | |
| Metro. > one million pop. | 7,240 | 6,890 | 3,680 | 11,930 |
| Other, largest 100 metros | 7,500 | 7,290 | . | 8,160 |
| All other | 14,550 | 14,550 | 2,120 | 19,760 |

Costs of Alternative Scenarios and Prototypes

From the discussion above, it is clear that HOPE VI costs can vary substantially, probably based on specific design features or site conditions of individual projects. Analysis of alternative development scenarios for a *particular* project should certainly consider these unique circumstances and their cost implications. However, for this study, which does not pretend to construct historic cost and benefit estimates for actual development projects, we have applied simplifying assumptions in order to produce single estimates of input costs for each of the prototypical projects and stylized redevelopment scenarios discussed in chapters 2 and 3. All



the costs discussed below are in 2005 dollars and, although our prototypical projects have different initial vacancy rates, for comparability purposes we first calculate costs (and benefits) holding the vacancy rates constant across prototypes. Subsequent calculations (reported in chapter 8) allow vacancy rates to vary.

For both the mixed-income redevelopment scenario and the substantial rehabilitation scenario, we apply the median per unit development cost for the full ten-year period for which data are available. Although per unit development costs may vary by project size, we apply the same, per-unit estimates to all three of our prototypes for several reasons. First, the number of substantial rehabilitation projects in the HUD database is so small, that variations by size category are unlikely to be reliable. Second, none of the three prototypes falls in the largest size category (over 1,000 units), where the most significant economies of scale appear to occur. And finally, the differences in per unit costs among smaller properties are more modest, and not unambiguously attributable to size differences. Thus, the estimated cost per unit of new housing developed under the mixed-income redevelopment scenario is \$165,800 and the cost per substantially rehabilitated unit is \$131,800. Note that although the substantial rehabilitation strategy replaces 100 percent of the original public housing units, we only include in our cost calculations the amount required to accommodate all of the original households (accounting for vacancies).

For the demolition and mixed-income redevelopment scenario, the HOPE VI grant is calculated as 37 percent of total development costs, based on the historical data discussed above. Private financing is assumed to cover 25 percent of development costs, based on discussions with experts on these types of mixed-financing arrangements. Tax credit equity covers the balance, and falls below a simplified estimate of the maximum tax credit equity likely to be generated by such a project.⁶ The equity generated by the LIHTC is estimated at 90 percent of the total value of the tax credits, again based on the advice of experts on mixed-financing arrangements in the HOPE VI program.⁷ For the substantial rehabilitation scenario, the HOPE VI grant (possibly in conjunction with other public funds) covers the entire development cost, in part because the redeveloped project is still 100 percent public housing.⁸

⁶ We calculate the maximum tax credit allocation as 2/3 of the total development cost, times 9 percent over 10 years. Every dollar of tax credit is estimated to generate 90 cents in project equity. Although recent projects have been generating a dollar of equity for every dollar of tax credits, this is not expected to be sustainable over the long term.

⁷ Again, as discussed in chapter 3, the cost of tax credits used to finance the LIHTC-only units is not included in the total estimate of the net public costs of the mixed-income scenario, since these credits would be used elsewhere if the HOPE VI redevelopment did not occur.

⁸ Note that some HAs have arranged mixed-financing for substantial rehabilitation projects, including both tax credit equity and private capital.



Finally, basic CSS costs are set at the median of \$7,150 per *original* household for the demolition and mixed-income redevelopment strategy and \$3,680 per *original* household for the substantial rehabilitation strategy, based on the historical data discussed above. We also estimate the implications of delivering “enhanced” services, which would supplement the basic CSS programs implemented to date with case management services (comparable to those delivered under the Family Self-Sufficiency Program), housing search and mobility assistance (comparable to what was provided in the Moving to Opportunity demonstration), and work supports and rent incentives (comparable to what was provided in the Jobs-Plus demonstration). According to HUD’s FY 2003 Annual Performance Plan, the average cost of FSS services per participant was \$844 (in 2003 dollars). MTO’s housing search assistance averaged between \$2,500 and \$3,000 per household. And the public cost per participant in Jobs-Plus totaled between \$2,000 and \$3,000 over four years. Blending these costs yields an estimated increase in supportive service spending of \$4,250 per original resident over five years.

Cost Estimates. Applying the above assumptions yields the following estimates of costs for both the demolition and mixed-income redevelopment scenario and the substantial rehabilitation scenario in our three prototype projects (all costs in 2005 dollars).

**Table 4.4:
Summary of Development Costs**

| Demolition and Mixed-Income Redevelopment | Prototype #1 | Prototype #2 | Prototype #3 |
|--|--------------|--------------|--------------|
| Number of original units | 701 | 157 | 348 |
| Number of occupied units | 441 | 99 | 219 |
| Number of new units | 468 | 105 | 232 |
| <i>Public housing units</i> | 156 | 35 | 77 |
| <i>LHHC-only units</i> | 156 | 35 | 77 |
| <i>Market-rate units</i> | 156 | 35 | 77 |
| Total development cost | 77,594,400 | 17,409,000 | 38,465,600 |
| <i>HUD grant</i> | 28,709,928 | 6,441,330 | 14,232,272 |
| <i>Private capital</i> | 19,398,600 | 4,352,250 | 9,616,400 |
| <i>Tax credit equity</i> | 29,485,872 | 6,615,420 | 14,616,928 |
| <i>Public cost of tax credit equity</i> | 32,762,080 | 7,350,467 | 16,241,031 |
| CSS costs | | | |
| <i>Basic</i> | 3,153,150 | 707,850 | 1,565,850 |
| <i>Enhanced</i> | 5,027,400 | 1,128,600 | 2,496,600 |
| Substantial Rehabilitation | | | |
| Number of original units | 701 | 157 | 348 |
| Number of occupied units | 441 | 99 | 219 |
| Number of new units | 464 | 104 | 243 |
| Total development cost | 61,155,200 | 13,707,200 | 32,027,400 |
| <i>HUD grant</i> | 61,155,200 | 13,707,200 | 32,027,400 |
| CSS costs | | | |
| <i>Basic</i> | 1,622,880 | 364,320 | 805,920 |
| <i>Enhanced</i> | 3,497,130 | 785,070 | 1,736,670 |



CHAPTER FIVE: PUBLIC COSTS AND BENEFITS: THE PROJECT

The most immediate impacts of investment in a public housing development affect the physical and financial condition of the project itself. Severely distressed developments typically suffer from physical deterioration, obsolete systems, high vacancies, and high rates of vandalism, disorder, and crime. All of these problems make distressed developments costly to manage and maintain. The available evidence indicates that revitalizing distressed public housing not only produces better living environments for the residents, but also reduces operating costs over time.

Project Conditions

Our analysis focuses on three key indicators of project conditions for which data are available:

- (1) the score from HUD's Real Estate Assessment Center (REAC), which measures both physical and management conditions;
- (2) the share of project units that are vacant; and
- (3) the number of crimes per 100 residents.

For each of these indicators, we present data on initial conditions in the three prototype projects and draw from the available research evidence to estimate likely trends over time assuming a continuation of the status quo, demolition and mixed-income redevelopment, and substantial rehabilitation.

Physical Condition. Physically, "severely distressed" public housing is everything the label implies—dilapidated, often largely vacant buildings that show the effects of poor construction, managerial neglect, inadequate maintenance, and rampant vandalism. At the most basic level, these properties are generally old and structurally deteriorated, often have obsolete mechanical and electrical systems, and may have been poorly built or constructed with inappropriate materials (National Commission on Severely Distressed Public Housing 1992). These developments have huge backlogs of repairs, creating hazardous conditions that place residents at risk for injury or disease. A recent survey (Popkin et al. 2002) asked residents of five HOPE VI developments about the pre-revitalization conditions of their housing. Most reported multiple serious problems, including cockroach infestations, excessive mold, and heating and plumbing problems.

As discussed in chapter 3, the poor physical condition of the three prototypical developments is reflected by their low REAC scores. Table 5.1 reports these initial scores as well as expected scores over a twenty-year period assuming continuation of the status quo, demolition and replacement with mixed-income housing, and substantial rehabilitation.



In the *absence of any intervention*, the poor physical conditions would almost certainly persist. In fact, it would not be unreasonable to expect continued deterioration over time, depending on the age of the property, unit density, and the amount of routine maintenance capital investment in property by the local housing agency. However, because data on trends in REAC scores for distressed properties are not available, we have adopted the conservative assumption that physical conditions remain at their initial level in the absence of a HOPE VI intervention.

Under the *demolition and mixed-income redevelopment* scenario, the new developments would initially receive top scores on all the REAC items. An evaluation of newly built HOPE VI properties showed that “buildings and grounds continue to be very well-maintained” in mixed-income developments in DC, Atlanta, and Charlotte one to three years after the developments were fully occupied (Holin et al. 2003). Empirical data have not been collected on longer term management and maintenance performance in redeveloped HOPE VI sites. Although some decline in physical conditions is probably inevitable over a twenty-year period, the managers of mixed-income developments have strong incentives to maintain the condition of these properties in order to attract market-rate residents. New, mixed-income developments often impose entry criteria and penalties directed at excluding residents with histories of property damage or poor unit maintenance, further increasing the likelihood that the physical condition of this property will be maintained at a high level over time. Moreover, because one third of all properties evaluated by REAC in 1999 received an excellent rating, it seems reasonable to anticipate that new developments would continue to receive high REAC scores over a twenty-year period. However, actual REAC scores tend to vary more widely for medium-sized and smaller public housing developments than for very large developments. Therefore, we assume that REAC scores for prototypes two and three would decline slightly more over time than for prototype one.

Under the *substantial rehabilitation* scenario, physical conditions would also improve dramatically at first, but could be expected to deteriorate somewhat faster over time than new construction. A survey of residents found slightly lower satisfaction with apartment quality and maintenance among residents in rehabbed units in Cleveland and Oakland, but higher satisfaction in Milwaukee, compared to residents in new, mixed-income developments (Holin et al. 2003). Because the substantial rehab scenario maintains the developments as 100 percent public housing, the absence of income mixing and higher occupancy standards may mean that property conditions will deteriorate faster than a new, mixed-income property. The rate of deterioration will depend on the quality of the rehabilitation, age of the building, infrastructure problems not addressed by rehab, management performance and funding availability for routine maintenance. Data on actual REAC scores show wider variation for small developments than for very large developments, with more developments receiving lower scores. In addition, large projects that are geographically isolated tend to have lower REAC scores.



**Table 5.1:
Expected REAC Scores for Prototype Projects under Alternative Scenarios**

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|---------------------------|-----------|--------------|--------------|--------------|
| Initial Conditions | | 68 | 68 | 67 |
| Status Quo | Yrs 1–5 | 68 | 68 | 67 |
| | Yrs 6–10 | 68 | 68 | 67 |
| | Yrs 11–15 | 68 | 68 | 67 |
| | Yrs 16–20 | 68 | 68 | 67 |
| Mixed-Income | Yrs 1–5 | 98 | 98 | 95 |
| | Yrs 6–10 | 96 | 95 | 92 |
| | Yrs 11–15 | 93 | 92 | 89 |
| | Yrs 16–20 | 90 | 89 | 86 |
| Sub Rehab | Yrs 1–5 | 95 | 95 | 92 |
| | Yrs 6–10 | 92 | 92 | 89 |
| | Yrs 11–15 | 89 | 89 | 86 |
| | Yrs 16–20 | 86 | 86 | 83 |

Vacancies. Severely distressed developments often have high vacancy rates, which not only reflect substandard living conditions, but also exacerbate a property’s physical and financial distress. The Commission on Severely Distressed Public Housing highlighted the role of high vacancies, explaining that once vacancies reach a certain threshold, they often spiral out of control. Maintenance staffs cannot keep pace with the volume of units that need to be readied for re-occupancy, and occupancy staff may get backlogged on the tenant selection and certification process. As a result, units remain vacant for long periods, creating opportunities for squatters and drug traffickers to move in, and leading to vandalism and physical abuse of the property (National Commission on Severely Distressed Public Housing 1992).

As discussed in chapter 3, all three of the prototype projects have high vacancy rates. Table 5.2 reports these initial rates as well as anticipated vacancy rates over a twenty-year period assuming continuation of the status quo, demolition and replacement with mixed-income housing, and substantial rehabilitation.

In the *absence of any intervention*, vacancy rates would likely remain high. In fact, a pessimistic forecast would reflect rising vacancy rates as physical and management conditions continued to worsen. However, because data on vacancy rate trends for distressed properties



are not available, we have adopted the conservative assumption that vacancies will remain constant over time in the absence of a HOPE VI intervention.

Under the *demolition and mixed-income redevelopment* scenario, the new public housing units should have very low vacancy rates. An early evaluation of recently completed HOPE VI developments found that vacancy rates in five mixed-income developments ranged from 4.9 percent to 19.4 percent. High quality physical conditions and effective management (reflected by the high REAC scores discussed earlier) would be expected to keep occupancy rates low over time. Because prototype two is a small property, located at an intermediate distance from low-poverty areas, it seems likely to achieve and maintain a lower vacancy rate (3 percent), while the larger projects are more likely to experience vacancy rates of 5 percent.

