



# research works

A bridge linking housing research and practice

volume 4, number 7

## Affordability and Energy-Efficiency Mark New Virginia Homes



Credit: Community Housing Partners

*Blacksburg, Virginia, and Community Housing Partners developed these green, affordable duplexes using CDBG entitlement funds and a small cities grant from the Virginia Department of Housing and Community Development.*

In 2001, then-HUD Deputy Secretary Alphonso Jackson launched the Department's 21-point Energy Action Plan (EAP), which includes the use of Community Development Block Grant (CDBG) funds to promote energy-efficient housing. The plan estimates that cutting energy costs by just 5 percent a year in HUD's housing assistance expenditures could save nearly \$2 billion over 10 years.

The small town of Blacksburg, Virginia, demonstrates the EAP's potential in the form of 14 affordable, energy-efficient homes for first-time homebuyers earning between 60 and 80 percent of the area median income. An initial CDBG small cities grant from the Virginia Department of Housing and Community Development and HUD's subsequent designation of the town as an entitlement community provided initial funding for the project. "The CDBG funds are a welcome

revenue source that enabled the town to undertake a project like this," said Matt Hanratty, Director of Housing and Neighborhood Services for Blacksburg. "We have flexibility in how we spend the money, and we want to do it in a fiscally responsible manner."

The town purchased three lots for infill housing in the historic Roanoke-Lee Street neighborhood, an eclectic mix of homes within walking distance of many downtown civic and retail amenities. During the design phase, town officials and their nonprofit partner, Community Housing Partners (CHP), met with neighborhood residents to determine how the infill housing should look. They agreed that the new housing needed to blend in with the neighborhood. Colin Arnold, architect and director of CHP's Community Design Studio, incorporated elements from existing neighborhood houses, such as front porches with metal roofs, into the overall design.

### Energy-Efficient, Sustainable Construction

"The duplexes are ENERGY STAR homes, not just houses with ENERGY STAR appliances," Hanratty points out. The duplexes incorporate energy-efficient and sustainable materials such as cellulose insulation made from recycled paper, a product considered effective in reducing air infiltration, heat transfer,

*continued on page 2*

## contents

Safeguarding Housing Affordability through Impact Fee Design 3

In the (Empowerment) Zone 4

Dynamics of the Affordable Rental Housing Supply 6

## Affordability and Energy-Efficiency Mark New Virginia Homes continued from page 1

and sound transmission. The homes also have energy-efficient features including double-paned vinyl windows with low-e glass and ENERGY STAR-qualified appliances.

CHP worked with a mechanical engineer to properly size the HVAC units – taking into account the number of windows and the siting of each house relative to the sun’s path – and installed a high-efficiency (14 SEER) heat pump. The indoor air handler is so efficient, according to Arnold, that the energy rating is actually 15 SEER. It brings fresh air into the system and has return air grids installed in every bedroom. CHP tests found that the duplexes’ HVAC systems were up to 30 percent more energy efficient than those found in the average new home. The resulting utility cost savings will continue to make the homes more affordable to own over time.

### A Partnership

Both the town of Blacksburg and CHP brought substantial resources to bear in completing this project. Before the groundbreaking, the town replaced water lines, sliplined sewer lines, and assembled a list of potential homebuyers selected on a first-come, first-served basis. CHP, which sold the homes, then prequalified people for homeownership. For those who did not qualify (due to poor credit or other issues), CHP offered credit counseling and homeownership classes that enabled them to improve their credit and qualify for a mortgage later. The first units were sold in late July 2006, and the last was sold in January 2007.