Table 5.2:
Expected Public Housing Vacancy Rates for
Prototype Projects under Alternative Scenarios

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|---------------------------|-----------|--------------|--------------|--------------|
| Initial Conditions | | 37.1 | 20.1 | 15.6 |
| Status Quo | Yrs 1–5 | 37.1 | 20.1 | 15.6 |
| | Yrs 6–10 | 37.1 | 20.1 | 15.6 |
| | Yrs 11–15 | 37.1 | 20.1 | 15.6 |
| | Yrs 16–20 | 37.1 | 20.1 | 15.6 |
| Mixed-Income | Yrs 1–5 | 5.0 | 3.0 | 5.0 |
| | Yrs 6–10 | 5.0 | 3.0 | 5.0 |
| | Yrs 11–15 | 5.0 | 3.0 | 5.0 |
| | Yrs 16–20 | 5.0 | 3.0 | 5.0 |
| Sub Rehab | Yrs 1–5 | 5.0 | 5.0 | 10.0 |
| | Yrs 6–10 | 5.0 | 5.0 | 10.0 |
| | Yrs 11–15 | 5.0 | 5.0 | 10.0 |
| | Yrs 16–20 | 5.0 | 5.0 | 10.0 |

Under the *substantial rehabilitation* scenario, vacancy rates would also be relatively low. However, because the properties would still be 100 percent public housing, we do not expect any of the prototypes to have vacancy rates below 5 percent, and forecast a 10 percent vacancy rate for prototype three because it is located so far from low-poverty areas.

Crime. Exacerbating the problems of physical deterioration, weak management, and high vacancies, violent criminals and drug dealers dominate many distressed developments, causing residents to live in constant fear and luring young people into criminal activities. In a



survey of residents living in a sample of developments slated for HOPE VI investments (Popkin et al. 2002), nearly three-quarters reported major problems with drug trafficking and drug sales in their developments. Two-thirds reported that shootings and violence were also big problems, and half reported that they did not feel safe just outside their own buildings. The high levels of crime and disorder result not only from the over-concentration of profoundly poor and troubled families, but also from ineffective management. In many developments, leases are not enforced, disruptive and destructive residents are not evicted, vacant units are not secured, and policing is inadequate.

Data are not available on crime rates for the properties used to construct our three prototypes. However, studies of HOPE VI developments report rates ranging from as low as 9 crimes per 100 residents to a high of 41 crimes per 100 residents (Popkin et al. 2002; Holin et al. 2003). We have assigned an average rate of 22 crimes per 100 residents to prototype 1; 17 crimes per 100 residents to prototype 2 (because it is smaller and therefore likely more manageable); and 33 crimes per 100 residents to prototype 3 (because its distance from low-poverty neighborhoods likely increases the incidence of crime in the immediate vicinity). Table 5.3 reports these initial assignments as well as expected trends crime rates over a twenty-year period assuming continuation of the status quo, demolition and replacement with mixed-income housing, and substantial rehabilitation.

Under the *demolition and mixed-income redevelopment* scenario, crime rates are expected to drop significantly. Post-occupancy assessments indicate that the incidence of disorder, vandalism, and crime are dramatically lower in newly developed sites, with crime rates for selected projects close to the citywide rate (Holin et al 2003). Moreover, the new mixed-income developments often impose entry criteria that exclude ex-offenders. Crime rates are likely to be lowest in small properties (represented by prototype two) and highest in properties that are located farthest from low-poverty areas (represented by prototype three).

Table 5.3:
Expected Number of Crimes per 100 Residents for
Prototype Projects under Alternative Scenarios

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|---------------------------|-----------|---------------------|---------------------|---------------------|
| Initial Conditions | | | | |
| Status Quo | Yrs 1–5 | 22 | 17 | 33 |
| | Yrs 6–10 | 22 | 17 | 33 |
| | Yrs 11–15 | 22 | 17 | 33 |
| | Yrs 16–20 | 22 | 17 | 33 |
| Mixed-Income | Yrs 1–5 | 8 | 7 | 15 |
| | Yrs 6–10 | 8 | 7 | 15 |



| | | | | |
|------------------|-----------|----|---|----|
| | Yrs 11–15 | 8 | 7 | 15 |
| | Yrs 16–20 | 8 | 7 | 15 |
| Sub Rehab | Yrs 1–5 | 10 | 8 | 18 |
| | Yrs 6–10 | 10 | 8 | 18 |
| | Yrs 11–15 | 10 | 8 | 18 |
| | Yrs 16–20 | 10 | 8 | 18 |

Under the *substantial rehabilitation* scenario, crime rates are also likely to be reduced due to improved physical conditions and better management. Again, post-occupancy assessments of HOPE VI sites reflect crime rates close to the citywide rate and residents of these developments report reductions in problems of disorder (Holin et al. 2003). However, crime rates are not likely to be quite as low as in the newly developed mixed-income properties.

Public Costs

All the factors that contribute to making a public housing development severely distressed raise the costs of maintenance and management, while reducing revenues from tenant rent contributions (Harvard University Graduate School of Design 2003). Thus, the available evidence indicates that new and substantially rehabilitated public housing is less costly to operate than obsolete, physically deteriorated properties. However, when public housing is demolished and replaced with mixed-income housing, the total number of public housing units is generally reduced and portable housing vouchers are provided instead. Drawing from available research evidence, we estimate the likely trends in two main categories of costs born by local housing agencies (and subsidized by HUD):

- (1) public housing operating and capital costs; and
- (2) housing voucher costs.

As discussed in chapter 2, these estimates reflect the costs of providing affordable housing to a constant number of very low-income households across all three scenarios. Specifically, the number of households served corresponds to the number initially living in a prototypical development. Rents for private market and LIHTC units in the mixed-income development are assumed to cover the operating costs, debt service, and replacement reserves for these units. In other words, these units neither require additional subsidies from HUD or the housing authorities, nor do they generate net revenues to offset other costs.

Public Housing Operating and Capital Costs. The physical problems that characterize distressed public housing developments demand extra time from maintenance and repair staff,



thereby raising the costs of basic operations. In its recently completed study of the costs of operating subsidized rental housing, the Harvard Graduate School of Design developed a multivariate model to predict per-unit operating costs based on property characteristics and location (Harvard University Graduate School of Design 2003). Project age, share of units that are assisted, and the poverty rate of the surrounding neighborhood all significantly affect predicted operating costs. The parameters of this model were applied to the characteristics of our prototype projects for the three alternative scenarios to yield estimated per unit operating costs for the public housing units.

These per unit costs were then multiplied by the number of public housing units, and adjusted for tenant rent contributions, which were estimated at 30 percent of the average household income times the number of occupied units. Chapter 6 discusses the estimates of household income levels, which are expected to be higher when enhanced supportive services are provided than when only basic supportive services are available.

Currently, capital funding for public housing (provided by HUD to local housing agencies) averages \$2,426 per unit (Fischer and Sard 2002). Capital needs are higher for severely distressed projects than for the average project in the existing public housing inventory. But, because data are not available at the project level, we apply the average per unit spending level for the status quo scenario. Newly constructed and replacement units are excluded from HUD's calculation of capital funding needs. However, it is unreasonable to assume that they require no capital expenditures over a twenty-year period. On the advice of knowledgeable practitioners, we assume that annual per unit capital costs are 60 percent lower for new and rehabilitated units than for existing units. Table 5.4 presents the results of all these calculations for the first five-year period for each of the three prototypical developments under the various redevelopment scenarios.

**Table 5.4:
Estimated Annual Public Housing Operating and
Capital Costs Under Alternative Scenarios (years 1-5)**

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|------------------------|--------------|---------------------|---------------------|---------------------|
| Operating cost/unit | Status Quo | \$9,336 | \$8,656 | \$8,444 |
| | Mixed-Income | \$7,721 | \$7,158 | \$6,983 |
| | Sub Rehab | \$8,448 | \$7,832 | \$7,640 |
| Avg tenant income | Status Quo | \$8,913 | \$7,909 | \$7,336 |
| | Mixed-Income | \$8,913 | \$7,909 | \$7,336 |
| | Sub Rehab | \$8,913 | \$7,909 | \$7,336 |
| Net ph operating costs | Status Quo | \$7,654 | \$6,812 | \$7,058 |
| | Mixed-Income | \$5,180 | \$4,857 | \$4,892 |
| | Sub Rehab | \$5,907 | \$5,578 | \$5,660 |



| | | | | |
|----------------------|--------------|---------|---------|---------|
| Capital cost/unit | Status Quo | \$2,426 | \$2,426 | \$2,426 |
| | Mixed-Income | \$1,456 | \$1,456 | \$1,456 |
| | Sub Rehab | \$1,456 | \$1,456 | \$1,456 |

Housing Voucher Costs. The mixed-income redevelopment scenario reduces the total number of public housing units, providing portable vouchers in their place. For comparability purposes, we calculate the costs associated with serving the same number of households under each scenario. Therefore, the number of vouchers is calculated as the difference between the number of households initially living in a prototypical development (net of vacancies) and the number of households living in the redeveloped public housing (again, net of vacancies). The average cost per voucher, including administrative fees and adjusted for tenant contributions, is \$7,149. This average is applied to the number of vouchers for each prototypical project.

Costs of Inaction. Table 5.5 summarizes the implications of the assumptions and forecasts outlined above, reporting the estimated annual costs to the PHA (and HUD) for each prototype project under the three alternative scenarios: the status quo; demolition and mixed-income redevelopment; and substantial rehabilitation. For all three prototypes, the results indicate that total costs born by the PHA would be dramatically lower for both the mixed-income redevelopment scenario and the substantial rehabilitation scenario than for the status quo. The mixed-income scenario yields slightly larger cost savings from the PHA perspective than the substantial rehab scenario.

Table 5.5:
Total Estimated Annual Public Housing Costs under Alternative Scenarios

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|---------------------|------------------------|--------------|--------------|--------------|
| Status Quo | Net PH operating costs | \$5,366 | \$1,070 | \$2,456 |
| | PH capital costs | \$1,701 | \$381 | \$844 |
| | Voucher costs | \$0 | \$0 | \$0 |
| | Annual project costs | \$7,066 | \$1,450 | \$3,300 |
| Mixed-Income | Net PH operating costs | \$808 | \$170 | \$378 |
| | PH capital costs | \$227 | \$51 | \$113 |
| | Voucher costs | \$2,093 | \$457 | \$1,014 |
| | Annual project costs | \$3,128 | \$678 | \$1,505 |
| Sub Rehab | Net PH operating costs | \$2,741 | \$580 | \$1,375 |
| | PH capital costs | \$675 | \$151 | \$354 |
| | Voucher costs | \$0 | \$0 | \$0 |
| | Annual project costs | \$3,416 | \$732 | \$1,729 |



CHAPTER SIX: PUBLIC COSTS AND BENEFITS: THE ORIGINAL RESIDENTS

Investing in the redevelopment of distressed public housing affects not only the physical development, but also the lives of the residents themselves. Residents of severely distressed public housing suffer from living in poor housing conditions and in neighborhoods with high crime rates. Most have poor mental and physical health and few are fully or stably employed. Research demonstrates that families who relocate from distressed public housing to redeveloped public housing or to the private market with vouchers enjoy better housing conditions, safer neighborhoods, and in some circumstances, lower rates of obesity, improved mental health, and higher rates of employment. These improvements in resident outcomes translate into cost savings to the public sector, through decreased Temporary Assistance for Needy Families (TANF) and unemployment insurance costs, higher local income tax revenues, lower costs to the criminal justice system, and lower Medicaid spending. These public sector savings are partially offset by lost federal tax revenue from greater use of the Earned Income Tax Credit (EITC).

Resident Outcomes

We analyzed resident outcomes along four dimensions for which there exists credible research evidence regarding the effects of redevelopment:

- (1) housing conditions,
- (2) neighborhood safety and drug problems,
- (3) obesity and mental health, and
- (4) employment rates.

Many advocates for HOPE VI have argued that redevelopment is likely to yield other resident benefits as well—particularly in the area of school success and educational attainment—and that these benefits could result in dramatic long-term cost savings to the public sector. However, evidence of such effects is not available. For each dimension of resident outcome considered here, we outline assumptions on initial conditions for the three prototype projects and use available evidence to forecast trends over time assuming the status quo, demolition and mixed-income redevelopment, and substantial rehabilitation. This analysis focuses on outcomes for a hypothetical population of residents that would live in the distressed development over two decades in the absence of redevelopment. The mixed-income redevelopment scenario assumes that some of this population receives vouchers and some



return to the revitalized development, while the substantial rehabilitation scenario assumes that the population lives in the renovated development.⁹

Housing Conditions. The physical problems of severely distressed public housing outlined in chapter 5 have important implications for the quality of residents' lives. The HOPE VI Panel study found that only 64 percent of residents living in severely distressed housing reported satisfaction with their unit (Popkin 2002), and that a majority reported multiple serious problems such as heating and plumbing malfunction, moldy walls, and infestation with rats or cockroaches.

With no intervention, poor housing conditions would almost certainly persist and might reasonably be expected to worsen over time. However, as discussed in chapter 5, there is an absence of concrete evidence regarding the degree to which housing conditions continue to decline in severely distressed housing. Therefore, we project no change in levels of resident satisfaction from an initial satisfaction rating of 64 percent of residents.

Under a *demolition and mixed-income redevelopment intervention*, residents report many fewer problems with their housing units and give higher ratings of the overall unit conditions. For instance, residents who participated in the MTO demonstration (and received vouchers to move into private market units) were 9.9 percentage points more likely to report living in housing that was "good or excellent" (Orr et al 2003). Similarly, among residents of distressed public housing who relocated with a voucher or moved to a new HOPE VI development, the proportion reporting housing problems dropped by 28.8 and 45.1 percentage points.¹⁰ Based on these findings, we project that 74 percent of residents would rate the quality of their unit as satisfactory. As with REAC scores (see chapter 5), we project some small decline in the quality of these replacement housing units over time, shown in table 6.1.

With substantial rehabilitation of the development, housing conditions would also improve, but conditions would likely deteriorate more quickly. We expect resident ratings of unit quality to rise to 74 percent initially, but to fall back to 67 percent over the 20-year project horizon.

⁹ Note even in the absence of HOPE VI, public housing residents move, so that the population of original residents would not be expected to remain in the development over twenty years, even under that status quo scenario. However, it is likely that in the absence of a redevelopment intervention, the mix of residents and the problems they face would remain essentially the same.

¹⁰ These figures are from unpublished analysis of data from the HOPE VI Panel Survey.



**Table 6.1:
Expected Levels of Resident Satisfaction with Housing Unit Condition**

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|---------------------------|-----------|--------------|--------------|--------------|
| Initial Conditions | | 64 | 64 | 64 |
| Status Quo | Yrs 1-5 | 64 | 64 | 64 |
| | Yrs 6-10 | 64 | 64 | 64 |
| | Yrs 11-15 | 64 | 64 | 64 |
| | Yrs 16-20 | 64 | 64 | 64 |
| Mixed-Income | Yrs 1-5 | 74 | 74 | 74 |
| | Yrs 6-10 | 73 | 73 | 73 |
| | Yrs 11-15 | 71 | 71 | 71 |
| | Yrs 16-20 | 70 | 70 | 70 |
| Sub Rehab | Yrs 1-5 | 74 | 74 | 74 |
| | Yrs 6-10 | 72 | 72 | 72 |
| | Yrs 11-15 | 69 | 69 | 69 |
| | Yrs 16-20 | 67 | 67 | 67 |

Neighborhood and Safety. High crime rates in severely distressed public housing and the surrounding neighborhoods have serious detrimental effects for public housing residents. Research indicates that exposure to violence has long-lasting negative impacts on children’s mental health and susceptibility to substance abuse (Kilpatrick et al. 2003). The HOPE VI Panel study baseline survey results found that 74.8 percent of residents in severely distressed public housing units reported problems with violence and 87 percent reported serious problems with drug use, drug selling, and/or loitering in their neighborhood (Popkin et al. 2002). We apply these rates to all three of our prototype developments.

Under *no intervention*, it is possible that conditions might continue to decline to those seen in the very worst of the inventory of severely distressed public housing projects, particularly in very large housing projects that are located far from low-poverty neighborhoods. For instance, in one very large public housing development in Chicago, virtually every resident (94.3 percent) reported problems with drugs in the neighborhood. Generally, however, evidence of decline or improvement in neighborhood safety is not available for the distressed public housing inventory. Therefore, in the absence of any intervention, we project that the proportion of residents experiencing problems of violence or drugs in their neighborhood would remain steady over time, as shown in table 6.2.

Under a *demolition and mixed-income redevelopment scenario*, we forecast dramatic declines in the proportion of residents experiencing problems with drugs and violence. Surveys of residents living in new mixed-income developments or who were relocated with vouchers under HOPE VI found that just 18.2 percent reported problems with violence and 23.5 percent reported problems with drugs or loitering in their neighborhood. Similar reductions were reported for other measures of neighborhood safety as well (Popkin and Cove 2007). Based on these



findings, we project that residents of prototypes 1 and 2 would experience improvements similar to those seen among HOPE VI panel study respondents. Because prototype 3 is far from a low-poverty area, we project that improvements would be substantial, but not as large, as shown in table 6.2.

Substantial rehabilitation can also be expected to produce improvements in safety for residents, but the change would likely not be as substantial as under the scenario involving mixed-income redevelopment and vouchers. Without a change in the tenant mix, problems with violence and drugs would decline, but not as dramatically as under a demolition and mixed-income scenario. The analysis of HOPE VI resident outcomes found that reports of problems with drugs in the neighborhood fell to 50 percent among residents who moved to other public housing (Popkin and Cove 2007). Further, we expect projects farther from low-poverty to experience smaller improvements. For prototypes 1 and 2, we project declines of 28 and 32 percentage points in the proportion of residents reporting problems with violence and drugs, respectively. For prototype 3, we expect these proportions to fall by 23 and 26 percentage points each, as shown in table 6.2.

Table 6.2:
Proportion of Residents Reporting Problems with Violence and Drug Use, Drug Selling, or Loitering, through Year 20 (Enhanced and Basic)

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|-----------------|--------------------|-------------|-------------|-------------|
| Violence | Initial Conditions | 75 | 75 | 75 |
| | Status Quo | 75 | 75 | 75 |
| | Mixed-Income | 18 | 18 | 30 |
| | Sub Rehab | 47 | 47 | 52 |
| Drugs/Loitering | Initial Conditions | 87 | 87 | 87 |
| | Status Quo | 87 | 87 | 87 |
| | Mixed-Income | 24 | 24 | 35 |
| | Sub Rehab | 55 | 55 | 61 |

Health. Residents of distressed public housing suffer from very poor health. Data from the HOPE VI Panel survey reflect substantially higher rates of obesity, hypertension, diabetes, arthritis and asthma when compared to relevant national populations. Three-quarters of the sample (75 percent) suffered from at least one of these conditions, and nearly 50 percent suffered from 2 or more of the problems (Manjarrez, Popkin, and Guernsey 2007). In addition, the HOPE VI Panel study found that 47 percent of residents in severely distressed public housing were obese (Harris and Kaye 2004) and that 29 percent reported poor mental health (Popkin et al. 2002). We apply these rates to all three of our prototypical projects at baseline.

With *no intervention*, health outcomes might continue to worsen in a prototypical development. However, without conclusive evidence for continuing declines in health, we



assume that rates of obesity would hold steady at 47 percent over time, and that rates of mental health problems would hold at 29 percent.

Existing research provides no evidence that a *mixed-income redevelopment scenario* with “basic” resident services would lead to improvements in resident obesity or mental health problems. However, “enhanced” services could reasonably be expected to yield significant improvements in resident health. Specifically, among families in the MTO demonstration (which represents the potential of enhanced relocation and mobility counseling services), obesity rates fell by 5.1 percentage points and the proportion suffering from mental health problems fell by 3.4 percentage points. Among families in MTO that actually moved to a low-poverty neighborhood, improvements were even greater, with declines of 10.8 and 7.3 percentage point in the rates of obesity and mental health problems, respectively (Orr et al. 2003). Given that not all former residents of our prototypical developments will move to a low-poverty neighborhood, we use the more conservative impact estimate that, under an enhanced service intervention, obesity rates would fall to 41.9 percent and the proportion suffering from mental health problems would fall to 25.6 percent.

Under a substantial rehabilitation strategy, it is possible that enhanced services might also yield improvements in resident health even though the project would remain 100 percent public housing. However, there is no solid research evidence for such an effect. As a result, we assume that rates of obesity and mental health problems hold steady at 47 and 29 percent, respectively, under both enhanced and basic interventions.

Table 6.3:
**Proportion of Residents Suffering from Obesity and
Mental Health Problems, Through Year 20 (%)**

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|---------|-------------------------|--------------------|-------------|-------------|
| Obesity | Initial Conditions | 47.0 | 47.0 | 47.0 |
| | Status Quo | 47.0 | 47.0 | 47.0 |
| | Mixed-Income (Basic) | 47.0 | 47.0 | 47.0 |
| | Mixed-Income (Enhanced) | 41.9 | 41.9 | 41.9 |
| | Sub Rehab (Basic) | 47.0 | 47.0 | 47.0 |
| | Sub Rehab (Enhanced) | 47.0 | 47.0 | 47.0 |
| | Mental Health | Initial Conditions | 29.0 | 29.0 |
| | Status Quo | 29.0 | 29.0 | 29.0 |
| | Mixed-Income (Basic) | 29.0 | 29.0 | 29.0 |
| | Mixed-Income (Enhanced) | 25.6 | 25.6 | 25.6 |
| | Sub Rehab (Basic) | 29.0 | 29.0 | 29.0 |
| | Sub Rehab (Enhanced) | 29.0 | 29.0 | 29.0 |

Employment. Rates of employment are extremely low among residents of distressed public housing developments. In the three prototype developments, only about one-quarter of residents received the majority of household income from earned income (table 6.4) and an



average of 39 percent of households received a majority of income from public benefits such as TANF. As discussed in chapter 2, these estimates are based on information in HUD's management information system on the characteristics of households living in the developments underlying the three prototypes. With *no intervention*, we project that both employment rates and TANF receipt will remain steady over time (table 6.4).

There is no evidence of employment gains under historic HOPE VI interventions. However, employment rates among residents participating in the Jobs-Plus demonstration (an intensive, place-based employment intervention targeted to public housing communities) increased by 9.4 percent (Bloom, Riccio, and Verma 2005). In addition, there is evidence that voucher holders who move to white, suburban low-poverty areas experience a slight increase in employment and decrease in TANF receipt (Keels et al 2005).

With basic services, neither *mixed-income redevelopment* nor *substantial rehabilitation* can be expected to yield any change in employment or TANF receipt. With enhanced services provided to residents in both the *mixed-income redevelopment scenario* and the *substantial rehabilitation scenarios*, we estimate that unemployment would fall by 9.4 percent in prototype 1, resulting in roughly one-third of households fully employed across all 20 years, as seen in the Jobs Plus program demonstration. Because prototypes 2 and 3 are located further from low-poverty areas and therefore likely offer fewer employment opportunities, we assume smaller decreases in unemployment rates, specifically 9.0 percent in prototype 2 and 8.5 percent in prototype 3. In addition, we expect TANF receipt to fall by 1 percent in the enhanced interventions for all prototypes.

Table 6.4:
Employment Rates and Welfare Dependence, Years 1-5

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|--|-------------------------|-------------|-------------|-------------|
| Percent with Majority of Income from Wages | No Intervention | 24.4 | 25 | 26.8 |
| | Mixed-Income (Basic) | 24.4 | 25 | 26.8 |
| | Mixed-Income (Enhanced) | 31.5 | 31.8 | 33 |
| | Sub Rehab (Basic) | 24.4 | 25 | 26.8 |
| | Sub. Rehab (Enhanced) | 31.5 | 31.8 | 33 |
| Percent with Majority of Income from Welfare | No Intervention | 42.3 | 40.2 | 34.5 |
| | Mixed-Income (Basic) | 42.3 | 40.2 | 34.5 |
| | Mixed-Income (Enhanced) | 41.3 | 39.2 | 33.5 |
| | Sub Rehab (Basic) | 42.3 | 40.2 | 34.5 |
| | Sub. Rehab (Enhanced) | 41.3 | 39.2 | 33.5 |

Public Costs

Resident health, employment and welfare dependence, and high crime in and around public housing developments impose high costs for the public sector, and the outcomes



associated with effective redevelopment are likely to reduce those costs. Specifically, improving resident health reduces the burden on the public health care system, while higher employment rates translate into lower costs for unemployment insurance, lower TANF costs, increased local income taxes, and lost revenue from greater EITC redemption. In addition, lower crime reduces the financial burden on the public for emergency response, criminal investigation and processing, legal proceedings, and incarceration. Using the expected changes in resident health and employment developed in this chapter, as well as the reductions in crime outlined in chapter 5, we develop expected public costs for each prototype development, under the two stylized interventions and under a continuation of the status quo.

Medicaid Costs. Obesity has been shown to increase the risk for a number of chronic health conditions, including type 2 diabetes, coronary heart disease, hypertension, stroke, osteoarthritis and various cancers, accounting for about 9 percent of major health care costs in 1998, or \$78.5 billion (Wolf 2002; Oster et al. 1999; Finkelstein, Fiebelkorn, and Wang 2003). Similarly, research shows there are high costs for treatment of mental health problems (Greenberg et al. 2003; Druss et al. 2001). This research indicates that treatment for obesity-related conditions and mental health problems among public housing populations incurs large costs to publicly funded health insurance programs.

Because precise data on the costs of specific health conditions are only available for Medicaid, we limit our estimates of public cost impacts for this program. Available research on the cost of mental health focus on treatment of depression. The measures of mental health we report in the preceding sections do not gauge clinical depression. In addition, available research on the cost of obesity do not independently identify the cost of mental health. Therefore, we present cost estimates for both the treatment of obesity-related health problems and treatment of depression (using data for mental health problems), but we only include the cost of obesity in the calculation of total resident costs, to avoid possible double-counting of health care costs due to a potential relationship between obesity and mental health conditions, or the attribution of too large a cost impact due to imprecise measurement of clinical depression among public housing populations.