Behind four of the duplexes, the town is currently completing a “pocket park” with a tot lot that the town will maintain. At the neighborhood’s request, the town worked closely with Virginia Tech Electric Service (VTES), which serves the Virginia Tech campus



Credit: Community Housing Partners

*These duplexes received an ENERGY STAR Award for Excellence in Energy-Efficient Affordable Housing in March 2007.*

and parts of downtown Blacksburg, to develop a plan to run utility lines underground. The town secured easements from homeowners and churches, and provided the machinery required to bury the lines. VTES is currently laying conduit throughout the neighborhood and will soon run lines for phone, electricity, and cable. The final stage of the project will be completed next spring when a continuous sidewalk is constructed along Lee Street, curbs and gutters are added, and the street is repaved.

Hanratty has two recommendations for other jurisdictions contemplating a similar project. First, the leaders must get citizens to buy into the project from the beginning and keep them involved throughout the process. “The town council wanted to know what the citizens thought about the project, and the citizens realized the town was listening to them,” he said. Public response to the duplexes has been positive, and people have learned firsthand what building green really means. Second, says Hanratty, project leaders must find good partners. “CHP understands working with neighborhoods, and sustainability is part of their mission. We can do public works, but we don’t build houses, so developing the partnership was important.”

In March 2007, the U.S. Department of Energy and the Environmental Protection Agency awarded CHP an ENERGY STAR Award for Excellence in Energy-Efficient Affordable Housing, one of only seven such awards nationwide, for the Roanoke–Lee Street duplexes. Read more about Blacksburg Housing and Neighborhood Services at [www.blacksburg.gov/government/community\\_development/index.php](http://www.blacksburg.gov/government/community_development/index.php) and Community Housing Partners at [www.communityhousingpartners.org](http://www.communityhousingpartners.org), and find information on HUD’s entitlement community program at [www.hud.gov/offices/cpd/communitydevelopment/programs/entitlement](http://www.hud.gov/offices/cpd/communitydevelopment/programs/entitlement). **HJ**



Credit: Community Housing Partners

*The metal porch roof of this duplex mirrors similar porches and roofs found on neighboring houses.*

## Safeguarding Housing Affordability through Impact Fee Design

Every locality must provide the basic infrastructure necessary for a community to flourish. Residents need schools, water and sewer services, streets and transportation facilities, parks and recreation areas, and libraries. State and local governments are struggling to provide and maintain this infrastructure for their growing communities. Decisionmakers must fund these public facilities in a way that distributes the cost burdens and benefits fairly—a challenge complicated by many communities' pressing need for affordable housing.

To support state and local governments in their efforts to finance public infrastructure, manage growth, preserve housing values, and promote affordable housing, HUD has published *Impact Fees and Housing Affordability*. Developed with housing practitioners in mind, this report focuses on impact fees (which are assessed on new construction) as an increasingly popular alternative to property tax increases for funding infrastructure development.

### Assessing Impact Fees

Although approaches to impact fees vary, some strategies are more detrimental to housing affordability than others. The most common type of impact fee, the simple flat-rate impact fee, charges lower-income homebuyers in smaller units the same amount as wealthier homebuyers in larger, more expensive units. Because lower-income homebuyers pay a larger share of their household income in impact fees than wealthier homebuyers, flat rate fees unduly burden those most in need of affordable housing.

On the other hand, proportional impact fees vary based on the size of the housing unit. A proportional fee assumes that larger residences have more occupants and therefore consume a larger share of public services. Although such calculations are imprecise, researchers have found that proportional impact fees are more equitable than flat fees. *Impact Fees and Housing Affordability* recommends assessing fees for residential development according to the number of occupants per 1,000 square feet, possibly with minimum and maximum assessments. The authors observe, "To a very large extent, this approach to calculating impact fees may do more to lessen potentially adverse effects on housing affordability than any other—aside from waiving fees outright." Another advantage of proportional fees is ease of calculation, as data for total residential square feet and total population are readily available from assessor records.

The National Association of Home Builders (NAHB) refined this approach through a study of the American Housing Survey, confirming that the number of occupants per housing unit generally increases with the unit's size. Researchers note that NAHB's data allow tightening of the estimates of people per unit, so that the base number of occupants calculated for the first 1,000 square feet of a unit can be increased with each 500-square-foot incremental increase in size.