Obesity. Annual Medicaid expenditures for obese individuals are on average \$1,153 (39 percent) higher than for individuals of a healthy weight.¹¹ Total outlays for obesity account for nearly 7 percent of total Medicaid expenditures. Note that these estimates include only outlays by Medicaid and do not include out-of-pocket expenses paid by the patient (Finkelstein, Fiebelkorn, and Wang, 2003). We estimate total public health costs for obese residents of the

¹¹ Obesity is defined as having a Body Mass Index greater or equal to 30. This cost was inflated to 2005 dollars using the BLS Medical Care price index.



prototype developments by applying this annual per-patient cost to the expected prevalence of obesity among residents under each intervention.

The annual cost of obesity-related treatment for residents is enormous. As shown in table 6.5, under no intervention, costs range from \$160,861 in the small, prototype 2 development, and reach \$717,097 at the large, prototype 1 development. While basic interventions do not yield reductions in obesity rates, an enhanced mixed-income redevelopment would save the public as much as \$77,813 each year (prototype 1). Savings are lower at smaller developments, and there are no expected cost savings from obesity improvements under a substantial rehabilitation intervention.

Table 6.5:
Annual Medicaid Cost of Original Residents
for Obesity-Related Medical Treatment

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|--------------------------------|---------|---------------------|---------------------|---------------------|
| Status Quo | Obesity | \$717,097 | \$160,861 | \$356,557 |
| | Savings | \$0 | \$0 | \$0 |
| Mixed-Income (Basic) | Obesity | \$717,097 | \$160,861 | \$356,557 |
| | Savings | \$0 | \$0 | \$0 |
| Mixed-Income (Enhanced) | Obesity | \$639,285 | \$143,405 | \$317,867 |
| | Savings | \$77,813 | \$17,455 | \$38,690 |
| Sub Rehab (Basic) | Obesity | \$717,097 | \$160,861 | \$356,557 |
| | Savings | \$0 | \$0 | \$0 |
| Sub Rehab (Enhanced) | Obesity | \$717,097 | \$160,861 | \$356,557 |
| | Savings | \$0 | \$0 | \$0 |

Mental Health. The cost of mental health treatment is also very high, and evidence shows it is especially high among Medicaid patients. In a large study of the costs of five chronic health conditions, Druss et al. (2001) found that treatment for mood disorders¹² cost Medicaid an average of \$1,691 per-patient annually. We apply this per-patient Medicaid cost estimate to the expected prevalence of mental health problems among populations at the prototype developments. It is important to note that the definition of mental health problems we use is not

¹² Mood disorders include depressive and manic-depressive disorders. If treatment of bipolar disease is on average more expensive than other depressive disorders and less likely to improve due to a change in neighborhood or housing conditions, then this estimate would be biased upward for the average case of depression among HOPE VI residents. Other research, however, indicates that depressive disorders are actually less expensive than manic-depressive disorders (Goetzal et al. 2003). Further, other studies find even higher per-patient costs of care for depressive disorders, leading us to believe that the estimate by Druss et al. 2001 is not unreasonable (see Druss, Rosenheck and Sledge 2000; Greenberg et al. 2003; and Simon et al. 2001).



the same as clinical depression. We use this rate along with the treatment cost of depression to reach a rough cost estimate of treating mental health problems, but we do not include the totals in the final public cost estimates for each intervention.

As shown in table 6.7, mental health problems bear a large public cost. Under no intervention, costs reach as high as \$648,581 at prototype 1 developments. Basic interventions do not lead to improvements in resident mental health, but an enhanced mixed-income and redevelopment intervention generates annual cost savings of as much as \$76,041 in prototype 1 developments. Savings are lower at smaller developments, and substantial rehabilitation does not yield any cost savings from improved mental health.

Table 6.6:
Annual Medicaid Cost of Original Residents for Mental Health Treatment

| | | Prototype #1 | Prototype #2 | Prototype #3 |
|--------------------------------|---------------|---------------------|---------------------|---------------------|
| Status Quo | Mental Health | \$648,581 | \$145,491 | \$322,489 |
| | Savings | \$0 | \$0 | \$0 |
| Mixed-Income (Basic) | Mental Health | \$648,581 | \$145,491 | \$322,489 |
| | Savings | \$0 | \$0 | \$0 |
| Mixed-Income (Enhanced) | Mental Health | \$572,541 | \$128,433 | \$284,680 |
| | Savings | \$76,041 | \$17,058 | \$37,809 |
| Sub Rehab (Basic) | Mental Health | \$648,581 | \$145,491 | \$322,489 |
| | Savings | \$0 | \$0 | \$0 |
| Sub Rehab (Enhanced) | Mental Health | \$648,581 | \$145,491 | \$322,489 |
| | Savings | \$0 | \$0 | \$0 |

Employment. Based upon the estimated changes in resident employment, we calculate expected reductions in unemployment insurance and TANF spending, increases in local income tax revenues, and decreased federal tax revenue from EITC. Note that, as shown in table 6.3, employment is not expected to change under the scenarios that offer the basic package of resident services. The figures in this section refer to changes under the scenarios that offer enhanced services.

To develop estimates of savings related to employment, we collected data on the average unemployment insurance spending, TANF benefits, and income tax rates for the cities in which the actual public housing developments used to construct our three prototypes are



located. In addition, we estimated the average per-household EITC for which a household at the average project income level is eligible.¹³ These average benefit levels are shown in table 6.7.

Table 6.7:
Average Benefit Levels by Prototype

| | Prototype 1 | Prototype 2 | Prototype 3 |
|---------------------------------|--------------------|--------------------|--------------------|
| Minimum Wage | 6.11 | 5.79 | 5.36 |
| Avg. Annual UI | 4,992 | 4,238 | 3,692 |
| Avg. Annual TANF | 5,892 | 4,554 | 3,875 |
| Avg. EITC | 3,570 | 3,170 | 2,930 |
| Avg. Local Inc. Tax Rate | 2.5% | 3.4% | 2.0% |

Unemployment Insurance. We calculated the change in annual public spending for resident unemployment insurance as the average annual per-household unemployment insurance expenditure multiplied by the expected number of unemployed households. Total costs under each intervention are displayed in table 6.8.

Local tax revenues. Public benefits from increased employment would extend to the city coffers for local governments that collect taxes on income. To estimate local income tax revenues, we multiplied the expected number of employed households by the average minimum wage rate. We assumed full-time employment (40 hours per week) and then applied the average of the tax rates for each prototype to the expected wages of the newly employed. The figures in table 6.8 show revenues from local income tax by prototype.

TANF. We calculated total public costs for TANF by multiplying the expected number of households receiving a majority of income from welfare by the average TANF benefits for the prototype cities. We assumed that residents would receive benefits for the first five years of the intervention, after which TANF eligibility would cease.

EITC. Public cost savings would be partially offset by lost federal income tax revenue due to greater use of the EITC by employed households. We calculated the average EITC for each prototype at the average project income level, and then used the expected employment rate for each intervention to determine the total revenue forgone for EITC.

¹³ Data were not available for each benefit, across all cities. Of the three illustrative cities in the third prototype category, two do not collect taxes on earned income, and we are unsure about the third. We applied a low tax rate of 2 percent for this category.



Table 6.8:
**Total Annual Public Spending and Revenues for Employment-related Programs,
Enhanced Intervention (years 1- 5, \$ thousands)**

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|------------------------------------|----------------------|--------------------|--------------------|--------------------|
| Unemployment Insurance Costs | No Intervention | \$1,664 | \$314 | \$593 |
| | Mixed-Income/Voucher | \$1,508 | \$286 | \$542 |
| | Sub. Rehab | \$1,508 | \$286 | \$542 |
| TANF Costs | No Intervention | \$1,099 | \$181 | \$293 |
| | Mixed-Income/Voucher | \$1,088 | \$179 | \$290 |
| | Sub. Rehab | \$1,099 | \$181 | \$293 |
| Local Income Tax Revenues | No Intervention | \$34 | \$10 | \$13 |
| | Mixed-Income/Voucher | \$44 | \$13 | \$16 |
| | Sub. Rehab | \$44 | \$13 | \$16 |
| Lost Federal Tax Revenue from EITC | No Intervention | \$384 | \$78 | \$172 |
| | Mixed-Income/Voucher | \$496 | \$100 | \$212 |
| | Sub. Rehab | \$496 | \$100 | \$212 |
| Total Net Annual Costs | No Intervention | \$3,113 | \$564 | \$1,045 |
| | Mixed-Income/Voucher | \$3,047 | \$552 | \$1,028 |
| | Sub. Rehab | \$3,058 | \$554 | \$1,031 |

As table 6.8 details, under the status quo, annual public costs for employment-related benefits range from \$564 thousand at prototype 2 to as high as \$3.1 million for prototype 1. An enhanced mixed-income redevelopment scenario generates between \$12 and \$66 thousand a year in expected savings for the first 5 years, depending on the project size. After 5 years, the level of savings falls back by \$11 thousand, due to time limits on TANF receipt. With substantial rehabilitation, annual savings range from \$10 to \$55 thousand across prototypes across all 20 years.

Crime

As discussed in chapter 5, crime at HOPE VI projects can be expected to drop from 44 percent to 67 percent compared to the status quo, with larger reductions expected in mixed-income projects than substantial rehabilitation projects. Decreases in crime rates at the HOPE VI developments translate into savings for the public from lower spending for police emergency response, criminal justice system processing, government-funded legal spending, and incarceration.

However, evidence of a substantial drop in crime rates at redeveloped HOPE VI sites is not the same as a net overall reduction in citywide crime. In other words, it is possible that HOPE VI interventions simply displace some crime, relocating it to other parts of the city. A growing body of research indicates that the deconcentration of poverty that occurs under HOPE



VI probably lowers total citywide crime rates due to nonlinearities in the relationship between neighborhood poverty and crime (see chapter 7 for a discussion of changes in neighborhood poverty rates under HOPE VI). Johnson, Ladd and Ludwig (2002) review the competing “linear” and “nonlinear” theories of the crime-poverty relationship.

Krivo and Peterson (1996) find evidence of nonlinearities in the relationship between neighborhood poverty and crime rates. Specifically, the authors demonstrate thresholds in poverty rates, above which crime rates jump up to much higher rates than would be implied by a linear relationship. Other researchers find evidence of social effects in criminal activity, which likely represents the mechanism underlying the nonlinear relationship between neighborhood poverty and crime (see Turner and Ellen 1997; Glaeser, Sacerdote, and Scheinkman 1996; Case and Katz 1991; Sampson, Raudenbush, and Earls 1997).

Given the available evidence, we estimate a modest net reduction in overall city crime as a result of the more substantial reductions anticipated in and around redeveloped public housing projects. Specifically, we assume that 15 percent of the drop in project crime rates (see table 5.3) represents a net citywide reduction. We expect this to be an immediate effect and that it will hold steady over time.

Cohen, Miller, and Rossman (1994) provide estimates of the public per-crime costs for murder, rape, robbery, aggravated assaults and nondrug felonies. It is worthwhile to note that the authors also find substantial personal costs from crime to victims (personal injury, time lost, cost of counseling, etc.), but we include only costs borne by the public sector, including emergency police response, criminal justice system processing, government-funded legal costs, incarceration, and federally-funded rape-victim counseling. Murders cost the public far more (\$139,667) than do nondrug felonies (\$5,716). Therefore, we calculated an average per-crime cost for each prototype based on the average county crime composition for each prototype using 2000 FBI Uniform Crime Report data. Average crime costs varied little across prototypes, ranging from \$6,334 at prototype 2 to \$6,393 at prototype 3.

Applying the average per-crime cost to the number of expected crimes yields the public costs of crime under different intervention scenarios. As shown in table 6.9, costs to the public from project-related crime are as high as \$1.8 million a year in prototype 1. A demolition and mixed-income redevelopment intervention cuts costs by \$169,945 a year at prototype 1, or 9.4 percent. Substantial rehabilitation yields slightly lower savings of \$144,768 for prototype 1, or 8 percent.



Table 6.9:
Annual Public Costs of Crime and Savings from Intervention, Basic and Enhanced (\$)

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|----------------------|----------------|-------------|-------------|-------------|
| | Per-Crime Cost | 6,344 | 6,334 | 6,393 |
| No Intervention | Number Crimes | 284 | 49 | 214 |
| | Annual Cost | \$1,804,352 | \$310,122 | \$1,366,618 |
| Mixed-Income/Voucher | Number Crimes | 258 | 45 | 196 |
| | Annual Cost | \$1,634,407 | \$281,929 | \$1,256,238 |
| | Cost Savings | \$169,945 | \$28,193 | \$110,381 |
| Sub. Rehab | Number Crimes | 262 | 45 | 199 |
| | Annual Cost | \$1,659,584 | \$284,749 | \$1,275,160 |
| | Cost Savings | \$144,768 | \$25,374 | \$91,458 |

Summary—Resident costs

Mixed-income redevelopment and substantial rehabilitation of distressed public housing can save the public sector large amounts of money, especially when coupled with appropriate supportive services that increase self-sufficiency among residents. Table 6.10 summarizes the total estimated public costs for resident obesity, low employment rates, and high neighborhood crime. Under the status quo, total costs reach as high as \$5.6 million annually at prototype 1. HOPE VI interventions save from \$145 to \$313 thousand a year, depending on the intervention and services provided. Expected savings are highest when enhanced resident services are provided. Also, because mixed-income redevelopment has a greater impact on the neighborhood conditions—which affect crime rates, opportunities for employment, and problems of obesity—this intervention produces greater expected public savings than a substantial rehabilitation strategy. The next chapter provides more detail on the specific neighborhood impacts expected under alternative HOPE VI interventions.