When communities calculate impact fees, they usually find that infrastructure costs vary according to service and that different factors affect the calculations. The following table identifies five types of public infrastructure, along with suitable factors to consider when designing impact fee formulas:

*continued on page 5*



*Funding infrastructure development through impact fees is an increasingly popular alternative to property tax increases.*

The Empowerment Zone/Enterprise Community program supports community efforts to revive some of the nation's most distressed urban and rural areas. One of HUD's original 1994 urban empowerment zones, the Philadelphia-Camden area of Pennsylvania and New Jersey, received national recognition this year when one of its three constituent neighborhoods, the American Street Empowerment Zone (ASEZ), received the U.S. Department of Housing and Urban Development Secretary's Opportunity and Empowerment Award from the American Planning Association and HUD.

In 1990, this cluster of five census tracts located in the heart of North Philadelphia clearly matched the description of an urban area in economic distress. Graffiti, abandoned vehicles, vacant lots, and illegally dumped trash littered the vicinity. More than half of the residents were living below the federal poverty level. The unemployment rate was more than 1.5 times that of the city and 2 times that of the nation. Two-thirds of the housing units were built before 1940 and showing their age, and 44 percent of households spent more than 30 percent of their income on housing.

Today, these pronounced signs of distress no longer define the area. Green space and affordable housing units have replaced trash-filled vacant lots. A modern industrial corridor, served by a major north-south thoroughfare easily accessed from Interstate 95, forms the core of the neighborhood. A light-rail trolley connects the ASEZ with other neighborhoods. According to the 2000 census, the median household income is up, the poverty rate is down, and the percentage of households paying 30 percent or more of their income for housing has declined. Many older, deteriorated homes have been rehabilitated or replaced, and affordable housing initiatives are adding residential capacity. Median housing values are up. The employment base is broadening, and education levels are improving.

This turnaround began in 1995 with an influx of \$29 million in federal empowerment zone funds to develop and implement a strategic plan for the community's revitalization. With this money in hand, a Community Trust Board (CTB) consisting of community representatives living or working in the ASEZ, mayoral appointees, and key business representatives spearheaded the transition to an economically vital neighborhood.



Credit: The Pennsylvania Horticultural Society

*Empowerment Zone funding supported the transformation of a vacant lot (above right) in Philadelphia, Pennsylvania.*

### A Vision and Plan for Change

The CTB envisions a vibrant, revitalized community brought about by a strategic plan that focuses on economic opportunity, community-based partnerships, and sustainable community development. Such endeavors rely heavily on resident involvement and capacity building to plan, develop, and sustain a vigorous community.

The CTB's strategic plan is flexible, comprehensive, and continually revised to reflect goals and achievements. Creating economic opportunity involves providing assistance to businesses, access to capital and credit, and workforce development. Accordingly, the plan is to stimulate activity that creates jobs and fuels the economy. Upgrading the workforce is one objective sought through Youth Opportunity Center programs, a Lifelong Learning and Training Center, and an Entrepreneurial Training program. Another involves incentives for ASEZ employers who hire residents of the empowerment zone, including federal tax credits as well as technical assistance and loan services from a newly established community lending institution, the American Street Financial Services Center (ASFSC). ASFSC offers loans to businesses that agree to employ at least one ASEZ resident for every \$35,000 borrowed. This approach has created more than 700 jobs to date. ASFSC has written 161 loans ranging from \$400 to \$2.5 million for more than 79 businesses and entrepreneurs.

Because a business-friendly environment is central to the ASEZ's revitalization plan, the CTB has arranged

*continued on page 7*

## Safeguarding Housing Affordability through Impact Fee Design continued from page 3

Public Infrastructure	Cost-Shaping Factors to Consider
Parks and libraries	<ul style="list-style-type: none"> <li>■ House square footage</li> </ul>
Police and fire	<ul style="list-style-type: none"> <li>■ House square footage</li> <li>■ Distance from property to police or fire station</li> </ul>
Water, sewer, and stormwater	<ul style="list-style-type: none"> <li>■ House square footage</li> <li>■ Distance between house and water supply</li> <li>■ Neighborhood house density</li> </ul>
Roads	<ul style="list-style-type: none"> <li>■ House square footage</li> <li>■ Neighborhood house density</li> <li>■ Portions of road serving the specific home and surrounding homes</li> <li>■ Availability of alternative forms of transportation</li> </ul>
Schools	<ul style="list-style-type: none"> <li>■ Size of student population</li> <li>■ House square footage</li> <li>■ Housing type</li> </ul>

Because the formulas for all of these services use house size as a variable, impact fee assessments are more equitable and modest-sized homes are more affordable.

Setting fees, however, is only one aspect of designing and implementing an impact fee program. Other opportunities exist to safeguard the affordability of housing. Atlanta, Georgia, the subject of one of the case studies included in the report, reduces impact fees by 50 percent if a new unit is built within 1,000 feet of a rail transit station, if its rental rate is between 60 and 80 percent of the fair market rent, or if its sales price falls between 1.5 to 2.5 times the median family income. The city waives impact fees completely if the unit is located within an enterprise zone or a federally chartered empowerment zone, is part of a qualified historic preservation project, has a rental rate of less than 60 percent of the fair market rent, or has a sale price that is less than 1.5 times the median family income. Atlanta also assesses nonresidential development to broaden the revenue base for parks and recreation.

Communities are particularly interested in the roles played by states with impact fee enabling legislation, methods of calculating the fees without adversely affecting housing affordability, decision guides, and

case studies. All of these topics are addressed in *Impact Fees and Housing Affordability*, a relevant and timely tool that can be downloaded at no cost at [www.huduser.org/publications/affhsg/impactfees.html](http://www.huduser.org/publications/affhsg/impactfees.html). **HJ**



*Proportional impact fees based on house size can help safeguard the affordability of housing.*

Housing analysts continue to point to the nation's short supply of affordable rental housing for low-income families as a critical problem. Although the American Housing Survey (AHS) reflects a relatively stable number of rental units from 1991 to 2005, there is much more to the story. In *State of the Nation's Housing 2006*, the Joint Center for Housing Studies (JCHS) at Harvard University reported that the shortfall in rental units available to low-income households reached 5.4 million in 2003. According to JCHS, the supply of low-cost rental units has eroded steadily over the past decade, with roughly 200,000 units dropping from the inventory each year. In a recent *Cityscape* article, economist David Vandembroucke of HUD's Office of Policy Development and Research (PD&R) says, "The housing stock is least sufficient for the lowest income households.... Only about 8 affordable units exist for every 10 ELI [extremely-low-income] households. Available units amount to about half this number. The stock of affordable, available, and adequate units is sufficient to house only about a third of ELIs."<sup>1</sup>

## Housing Inventory Dynamics

Although the size of the housing stock changes over time, net numbers do not reveal the dynamics of how units are lost and added over time. PD&R conducts a series of statistical analyses called the Components of Inventory Change (CINCH) to learn more about these housing dynamics. This tool allows housing analysts to use AHS data to examine housing inventory changes. When units are lost or added to the longitudinal AHS sample, CINCH analyses shed light on the underlying



While there were gains in some rental unit categories, the supply of affordable housing units for low-income families decreased between 2003 and 2005.