Table 6.10:
Total Annual Resident Costs to the Public (Years 1-5, \$ thousands)

| | | Prototype 1 | Prototype 2 | Prototype 3 |
|------------|-------------------------|-------------|-------------|-------------|
| Obesity | No Intervention | \$717 | \$161 | \$357 |
| | Mixed-Income (Basic) | \$717 | \$161 | \$357 |
| | Mixed-Income (Enhanced) | \$639 | \$143 | \$318 |
| | Sub Rehab (Basic) | \$717 | \$161 | \$357 |
| | Sub. Rehab (Enhanced) | \$717 | \$161 | \$357 |
| Employment | No Intervention | \$3,113 | \$564 | \$1,045 |
| | Mixed-Income (Basic) | \$3,113 | \$564 | \$1,045 |
| | Mixed-Income (Enhanced) | \$3,047 | \$552 | \$1,028 |
| | Sub Rehab (Basic) | \$3,113 | \$564 | \$1,045 |
| | Sub. Rehab (Enhanced) | \$3,058 | \$554 | \$1,031 |
| Crime | No Intervention | \$1,804 | \$310 | \$1,367 |
| | Mixed-Income (Basic) | \$1,634 | \$282 | \$1,256 |
| | Mixed-Income (Enhanced) | \$1,634 | \$282 | \$1,256 |
| | Sub Rehab (Basic) | \$1,660 | \$285 | \$1,275 |
| | Sub. Rehab (Enhanced) | \$1,660 | \$285 | \$1,275 |
| Total | No Intervention | \$5,634 | \$1,035 | \$2,768 |
| | Mixed-Income (Basic) | \$5,464 | \$1,007 | \$2,657 |
| | Mixed-Income (Enhanced) | \$5,321 | \$978 | \$2,602 |
| | Sub Rehab (Basic) | \$5,490 | \$1,009 | \$2,676 |
| | Sub. Rehab (Enhanced) | \$5,435 | \$1,000 | \$2,663 |
| Savings | No Intervention | \$0 | \$0 | \$0 |
| | Mixed-Income (Basic) | \$170 | \$28 | \$110 |
| | Mixed-Income (Enhanced) | \$313 | \$57 | \$165 |
| | Sub Rehab (Basic) | \$145 | \$25 | \$91 |
| | Sub. Rehab (Enhanced) | \$199 | \$35 | \$105 |



CHAPTER SEVEN: PUBLIC COSTS AND BENEFITS: THE SURROUNDING NEIGHBORHOOD¹⁴

Severely distressed public housing developments contribute to the concentration of poverty in inner-city neighborhoods, spurring disinvestment, undermining area property values, and weakening the city's tax base. Historically, public housing exacerbated the concentration of poverty in central city neighborhoods (Schill and Wachter 1995), contributing to disinvestment and distress. Large, troubled public housing developments have also been shown to negatively affect property values (Galster 2002). In this chapter, we present new evidence of the link between the concentration of public housing and neighborhood poverty rates. Then, drawing from recent research showing the positive impact of HOPE VI redevelopments on neighborhood property values, we estimate the change in local property tax revenues likely to result from both the demolition and mixed-income redevelopment strategy and the substantial rehabilitation strategy in each of the prototype developments.

Neighborhood Poverty and Distress

To examine the impact of public housing developments on neighborhood poverty rates, we linked data (discussed in chapter 2) on the location, size, and physical condition of public housing developments with Census 2000 data on the characteristics of the surrounding census tracts. These linked data were used to empirically assess the influence of public housing characteristics and other neighborhood characteristics on neighborhood poverty in a multivariate regression model. The final analytical sample includes 6,414 census tracts in metropolitan areas that all have some public housing, at least 100 non-public housing households, and nonmissing values for key analytical variables.¹⁵ We present general results from the final model and test outcomes for the intervention scenarios.

Our findings are consistent with other research showing that the characteristics of public housing developments are related to neighborhood (census tract) poverty rate, as well as to the poverty rate among non-public housing households in the neighborhood. Even after controlling for other measures of disadvantage, proximity to business districts, and distance from low-poverty neighborhoods, the structural and socio-economic characteristics of public housing developments still significantly predict neighborhood poverty. Many of the results aligned with expectations. For example, higher numbers of public housing units are associated with higher

¹⁴ Megan Gallagher of the Urban Institute conducted the multivariate analysis of linkages between public housing developments and census tract characteristics.

¹⁵ No developments managed by the housing agencies of Chicago, New York City, or Puerto Rico are included in this analysis because some developments operated by these three agencies extend to entire Census tracts and not just single public housing developments within a tract.



poverty rates, and greater proximity to low-poverty (less than 10 percent) neighborhoods is related to a lower non–public housing household poverty rate.

The magnitude of public housing’s impact on the surrounding neighborhood varies considerably. The most important characteristic of public housing developments was the negative impact of the share of all households that live in public housing—or the concentration of public housing in the neighborhood. A ten-percentage point *increase* in the proportion of households that are public housing residents is associated with a 4.5-percentage point *increase* in the non–public housing household poverty rate. These models explain a great deal of the total variation in poverty rates among non–public housing households. Specifically, the R-Squared is 0.77 for the final analytical model predicting overall tract poverty and 0.64 for the model predicting non–public housing household poverty.

To assess the impact of alternative redevelopment strategies on the characteristics of the surrounding neighborhoods, we applied the coefficients from the multivariate model discussed above to the characteristics of actual census tracts for each one of the three prototype developments. Each prototype was assigned a census tract based upon the locations of the actual projects used to construct the prototypes. Table 7.1 presents the average predicted poverty rate for each intervention, over a 20-year time horizon.¹⁶

Generally, demolition and mixed-income redevelopment is predicted to roughly halve the neighborhood poverty rate, and decrease the poverty rate among non–public housing households by between 38 and 76 percent, depending on initial conditions. In contrast, substantial rehabilitation of the development has no predicted impact on either the overall neighborhood poverty rate or the rate among non–public housing households.

Prototype 1. This project is located in a census tract that is overwhelmingly minority (96.1 percent), with a high rate of unemployment (31.6 percent) and a high dropout rate (16.3 percent). The proportion of all housing units in the tract that are public housing units is very high (96.5 percent), suggesting that the prototypical project dominates this tract. However, the proportion of occupied units that are public housing households is lower (55.3 percent) due to the project’s high vacancy rate.

Assuming *no intervention*, this tract would be expected to have an overall poverty rate of 67.6 percent and a non–public housing poverty rate of 41.4 percent. With *demolition and mixed-income redevelopment*, the tract poverty rate is estimated to decline to 32.7, and the non–public housing household poverty rate is estimated at 14 percent. With a larger proportion of market-rate residents (67 percent), the tract unemployment is estimated to drop substantially (from 31.6 to 10 percent), as is the school drop-out rate (from 16.3 to 5 percent), and the proportion of

¹⁶ Predicted poverty rates vary by less than 1 percentage point over the 20 year project horizon.



minority households (from 96.1 to 75 percent). With *substantial rehabilitation* of the development, the overall poverty rate would hold virtually steady at 67.5 percent, as would the non–public housing household poverty rate, which is expected to be 41.2 percent.

**Table 7.1:
Predicted Neighborhood Poverty Rate after Intervention**

| | Prototype 1 | Prototype 2 | Prototype 3 |
|---|--------------------|--------------------|--------------------|
| Neighborhood Poverty Rate | | | |
| No Intervention | 67.6 | 50.9 | 52.2 |
| Mixed-Income/Voucher | 32.7 | 26.9 | 28.0 |
| Sub. Rehab | 67.5 | 51.6 | 52.9 |
| Non-Public Housing Resident Poverty Rate | | | |
| No Intervention | 41.4 | 32.9 | 35.7 |
| Mixed-Income/Voucher | 14.0 | 20.3 | 21.3 |
| Sub. Rehab | 41.2 | 33.5 | 36.2 |

Prototype 2. The tract surrounding the development is 100 percent minority, with a high rate of unemployment (24.8 percent) and a high dropout rate (15.9 percent). About one-third of all units in the tract are public housing units (37.1 percent). The proportion of occupied units that are public housing households is also about one-third (32 percent) even though the vacancy rate is not very low (18.4 percent).

Assuming no intervention, we expect this tract to have an overall tract poverty rate of 50.9 percent and a non–public housing poverty rate of 32.9 percent. Replacing the public housing project with a *new mixed-income redevelopment*, we expect the poverty rate to fall to 26.9 percent, and the non–public housing household poverty rate to decrease to 20.3 percent. We assume that after redevelopment only 10 percent the tract’s housing units are public housing. With an even greater proportion of market-rate residents (90 percent), the tract unemployment would drop (from 24.8 to 10 percent), as would the rate of dropout (from 15.9 to 5 percent), and the proportion of minority households (from 100 to 75 percent). With *substantial rehabilitation*, the overall tract poverty rate is expected to be 51.6 percent and the non–public housing household poverty rate is expected to be 33.5 percent.

Prototype 3. The tract surrounding the development is almost entirely minority (99.3 percent); a quarter of all 16-19-year-olds have dropped out (24.1 percent) and a fifth of all workers are unemployed. Public housing units comprise over half of all housing units in the tract (53.9 percent), but almost half of all units are vacant (46.1 percent). The proportion of occupied units that are public housing households is about one-third (32.4 percent).



In the absence of any intervention, this tract would have a poverty rate of 52.2 percent and a non–public housing poverty rate of 35.2 to 36.1 percent. *Demolition and mixed-income redevelopment* would result in an overall tract poverty rate of 28 percent and a non–public housing household poverty rate of 21.3 percent. Here we assume that public housing units will make up a smaller proportion of all units in the new development—a decrease to 10 percent. A high REAC score and a low vacancy rate would result in 10 percent of all occupied units occupied by public housing households. More market-rate residents (90 percent) would result in a lower unemployment rate (10 versus 20.4 percent), dropout rate (5 versus 24.1 percent), and rate of minority households (75 versus 99.3 percent). Finally, under the *substantial rehabilitation* scenario, the overall tract poverty rate would be expected to be 52.9 percent and the non–public housing household poverty rate is expected to be 36.2 percent.

Public Revenues: Property Taxes

To date, little rigorous empirical research has been conducted to quantify the impact of HOPE VI investments on property values and city tax revenue. Previous research examining the impacts of public housing has shown either a small negative or small positive effect of subsidized housing on area property values (Lee, Culhane, and Wachter 1999; Simons and Sharkey 1997). Lee et al. (1999) found that Section 8 New Construction and Rehabilitation was the only rental housing program that had a positive impact on property values, though the effect was small. Research focusing on the impact of HOPE VI specifically has shown positive neighborhood impacts from redevelopments. Bair and Fitzgerald (2005) examined the impact of HOPE VI on area property values using Census data in a hedonic real estate price model and found that proximity to traditional public housing had little to no effect on nearby housing values, but that HOPE VI developments significantly increased property values in the neighborhood. Specifically, within a one and a half-mile radius of the development, home values increased roughly 8 to 10 percent for every quarter-mile closer the unit was to the HOPE VI development. Zielenbach (2003) and Turbov and Piper (2005) also find evidence of positive impacts of HOPE VI developments on surrounding neighborhoods, though neither study controls rigorously for other confounding factors influencing neighborhood changes.

For our purposes, the most relevant analysis to date comes from a study of the impact of six mixed-income HOPE VI redevelopments on neighborhood property values in Philadelphia (PHA 2005). Using city property sales records, the authors found that there were substantial increases in neighborhood property values and city property tax revenue as a result of the HOPE VI redevelopment. Specifically, between 1995 and 2004, prices of homes located near these six redeveloped sites increased by an annual average of 9.0 percent, compared to an average annual rate of 6.5 percent in the citywide median home sales price. The study found that the redeveloped sites raised area home values by over \$200 million, generating more than \$4 million in additional property taxes for the city.



Based on these findings, we forecast that property values of housing units near the HOPE VI sites would rise, and that the level of increase would be affected by the proximity to low-poverty areas and size of the development. Specifically, we estimate expected property value increases for the surrounding neighborhood, using the Philadelphia findings as a starting point. Assuming a 3 percent annual inflation rate, we calculate the cumulative gain in real annual property taxes from a HOPE VI redevelopment, net of the revenues from property value appreciation at the citywide average rate. We assume a 1.43 percent property tax rate, which is the average effective tax rate assessed on median value homes across a sample of U.S. cities (Minnesota Taxpayers Association 2004).

Increases in neighborhood property values are likely not entirely due to the HOPE VI development. Other concurrent public and private investments may also affect disproportionate price appreciation in the neighborhoods. Based on key informant interviews and other site-specific information, the authors of the Philadelphia study estimated that 38.2 percent of the property value increases they observed were attributable to HOPE VI, which was an average of 38.2 percent in Philadelphia (PHA 2005). We apply the same adjustment factor. But in addition, because the Philadelphia developments were larger than the prototype developments analyzed here, we further reduced the estimated impact. Specifically, for mixed-income redevelopment, we assume that prototype 1 would yield 56 percent of the property value impact seen at the average Philadelphia development, while prototypes 2 and 3 would yield just 10 percent of the Philadelphia impacts. Because evidence shows that there are much smaller neighborhood impacts from a substantial rehabilitation strategy, we assume that there would be a very small boost to area property taxes. However, in the absence of estimates of the exact impact from this type of intervention, we set the amount of the impact equal to one-tenth the impact seen under a mixed-income with vouchers intervention.