1. "Is There Enough Housing To Go Around?" *Cityscape: A Journal of Policy Development and Research*, Volume 9, Number 1 (2007), p. 179. See this issue at [www.huduser.org/periodicals/cityscpe/vol9num1/index.html](http://www.huduser.org/periodicals/cityscpe/vol9num1/index.html).

activity that leads to those losses and additions to the housing stock. According to *Components of Inventory Change: 2003–2005*, most losses and gains in total housing units occurred for the reasons listed in the following table:

Losses	Gains
Demolition or disaster	New construction
Mergers or conversions	Mergers or conversions
Movement of units	Movement of units
Damage or condemnation	Change from nonresidential use
Change to nonresidential use	Restoration of temporary loss

The rental unit supply, a subset of the total housing stock, is also affected by changes in tenure; that is, when the owner's decision to vacate or occupy a unit affects the unit's status. Of the estimated 38.1 million rental units existing in 2003, 14.7 percent were no longer in the inventory by 2005. More than half of these units became owner occupied, whereas others became seasonal units or secondary domiciles, and still others were converted to housing for migrant workers. Others were demolished or destroyed. Of the estimated 38.4 million rental units existing in 2005, 15.7 percent were new additions; more than half of these were owner occupied in 2003.

## Shifts within Affordable Rental Categories

A separate analysis of the rental housing subset, *Rental Market Dynamics: 2003–2005*, provides a picture from within the subset that is not immediately obvious. It reveals the direction and magnitude of changes in the number of units distributed across eight rent affordability categories. Overall, the results of this study show that between 2003 and 2005, shifts in the nature of the inventory favored less affordable rental units:

- **Nonmarket** units (subsidized or no cash rent) increased;
- **Extremely-low-rent** units, which are affordable at 30 percent of area median income (AMI), markedly declined with movement to higher affordability categories and loss of units from the stock;

continued on page 7

## In the (Empowerment) Zone continued from page 4

for rental rebates to help new or expanding businesses, challenge grants to businesses that renovate their properties, crews to keep sidewalks clean, and security patrol services. Another initiative, the Vacant Lands Stabilization Project, is an excellent example of how the strategic plan draws on existing strengths and resources within the community. The project reclaims and maintains vacant lots in the neighborhood at minimal cost, rather than neglecting them until the time comes for redevelopment. The Pennsylvania Horticultural Society, with some help from the city, has been able to “clean and green” hundreds of vacant lots, cutting site development costs from \$1.45 to \$1.08 per square foot. The project makes the American Street Industrial Corridor appealing to business and is credited with spurring an influx of new businesses, industrial firms, national retailers, and restaurants to the empowerment zone.

The CTB’s strategic plan also recognizes quality-of-life issues that make a neighborhood a more desirable place to live and raise a family. Enterprise zone funds have seeded North Philadelphia’s first retail shopping center in 30 years and a neighborhood market for fresh produce, crafts, prepared foods, and entertainment.

Nonprofits run a mural arts program for children, a family services center, and daycare services. The city works with a nonprofit to offer housing counseling to neighborhood residents, and the area now has a mini-mobile police station and Town Watch programs that promote neighborhood safety through community policing and emergency response.

When the empowerment zone designation ends in 2009, the proceeds from a long-term community endowment will empower the CTB, enabling it to plan, set priorities, and sustain the momentum of improvements. The United Way of Southeastern Pennsylvania has agreed to be the managing partner of those funds, handling grantmaking and investment.

More information is available online about the Empowerment Zone and its neighborhoods ([www.empowermentzone.org](http://www.empowermentzone.org)), the Vacant Land Stabilization Program (<http://www.pennsylvaniahorticulturalsociety.org/phlgreen/vacantland.html>), HUD’s Initiative for Renewal Communities and Urban Empowerment Zones ([www.hud.gov/offices/cpd/economicdevelopment/programs/rc/index.cfm](http://www.hud.gov/offices/cpd/economicdevelopment/programs/rc/index.cfm)), and the HUD Secretary’s Opportunity and Empowerment Award ([www.huduser.org/research/apa.html](http://www.huduser.org/research/apa.html)). **HJ**