Finally, the available research indicates that—as long as they are not reconcentrated—relocating low-income households with vouchers would not significantly affect property values in the receiving neighborhood (Galster and Zobel 1998). For this reason, we have assumed no countervailing negative impacts on property values in other neighborhoods.

Under the mixed-income redevelopment scenario, we estimate that property tax revenues will increase by an annual average of \$491,601 for prototype 1. However, because prototypes 2 and 3 are smaller and farther from low-poverty areas, we estimate that their impact on surrounding property values will be more modest, and hence, estimated annual property tax revenues increase by an average of only \$86,702 from these redevelopments. *With substantial rehabilitation* of the distressed developments, annual tax revenues are estimated to increase by \$49,160 in prototype one, and \$8,670 in prototypes 2 and 3.



Table 7.2:
Annual Property Tax Revenues from HOPE VI Redevelopment

| | Prototype 1 | Prototype 2 | Prototype 3 |
|---|--------------------|--------------------|--------------------|
| <i>HOPE VI Impact Area Price/Sq. Foot</i> | 35.6 | 35.6 | 35.6 |
| <i>Annual Property Value Appreciation Rate</i> | | | |
| Citywide | 6.5% | 6.5% | 6.5% |
| HOPE VI Impact Area* | 9.0% | 9.0% | 9.0% |
| <i>Property Tax Rate</i> | 1.43 | 1.43 | 1.43 |
| <i>Impact Area Annual Average Tax Revenue (\$ millions)</i> | | | |
| Citywide average growth | 6.9 | 6.9 | 6.9 |
| Observed HOPE VI area growth | 9.2 | 9.2 | 9.2 |
| <i>Adjustment factor</i> | | | |
| Mixed Income/Voucher | 21.7% | 3.8% | 3.8% |
| Substantial Rehabilitation | 2.2% | 0.4% | 0.4% |
| <i>Annual Average Increase in Tax Revenue (\$)</i> | | | |
| Mixed Income/Voucher | 491,601 | 86,702 | 86,702 |
| Substantial Rehabilitation | 49,160 | 8,670 | 8,670 |

* HOPE VI Impact Area includes 9.25 million square feet of residential property



CHAPTER EIGHT: PUBLIC COSTS AND BENEFITS OF ALTERNATIVE DEVELOPMENT STRATEGIES — TWENTY-YEAR ESTIMATES

This final chapter presents the cumulative results of the analyses described in chapters 5 through 8, comparing the present discounted value of public sector costs for two stylized redevelopment strategies (and two levels of resident services) to the costs of inaction. Most of these estimates apply an annual real discount rate of 3.0 percent, based on guidelines established by the Office of Management and Budget for analyses of cost-effectiveness and internal government investments.¹⁷ However, we also test the sensitivity of findings to a higher discount rate—of 7.0 percent.

These results indicate that in many circumstances, inaction is more costly over a 20-year horizon than demolition and mixed-income redevelopment. Demolition and mixed-income redevelopment strategies yield substantially greater benefits—and greater savings to the public sector—than more modest rehabilitation strategies. Moreover, delivering an enhanced package of community and supportive services essentially pays for itself in public sector savings.

However, the long-term costs and benefits of revitalization can vary quite dramatically depending on the characteristics of the original development—and assumptions about the likely consequences of redevelopment. We estimate that smaller projects and projects in isolated locations are likely to have a smaller impact on surrounding property values and hence generate smaller gains in property tax revenues. And projects with higher occupancy rates at the outset are more costly, because a larger number of very low-income households require long-term housing subsidies. For some scenarios, therefore, the expected cost of mixed-income redevelopment exceeds the estimated costs of inaction. But even in circumstances where reinvestment does not yield a net savings, the high costs of inaction mean that redevelopment is actually less costly than it appears in the short-term. In other words, the future costs of the inaction—of maintaining a distressed public housing development—should be considered in assessing the real costs of redevelopment.

Tables 8.1 and 8.2 present results for the first prototypical project—a large public housing development with a high initial vacancy rate, located close to low-poverty neighborhoods. With the basic package of resident services, demolition and mixed-income development actually saves the public sector an estimated \$22.0 million over twenty years. Although substantial rehabilitation appears less costly in the short-term, it is unlikely to generate the same spillover effects on property values in the surrounding neighborhood, and therefore costs an estimated \$5.5 million more over twenty years than the status quo. Providing an enhanced package of services to the original residents in conjunction with mixed-income

¹⁷ See Office of Management and Budget (2007).



redevelopment essentially pays for itself. Specifically, with enhanced services, demolition and mixed-income development is estimated to save \$22.3 million over twenty years. But providing enhanced services increases the net costs of the substantial rehabilitation strategy (relative to inaction) to \$6.4 million.

Tables 8.3 and 8.4 show the effects of a project's initial vacancy rate on the net, twenty-year costs of alternative strategies. These two tables report results for prototype 1 with the enhanced package of resident services, but adjust the initial vacancy rate from 37 percent to 22 percent (table 8.3) and 12 percent (table 8.4). With a 22 percent initial vacancy rate, mixed-income redevelopment still yields estimated savings of \$6.9 million over twenty years, while the estimated net cost of substantial rehabilitation climbs to \$37.6 million. With a 12 percent initial vacancy rate, mixed-income redevelopment costs the public sector \$3.4 million more than inaction, and substantial rehabilitation costs \$58.3 million more.

In all the results of prototype 1, anticipated increases in local property tax revenues play a large role in offsetting redevelopment costs. Smaller projects, which would exert less influence on overall neighborhood conditions, and geographically isolated projects, located farther away from centers of market activity, are expected to yield smaller tax revenue gains (as discussed in chapter 7). Tables 8.5 through 8.8 present results for prototype 2—a small development located at an intermediate distance from the nearest low-poverty neighborhood. If the initial vacancy rate is high, mixed-income redevelopment of this prototype yields estimated net public sector savings of \$2.9 million with basic services and \$2.8 million with enhanced services, while substantial rehabilitation costs an estimated \$2.9 million with basic services and \$2.7 million with enhanced services. If the initial vacancy rate is lower, both mixed-income redevelopment and substantial rehabilitation generate estimated net costs to the public sector relative to the status quo.

Tables 8.9 through 8.12 present results for prototype three—a large development located far from low-poverty neighborhoods. Again, if the initial vacancy rate is high, mixed-income redevelopment yields net public sector savings—\$6.9 million with basic services and \$6.8 million with enhanced services—but lower vacancy rates yield modest net costs to the public sector. Substantial rehabilitation consistently costs the public sector more than it saves.

All of the net present value estimates thus far are calculated using the 3.0 percent real discount rate recommended by the Office of Management and Budget. For comparability purposes, tables 8.13 through 8.15 present the net present value for these investments assuming a higher real discount rate of 7.0 percent. The tables show net costs for enhanced interventions across the three prototype developments, assuming a constant 37 percent initial vacancy rate.

Because the savings associated with a HOPE VI intervention accrue over twenty years, while the costs are incurred up-front, a high discount rate reduces the estimated cost-



effectiveness of such investments relative to inaction. However, even after heavily discounting future benefits, a mixed-income redevelopment still saves the public an estimated \$4.5 million for prototype 1. Mixed-income redevelopment of prototypes 2 and 3 impose estimated net costs of about \$500,000 thousand each, over twenty years. As before, substantial rehabilitation makes less sense from a cost-benefit perspective. Using a high discount rate, substantial rehabilitation has estimated net costs between \$5.9 and \$22.9 million, depending on the characteristics of the distressed development.