---

## Dynamics of the Affordable Rental Housing Supply continued from page 6

- **Very-low-rent** units (affordable at 31 – 50 percent of AMI) substantially declined, mostly due to losses from the housing stock;
- **Low-rent** units (affordable at 51 – 60 percent of AMI) remained stable;
- **Moderate-rent** units (affordable at 61 – 80 percent of AMI) sizably increased;
- **High-rent** units (affordable at 81 – 100 percent of AMI) rose, largely as a result of movement among affordability categories;
- **Very-high-rent** units (affordable at 101 – 120 percent of AMI) increased modestly with a net inflow of units from nonrental sources that offset the net loss of units to other affordability categories; and
- **Extremely-high-rent** units (affordable at more than 120 percent of AMI) substantially increased with additions to the inventory.

In sum, the supply of affordable units for low-income families decreased between 2003 and 2005, especially

for very-low- and extremely-low-rent units. The decline was attributable to a loss of units to other affordability categories, a significant number of units leaving the rental stock, and shifts in rental affordability. These shifts are occurring in a larger context of widening gaps between household incomes and housing costs, an aging housing inventory, and regulatory constraints on building affordable housing.

This study of housing inventory dynamics adds an important but less visible aspect of the affordable housing problem to the overall body of knowledge required for crafting effective housing policy. Readers interested in this topic can find *Components of Inventory Change: 2003 – 2005* and *Rental Market Dynamics: 2003 – 2005* at [www.huduser.org/datasets/cinch/cinch05/cinch03-05.html](http://www.huduser.org/datasets/cinch/cinch05/cinch03-05.html).

Researchers and housing analysts may also want to access PD&R’s Housing Affordability Data System at [www.huduser.org/datasets/hads/hads.html](http://www.huduser.org/datasets/hads/hads.html). The *State of the Nation’s Housing 2006* is available at [www.jchs.harvard.edu/publications/markets/son2006/index.htm](http://www.jchs.harvard.edu/publications/markets/son2006/index.htm). **HJ**

**U.S. Department of Housing and Urban Development**

HUD USER

P.O. Box 23268

Washington, DC 20026—3268

PRESORTED  
FIRST-CLASS MAIL  
POSTAGE & FEES PAID  
HUD  
PERMIT NO. G—795

Official Business

Penalty for Private Use \$300

Return Service Requested

In the Next Issue of... <sup>research</sup> **works**

- Launched by HUD in 1996, the Homeownership Zone (HOZ) demonstration program is part of a national strategy to expand homeownership. Eleven demonstration cities in the U.S. are presently testing the idea that a well-designed, large-scale, mixed-income housing development can transform a blighted neighborhood into an attractive, safe, and healthy place for families. We'll provide an overview of an interim evaluation recently conducted to review the progress of the demonstration sites, to examine data that has accrued, and to identify emerging best practices that will be useful to other localities.
- Do homes of elderly homeowners appreciate at the same rate as the average house in their local market? This is an important question for homeowners who are planning their financial future and has implications for policy designed to support elderly citizens, as well as the reverse mortgage insurance program. We'll examine a study that explores this relationship between age and housing appreciation.
- HUD receives quarterly aggregated data on addresses the U. S. Postal Service identifies as vacant or inactive in the previous quarter. We make this content available to researchers and practitioners interested in assessing the data's usefulness for tracking neighborhood change on a quarterly basis. The data are available publicly at the census tract level to users who agree to the terms and conditions of the sublicense. We'll examine the basic USPS data available from HUD, as well as other data that may be of use to practitioners and researchers.
- HUD now has the results of a 2005 survey of the worst case housing needs in the United States. We'll examine the nature of worst case needs, who is experiencing these housing difficulties, where they are located, and how enduring this problem is for American households. In light of these findings, we'll also explore the supply of housing available to meet worst case housing needs.

www.huduser.org • 800.245.2691



U.S. Department of Housing  
and Urban Development  
Office of Policy Development  
and Research