Table 8.1:
Prototype 1, Basic Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|---------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 178,144 | 162,595 | 184,333 | 15,550 | -6,188 |
| <i>Total Project</i> | <i>105,128</i> | <i>92,107</i> | <i>113,470</i> | <i>13,021</i> | <i>-8,342</i> |
| Public Development | 0 | 45,571 | 62,641 | -45,571 | -62,641 |
| HA Operating/Capital | 105,128 | 46,536 | 50,828 | 58,592 | 54,300 |
| <i>Total Resident Needs*</i> | <i>73,017</i> | <i>70,488</i> | <i>70,863</i> | <i>2,528</i> | <i>2,154</i> |
| TANF | 5,033 | 5,033 | 5,033 | 0 | 0 |
| EITC | 5,714 | 5,714 | 5,714 | 0 | 0 |
| Unemployment Insurance | 24,757 | 24,757 | 24,757 | 0 | 0 |
| Criminal Justice System | 26,844 | 24,316 | 24,690 | 2,528 | 2,154 |
| Obesity (Medicaid) | 10,669 | 10,669 | 10,669 | 0 | 0 |
| Mental Health (Medicaid) | 9,649 | 9,649 | 9,649 | 0 | 0 |
| Total Revenues | 509 | 6,989 | 1,157 | 6,480 | 648 |
| Income Tax (Local) | 509 | 509 | 509 | 0 | 0 |
| Residential Property Tax | 0 | 6,480 | 648 | 6,480 | 648 |
| Total Net Costs* | 177,636 | 155,606 | 183,176 | 22,030 | -5,540 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.2:
Prototype 1, Enhanced Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 178,144 | 162,440 | 185,386 | 15,704 | -7,242 |
| <i>Total Project</i> | <i>105,128</i> | <i>93,823</i> | <i>115,186</i> | <i>11,305</i> | <i>-10,058</i> |
| Public Development | 0 | 47,287 | 64,358 | -47,287 | -64,358 |
| HA Operating/Capital | 105,128 | 46,536 | 50,828 | 58,592 | 54,300 |
| <i>Total Resident Needs*</i> | <i>73,017</i> | <i>68,617</i> | <i>70,200</i> | <i>4,399</i> | <i>2,817</i> |
| TANF | 5,033 | 4,982 | 5,033 | 50 | 0 |
| EITC | 5,714 | 7,378 | 7,378 | -1,664 | -1,664 |
| Unemployment Insurance | 24,757 | 22,430 | 22,430 | 2,327 | 2,327 |
| Criminal Justice System | 26,844 | 24,316 | 24,690 | 2,528 | 2,154 |
| Obesity (Medicaid) | 10,669 | 9,511 | 10,669 | 1,158 | 0 |
| Mental Health (Medicaid) | 9,649 | 8,518 | 9,649 | 1,131 | 0 |
| Total Revenues | 509 | 7,137 | 1,305 | 6,629 | 796 |
| Income Tax (Local) | 509 | 657 | 657 | 148 | 148 |
| Residential Property Tax | 0 | 6,480 | 648 | 6,480 | 648 |
| Total Net Costs* | 177,636 | 155,303 | 184,081 | 22,333 | -6,445 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.3:
Prototype 1, Enhanced Intervention (22 pct vacancy rate): 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 191,462 | 191,276 | 229,931 | 186 | -38,469 |
| <i>Total Project</i> | <i>100,917</i> | <i>106,187</i> | <i>142,879</i> | <i>-5,270</i> | <i>-41,962</i> |
| Public Development | 0 | 48,393 | 79,830 | -48,393 | -79,830 |
| HA Operating/Capital | 100,917 | 57,794 | 63,049 | 43,123 | 37,868 |
| <i>Total Resident Needs*</i> | <i>90,545</i> | <i>85,090</i> | <i>87,052</i> | <i>5,455</i> | <i>3,493</i> |
| TANF | 6,241 | 6,179 | 6,241 | 62 | 0 |
| EITC | 7,086 | 9,150 | 9,150 | -2,064 | -2,064 |
| Unemployment Insurance | 30,700 | 27,814 | 27,814 | 2,886 | 2,886 |
| Criminal Justice System | 33,289 | 30,153 | 30,618 | 3,135 | 2,671 |
| Obesity (Medicaid) | 13,230 | 11,794 | 13,230 | 1,436 | 0 |
| Mental Health (Medicaid) | 11,966 | 10,563 | 11,966 | 1,403 | 0 |
| Total Revenues | 631 | 7,295 | 1,462 | 6,664 | 832 |
| Income Tax (Local) | 631 | 814 | 814 | 184 | 184 |
| Residential Property Tax | 0 | 6,480 | 648 | 6,480 | 648 |
| Total Net Costs* | 190,832 | 183,982 | 228,469 | 6,850 | -37,637 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.4:
Prototype 1, Enhanced Intervention (12 pct vacancy rate): 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 200,282 | 210,373 | 259,409 | -10,091 | -59,128 |
| <i>Total Project</i> | <i>98,128</i> | <i>114,374</i> | <i>161,197</i> | <i>-16,246</i> | <i>-63,068</i> |
| Public Development | 0 | 49,125 | 90,065 | -49,125 | -90,065 |
| HA Operating/Capital | 98,128 | 65,250 | 71,132 | 32,879 | 26,996 |
| <i>Total Resident Needs*</i> | <i>102,154</i> | <i>95,999</i> | <i>98,213</i> | <i>6,155</i> | <i>3,941</i> |
| TANF | 7,041 | 6,971 | 7,041 | 70 | 0 |
| EITC | 7,994 | 10,323 | 10,323 | -2,328 | -2,328 |
| Unemployment Insurance | 34,636 | 31,380 | 31,380 | 3,256 | 3,256 |
| Criminal Justice System | 37,556 | 34,019 | 34,543 | 3,537 | 3,013 |
| Obesity (Medicaid) | 14,926 | 13,306 | 14,926 | 1,620 | 0 |
| Mental Health (Medicaid) | 13,500 | 11,917 | 13,500 | 1,583 | 0 |
| Total Revenues | 711 | 7,399 | 1,567 | 6,688 | 855 |
| Income Tax (Local) | 711 | 919 | 919 | 207 | 207 |
| Residential Property Tax | 0 | 6,480 | 648 | 6,480 | 648 |
| Total Net Costs* | 199,570 | 202,974 | 257,843 | -3,404 | -58,272 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.5:
Prototype 2, Basic Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|---------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 35,258 | 33,569 | 38,226 | 1,689 | -2,968 |
| <i>Total Project</i> | <i>21,578</i> | <i>20,308</i> | <i>24,924</i> | <i>1,270</i> | <i>-3,345</i> |
| Public Development | 0 | 10,224 | 14,041 | -10,224 | -14,041 |
| HA Operating/Capital | 21,578 | 10,084 | 10,883 | 11,494 | 10,695 |
| <i>Total Resident Needs*</i> | <i>13,680</i> | <i>13,260</i> | <i>13,302</i> | <i>419</i> | <i>377</i> |
| TANF | 829 | 829 | 829 | 0 | 0 |
| EITC | 1,166 | 1,166 | 1,166 | 0 | 0 |
| Unemployment Insurance | 4,677 | 4,677 | 4,677 | 0 | 0 |
| Criminal Justice System | 4,614 | 4,194 | 4,236 | 419 | 377 |
| Obesity (Medicaid) | 2,393 | 2,393 | 2,393 | 0 | 0 |
| Mental Health (Medicaid) | 2,165 | 2,165 | 2,165 | 0 | 0 |
| Total Revenues | 149 | 1,292 | 263 | 1,143 | 114 |
| Income Tax (Local) | 149 | 149 | 149 | 0 | 0 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 35,109 | 32,277 | 37,963 | 2,832 | -2,854 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.6:
Prototype 2, Enhanced Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|---------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 35,258 | 33,580 | 38,120 | 1,678 | -2,862 |
| <i>Total Project</i> | 21,578 | 20,693 | 24,924 | 885 | -3,345 |
| Public Development | 0 | 10,609 | 14,041 | -10,609 | -14,041 |
| HA Operating/Capital | 21,578 | 10,084 | 10,883 | 11,494 | 10,695 |
| <i>Total Resident Needs*</i> | 13,680 | 12,886 | 13,196 | 794 | 484 |
| TANF | 829 | 821 | 829 | 8 | 0 |
| EITC | 1,166 | 1,481 | 1,481 | -315 | -315 |
| Unemployment Insurance | 4,677 | 4,256 | 4,256 | 421 | 421 |
| Criminal Justice System | 4,614 | 4,194 | 4,236 | 419 | 377 |
| Obesity (Medicaid) | 2,393 | 2,134 | 2,393 | 260 | 0 |
| Mental Health (Medicaid) | 2,165 | 1,911 | 2,165 | 254 | 0 |
| Total Revenues | 149 | 1,332 | 304 | 1,183 | 155 |
| Income Tax (Local) | 149 | 189 | 189 | 40 | 40 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 35,109 | 32,247 | 37,816 | 2,862 | -2,707 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.7:
Prototype 2, Enhanced Intervention (22 pct vacancy rate) : 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|---------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 38,515 | 39,398 | 47,230 | -883 | -8,715 |
| <i>Total Project</i> | 21,578 | 23,444 | 30,892 | -1,866 | -9,313 |
| Public Development | 0 | 10,855 | 17,402 | -10,855 | -17,402 |
| HA Operating/Capital | 21,578 | 12,589 | 13,489 | 8,989 | 8,089 |
| <i>Total Resident Needs*</i> | 16,937 | 15,954 | 16,338 | 982 | 599 |
| TANF | 1,027 | 1,016 | 1,027 | 10 | 0 |
| EITC | 1,444 | 1,834 | 1,834 | -390 | -390 |
| Unemployment Insurance | 5,791 | 5,270 | 5,270 | 521 | 521 |
| Criminal Justice System | 5,712 | 5,193 | 5,245 | 519 | 467 |
| Obesity (Medicaid) | 2,963 | 2,641 | 2,963 | 322 | 0 |
| Mental Health (Medicaid) | 2,680 | 2,366 | 2,680 | 314 | 0 |
| Total Revenues | 185 | 1,377 | 349 | 1,193 | 164 |
| Income Tax (Local) | 185 | 234 | 234 | 50 | 50 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 38,331 | 38,021 | 46,881 | 309 | -8,551 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.8:
Prototype 2, Enhanced Intervention (12 pct vacancy rate) : 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 40,687 | 43,278 | 53,285 | -2,591 | -12,598 |
| <i>Total Project</i> | <i>21,578</i> | <i>25,278</i> | <i>34,852</i> | <i>-3,700</i> | <i>-13,274</i> |
| Public Development | 0 | 11,019 | 19,634 | -11,019 | -19,634 |
| HA Operating/Capital | 21,578 | 14,259 | 15,219 | 7,319 | 6,360 |
| <i>Total Resident Needs*</i> | <i>19,108</i> | <i>18,000</i> | <i>18,433</i> | <i>1,108</i> | <i>675</i> |
| TANF | 1,158 | 1,147 | 1,158 | 12 | 0 |
| EITC | 1,629 | 2,069 | 2,069 | -440 | -440 |
| Unemployment Insurance | 6,533 | 5,945 | 5,945 | 588 | 588 |
| Criminal Justice System | 6,445 | 5,859 | 5,917 | 586 | 527 |
| Obesity (Medicaid) | 3,343 | 2,980 | 3,343 | 363 | 0 |
| Mental Health (Medicaid) | 3,023 | 2,669 | 3,023 | 354 | 0 |
| Total Revenues | 208 | 1,407 | 379 | 1,199 | 171 |
| Income Tax (Local) | 208 | 265 | 265 | 56 | 56 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 40,478 | 41,870 | 52,906 | -1,392 | -12,428 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.9:
Prototype 3, Basic Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 87,455 | 81,704 | 95,484 | 5,751 | -8,030 |
| <i>Total Project</i> | <i>49,100</i> | <i>44,991</i> | <i>58,490</i> | <i>4,108</i> | <i>-9,390</i> |
| Public Development | 0 | 22,595 | 32,766 | -22,595 | -32,766 |
| HA Operating/Capital | 49,100 | 22,396 | 25,724 | 26,703 | 23,376 |
| <i>Total Resident Needs*</i> | <i>38,355</i> | <i>36,713</i> | <i>36,994</i> | <i>1,642</i> | <i>1,361</i> |
| TANF | 1,342 | 1,342 | 1,342 | 0 | 0 |
| EITC | 2,561 | 2,561 | 2,561 | 0 | 0 |
| Unemployment Insurance | 8,815 | 8,815 | 8,815 | 0 | 0 |
| Criminal Justice System | 20,332 | 18,690 | 18,971 | 1,642 | 1,361 |
| Obesity (Medicaid) | 5,305 | 5,305 | 5,305 | 0 | 0 |
| Mental Health (Medicaid) | 4,798 | 4,798 | 4,798 | 0 | 0 |
| Total Revenues | 195 | 1,338 | 309 | 1,143 | 114 |
| Income Tax (Local) | 195 | 195 | 195 | 0 | 0 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 87,260 | 80,366 | 95,175 | 6,894 | -14,809 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.10:
Prototype 3, Enhanced Intervention: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 87,455 | 81,814 | 95,330 | 5,641 | -7,875 |
| <i>Total Project</i> | <i>49,100</i> | <i>45,845</i> | <i>58,490</i> | <i>3,255</i> | <i>-9,390</i> |
| Public Development | 0 | 23,448 | 32,766 | -23,448 | -32,766 |
| HA Operating/Capital | 49,100 | 22,396 | 25,724 | 26,703 | 23,376 |
| <i>Total Resident Needs*</i> | <i>38,355</i> | <i>35,969</i> | <i>36,840</i> | <i>2,386</i> | <i>1,515</i> |
| TANF | 1,342 | 1,329 | 1,342 | 13 | 0 |
| EITC | 2,561 | 3,156 | 3,156 | -595 | -595 |
| Unemployment Insurance | 8,815 | 8,066 | 8,066 | 749 | 749 |
| Criminal Justice System | 20,332 | 18,690 | 18,971 | 1,642 | 1,361 |
| Obesity (Medicaid) | 5,305 | 4,729 | 5,305 | 576 | 0 |
| Mental Health (Medicaid) | 4,798 | 4,235 | 4,798 | 563 | 0 |
| Total Revenues | 195 | 1,383 | 355 | 1,188 | 160 |
| Income Tax (Local) | 195 | 240 | 240 | 45 | 45 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 87,260 | 80,431 | 94,975 | 6,829 | -14,544 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.11:
Prototype 3, Enhanced Intervention (22 pct vacancy rate): 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 94,878 | 96,475 | 118,204 | -1,597 | -23,326 |
| <i>Total Project</i> | <i>47,391</i> | <i>51,942</i> | <i>72,593</i> | <i>-4,551</i> | <i>-25,202</i> |
| Public Development | 0 | 23,994 | 40,666 | -23,994 | -40,666 |
| HA Operating/Capital | 47,391 | 27,948 | 31,927 | 19,442 | 15,464 |
| <i>Total Resident Needs*</i> | <i>47,487</i> | <i>44,533</i> | <i>45,611</i> | <i>2,954</i> | <i>1,876</i> |
| TANF | 1,662 | 1,645 | 1,662 | 17 | 0 |
| EITC | 3,171 | 3,907 | 3,907 | -736 | -736 |
| Unemployment Insurance | 10,914 | 9,986 | 9,986 | 928 | 928 |
| Criminal Justice System | 25,173 | 23,140 | 23,488 | 2,033 | 1,685 |
| Obesity (Medicaid) | 6,568 | 5,855 | 6,568 | 713 | 0 |
| Mental Health (Medicaid) | 5,940 | 5,244 | 5,940 | 696 | 0 |
| Total Revenues | 241 | 1,440 | 412 | 1,199 | 170 |
| Income Tax (Local) | 241 | 297 | 297 | 56 | 56 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 94,636 | 95,034 | 117,792 | -398 | -22,758 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.12:
Prototype 3, Enhanced Intervention (12 pct vacancy rate): 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 99,826 | 106,249 | 133,358 | -6,423 | -33,532 |
| <i>Total Project</i> | <i>46,251</i> | <i>56,006</i> | <i>81,900</i> | <i>-9,755</i> | <i>-35,648</i> |
| Public Development | 0 | 24,357 | 45,879 | -24,357 | -45,879 |
| HA Operating/Capital | 46,251 | 31,650 | 36,020 | 14,602 | 10,231 |
| <i>Total Resident Needs*</i> | <i>53,575</i> | <i>50,242</i> | <i>51,458</i> | <i>3,333</i> | <i>2,117</i> |
| TANF | 1,875 | 1,856 | 1,875 | 19 | 0 |
| EITC | 3,578 | 4,408 | 4,408 | -831 | -831 |
| Unemployment Insurance | 12,313 | 11,266 | 11,266 | 1,047 | 1,047 |
| Criminal Justice System | 28,400 | 26,106 | 26,499 | 2,294 | 1,901 |
| Obesity (Medicaid) | 7,410 | 6,606 | 7,410 | 804 | 0 |
| Mental Health (Medicaid) | 6,702 | 5,916 | 6,702 | 786 | 0 |
| Total Revenues | 272 | 1,479 | 450 | 1,206 | 178 |
| Income Tax (Local) | 272 | 336 | 336 | 63 | 63 |
| Residential Property Tax | 0 | 1,143 | 114 | 1,143 | 114 |
| Total Net Costs* | 99,554 | 104,770 | 132,908 | -5,216 | -28,138 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.13:
Prototype 1, Enhanced Intervention, 7 percent discount rate: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|----------------|----------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 127,776 | 127,249 | 151,127 | 527 | -23,351 |
| <i>Total Project</i> | <i>74,860</i> | <i>77,475</i> | <i>100,217</i> | <i>-2,615</i> | <i>-25,357</i> |
| Public Development | 0 | 44,337 | 64,023 | -44,337 | -64,023 |
| HA Operating/Capital | 74,860 | 33,137 | 36,194 | 41,723 | 38,666 |
| <i>Total Resident Needs*</i> | <i>52,916</i> | <i>49,774</i> | <i>50,910</i> | <i>3,142</i> | <i>2,006</i> |
| TANF | 4,506 | 4,461 | 4,506 | 45 | 0 |
| EITC | 4,069 | 5,254 | 5,254 | -1,185 | -1,185 |
| Unemployment Insurance | 17,629 | 15,972 | 15,972 | 1,657 | 1,657 |
| Criminal Justice System | 19,115 | 17,315 | 17,582 | 1,800 | 1,534 |
| Obesity (Medicaid) | 7,597 | 6,773 | 7,597 | 824 | 0 |
| Mental Health (Medicaid) | 6,871 | 6,066 | 6,871 | 806 | 0 |
| Total Revenues | 362 | 4,370 | 858 | 4,008 | 496 |
| Income Tax (Local) | 362 | 468 | 468 | 105 | 105 |
| Residential Property Tax | 0 | 3,903 | 390 | 3,903 | 390 |
| Total Net Costs* | 127,414 | 122,878 | 150,269 | 4,535 | -22,855 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



Table 8.14:
Prototype 2, Enhanced Intervention, 7 percent discount rate: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|---------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 25,259 | 26,455 | 31,304 | -1,196 | -6,045 |
| <i>Total Project</i> | 15,366 | 17,128 | 21,755 | -1,763 | -6,390 |
| Public Development | 0 | 9,947 | 14,006 | -9,947 | -14,006 |
| HA Operating/Capital | 15,366 | 7,181 | 7,750 | 8,185 | 7,616 |
| <i>Total Resident Needs*</i> | 9,893 | 9,327 | 9,549 | 567 | 344 |
| TANF | 742 | 735 | 742 | 7 | 0 |
| EITC | 830 | 1,055 | 1,055 | -224 | -224 |
| Unemployment Insurance | 3,331 | 3,031 | 3,031 | 300 | 300 |
| Criminal Justice System | 3,285 | 2,987 | 3,017 | 299 | 269 |
| Obesity (Medicaid) | 1,704 | 1,519 | 1,704 | 185 | 0 |
| Mental Health (Medicaid) | 1,541 | 1,361 | 1,541 | 181 | 0 |
| Total Revenues | 106 | 823 | 204 | 717 | 98 |
| Income Tax (Local) | 106 | 135 | 135 | 29 | 29 |
| Residential Property Tax | 0 | 688 | 69 | 688 | 69 |
| Total Net Costs* | 25,152 | 25,631 | 31,100 | -479 | -5,948 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.

Table 8.15:
Prototype 3, Enhanced Intervention, 7 percent discount rate: 20-Year Project Cost Estimate (\$ thousands)

| | 20-year Net Present Value | | | Savings (Rel. to Status Quo) | |
|------------------------------|---------------------------|---------------|---------------|------------------------------|----------------|
| | Status Quo | Mixed Income | Sub Rehab | Mixed Income | Sub Rehab |
| Total Costs* | 62,521 | 63,790 | 77,485 | -1,269 | -14,964 |
| <i>Total Project</i> | 34,963 | 37,933 | 51,006 | -2,970 | -16,043 |
| Public Development | 0 | 21,985 | 32,689 | -21,985 | -32,689 |
| HA Operating/Capital | 34,963 | 15,948 | 18,317 | 19,015 | 16,646 |
| <i>Total Resident Needs*</i> | 27,558 | 25,856 | 26,479 | 1,701 | 1,079 |
| TANF | 1,202 | 1,190 | 1,202 | 12 | 0 |
| EITC | 1,824 | 2,247 | 2,247 | -423 | -423 |
| Unemployment Insurance | 6,277 | 5,743 | 5,743 | 534 | 534 |
| Criminal Justice System | 14,478 | 13,309 | 13,509 | 1,169 | 969 |
| Obesity (Medicaid) | 3,777 | 3,367 | 3,777 | 410 | 0 |
| Mental Health (Medicaid) | 3,416 | 3,016 | 3,416 | 401 | 0 |
| Total Revenues | 139 | 859 | 240 | 721 | 101 |
| Income Tax (Local) | 139 | 171 | 171 | 32 | 32 |
| Residential Property Tax | 0 | 688 | 69 | 688 | 69 |
| Total Net Costs* | 62,382 | 62,930 | 77,245 | -548 | -14,315 |

* Note: Total does not include costs or savings associated with resident mental health, because estimates of obesity-related costs do not control for differences in mental health status.



REFERENCES

- Bair, Edward, and John M. Fitzgerald. 2005. "Hedonic Estimation and Policy Significance of the Impact of HOPE VI on Neighborhood Property Values." *Review of Policy Research* 22(6): 771–86.
- Bloom, Howard S., James A. Riccio, and Nandita Verma. 2005. "Promoting Work in Public Housing: The Effectiveness of Jobs-Plus." MRDC.
- Briggs, Xavier de Souza, and Margery Austin Turner. 2006. "Assisted Housing Mobility and the Success of Low-Income Minority Families: Lessons for Policy, Practice, and Future Research." *Northwestern University Journal of Law and Social Policy* 1(1): 25–61. <http://www.law.northwestern.edu/journals/njls/v1/n1/index.html>.
- Case, Anne C. and Lawrence F. Katz. 1991. "The Company You Keep: The Effects of Family and Neighborhood on Disadvantaged Youths" NBER Working Paper 3705. Cambridge, MA: National Bureau of Economic Research.
- Cohen, Mark A., Ted R. Miller, and Shelli B. Rossman. 1994. "The Costs and Consequences of Violent Behavior in the United States." In *Understanding and Preventing Violence, Volume 4: Consequences and Control*, edited by Albert J. Reiss, Jr. and Jeffrey A. Roth. Washington, DC: National Academy Press.
- Druss, Benjamin G., Steven C. Marcus, Mark Olfson, Terri Tanielian, Lynn Elinson, and Harold A. Pincus. 2001. "Comparing the National Economic Burden of Five Chronic Conditions." *Health Affairs* 20(6): 233–41.
- Druss, Benjamin G., Robert A. Rosenheck, and William H. Sledge. 2000. "Health and Disability Costs of Depressive Illness in a Major U.S. Corporation." *American Journal of Psychiatry* 157:1274–78.
- Ellen, Ingrid G. and Margery A. Turner. 1997. "Does Neighborhood Matter? Assessing Recent Evidence." *Housing Policy Debate* 8(4): 833–66.
- Finkelstein, Eric A., Ian C. Fiebelkorn, and Guijing Wang. 2003. "National Medical Spending Attributable to Overweight and Obesity: How Much, and Who's Paying?" *Health Affairs* Web Exclusive, May 14.
- Fischer, Will and Barbara Sard. 2002. *Is the Proposed Cut to the Public Housing Capital Fund Justified?* Washington, DC: Center on Budget and Policy Priorities.
- Galster, George C. 2002. "A Review of the Existing Research on the Effects of Federally Assisted Housing Programs on Neighboring Residential Property Values." National Association of Realtors, National Center for Real Estate Research. National Association of Realtors (September).



- Glaeser, Edward L., Bruce Sacerdote, and Jose A. Scheinkman. 1996. "Crime and Social Interactions." *Quarterly Journal of Economics* 111(2): 507–48.
- Greenberg, Paul E., Ronald C. Kessler, Howard G. Birnbaum, Stephanie A. Leong, Sarah W. Lowe, Patricia A. Berglund, and Patricia K. Corey-Lisle. 2003. "The Economic Burden of Depression in the United States: How Did it Change Between 1990 and 2000?" *Journal of Clinical Psychiatry* 64: 1465–75.
- Goetzel, Ron Z., Kevin Hawkins, Ronald J. Ozinkowski, and Shaohung Wang. 2003. "The Health and Productivity Cost Burden of the "Top 10" Physical and Mental Health Conditions Affecting Six Large U.S. Employers in 1999." *Journal of Occupational and Environmental Medicine* 45: 5–14.
- Harris, Laura E. and Deborah R. Kaye. 2004. "How are HOPE VI Families Faring? Health." Washington DC: The Urban Institute.
- Harvard University Graduate School of Design. 2003. *Public Housing Operating Cost Study*. Prepared for the U.S. Department of Housing and Urban Development. Cambridge, MA: Harvard University Graduate School of Design.
- Holin, Mary Joel, Larry Buron, Gretchen Locke, and Alvaro Cortes. 2003. *Interim Assessment of the HOPE VI Program: Cross-Site Report*. Washington, DC: U.S. Department of Housing and Urban Development.
- Keels, Micere, Greg J. Duncan, Stefanie DeLuca, Ruby Mendenhall, James Rosenbaum. 2005. "Fifteen Years Later: Can Residential Mobility Programs Provide a Permanent Escape from Neighborhood Crime and Poverty?" *Demography* 42(1): 51–73.
- Kilpatrick, Dean G., Kenneth J. Ruggiero, Ron Acierno, Benjamin E. Saunders, Heidi S. Resnick, Connie L. Best. 2003. "Violence and Risk of PTSD, Major Depression, Substance Abuse/Dependence, and Comorbidity: Results From the National Survey of Adolescents." *Journal of Consulting & Clinical Psychology* 71(4): 692–700.
- Kingsley, G. Thomas, Martin D. Abravanel, Mary Cunningham, Jeremy Gustafson, Arthur J. Naparstek, and Margery Austin Turner. 2004. *Lessons from HOPE VI for the Future of Public Housing*. Washington, DC: The Urban Institute.
- Krivo, Lauren J. and Ruth D. Peterson. 1996. "Extremely Disadvantaged Neighborhoods and Urban Crime." *Social Forces* 75(2): 619–48.
- Lee, Chang-Moo, Dennis P. Culhane, and Susan M. Wachter. 1999. "The Differential Impacts of Federally Assisted Housing Programs on Nearby Property Values: A Philadelphia Case Study." *Housing Policy Debate* 10(1): 75–93.
- Lubell, Jeff. 2004. "A Diamond in the Rough: The Remarkable Success of HUD's FSS Program (March 31)." Weybridge, VT: FSS Partnerships. <http://www.fsspartnerships.org>.



- Manjarrez, Carlos, Susan J. Popkin, Elizabeth Guernsey. 2007. "Health Conditions of Public Housing Residents." Washington, DC: The Urban Institute.
- Minnesota Taxpayers Association. 2004. "50-State Property Tax Comparison Study." Saint Paul, MN: Minnesota Taxpayers Association. <http://mntax.org/research/property.php>.
- Office of Management and Budget. 2007. "Circular A-94: Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs."
- Orr, Larry, Judith D. Feins, Robin Jacob, Erik Beecroft, Lisa Sanbonmatsu, Lawrence F. Katz, Jeffrey B. Liebman, and Jeffrey R. Kling. 2003. *Moving to Opportunity Interim Impacts Evaluation*. Washington, DC: U.S. Department of Housing and Urban Development.
- Oster, Gerry, David Thompson, John Edelsberg, Amy P. Bird, and Graham A. Colditz. 1999. "Lifetime Health and Economic Benefits of Weight Loss Among Obese Patients." *American Journal of Public Health*; 89(10): 1536-1542.
- Philadelphia Housing Authority and Econsult Corporation. 2005. "Economic Impacts of PHA Housing Redevelopments on Adjacent Neighborhoods." Philadelphia: Philadelphia Housing Authority.
- Popkin, Susan J. and Elizabeth Cove. 2007. "Safety is the Most Important Thing: How HOPE VI Helped Families." Washington DC: The Urban Institute.
- Popkin, Susan J., Diane Levy, Laura E. Harris, Jennifer Comey, Mary K. Cunningham, and Larry Buron. 2002. *HOPE VI Panel Study: Baseline Report*. Washington, DC: The Urban Institute.
- Popkin, Susan J., Bruce Katz, Mary K. Cunningham, Karen D. Brown, Jeremy Gustafson, and Margery A. Turner. 2004. *A Decade of HOPE VI: Research Findings and Policy Challenges*. Washington, DC: The Urban Institute.
- Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. "Neighborhoods and Violent Crime: A Multilevel Study of Collective Efficacy." *Science* 277(5328): 918–24.
- Schill, Michael H., and Susan M. Wachter. 1995. "The Spatial Bias of Federal Housing Law and Policy: Concentrated Poverty in Urban America." *University of Pennsylvania Law Review* 143(5): 1285–1342.
- Simon, Gregory E., Wayne J. Katon, Michael VonKorff, Jurgen Unutzer, Elizabeth H.B. Lin, Edward A. Walker, Terry Bush, Carolyn Rutter, and Evette Ludman. 2001. "Cost-Effectiveness of a Collaborative Care Program for Primary Care Patients With Persistent Depression." *American Journal of Psychiatry* 158: 1638–44.



- Simons, Robert A., and David S. Sharkey. 1997. "Jump-Starting Cleveland's New Urban Housing Markets: Do the Potential Fiscal Benefits Justify the Public Subsidy Costs?" *Housing Policy Debate* 8(1): 143–71.
- Turbov, Mindy, and Valerie Piper. 2005. "HOPE VI and Mixed-Finance Redevelopments: A Catalyst for Neighborhood Renewal." Washington DC: The Brookings Institution.
- Turner, Margery Austin and Lynette Rawlings. 2005. *Overcoming Concentrated Poverty and Isolation: Findings from Three Research Demonstrations*. Washington, DC: The Urban Institute.
- U.S. Department of Housing and Urban Development. 2007. "2006 Annual Report to Congress on HOPE VI." Washington DC: HUD.
- Wolf, Anne M. 2002. "Economic Outcomes of the Obese Patient." *Obesity Research* 10: 58S-62.
- Zielenbach, Sean. 2003. "Assessing Economic Change in HOPE VI Neighborhoods." *Housing Policy Debate* 14(4): 621–55.