Report to the Chairmen of the Senate Finance and House Appropriations Committees

The Indoor Plumbing Program

Prepared by:
The Department of Housing and Community Development

December 2007

TABLE OF CONTENTS

Introduction 1

The Indoor Plumbing Issue 2

The Locus of the Problem 3

Other Dimensions of the Indoor Plumbing Problem 6

Identifying Future Indoor Plumbing Needs 7

Program Features 8

Leveraging Options 8

Cost Reduction Options 11

Alternatives to Housing Rehabilitation 14

Conclusion 16

Appendix A: Budget item 104 B.3

Appendix B: 2000 Census Maps

Foreword

Item 104 B.3 of the 2007 Appropriations Act requires the Department of Housing and Community Development (DHCD) to prepare a report on the Indoor Plumbing Program. The budget language identified several specific topics to be addressed within the report, which include:

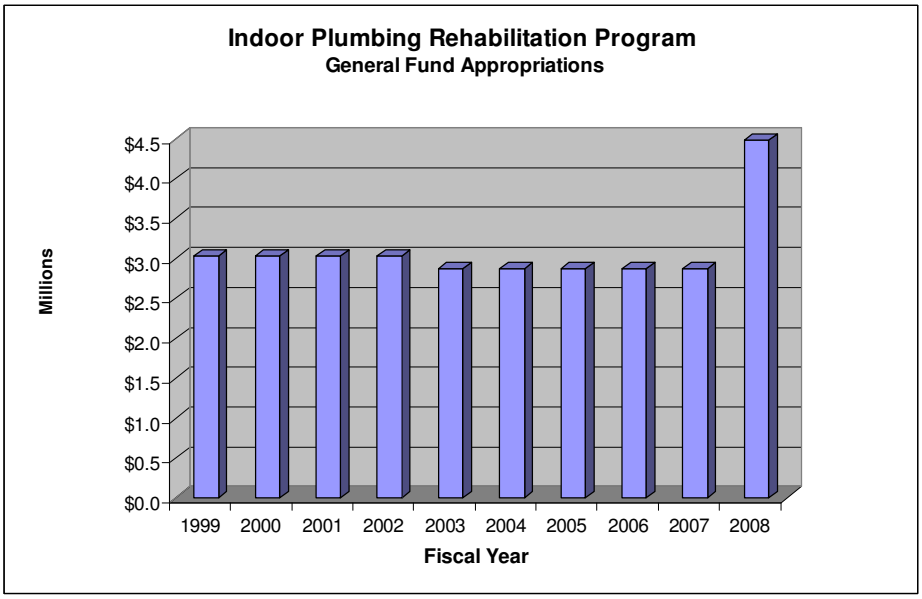
- ***The need for indoor plumbing program services [disaggregated] by planning district commission;***
- ***Strategies for leveraging state dollars with resources from other public agencies, nonprofit organizations, and the private sector;***
- ***Options to reduce the costs to rehabilitate housing; and***
- ***Alternatives other than [the] rehabilitation of existing structures.***

In preparing this report, DHCD examined the history of the program, considered census data defining the scope of the problem over time, identified the most recent and reliable estimates of the problem, and reviewed various aspects of the program including its administrative structure, financial resources and policies.

Introduction

The Department of Housing and Community Development (DHCD) has administered indoor plumbing improvement activities since 1989. The current Indoor Plumbing Rehabilitation (IPR) Program improves substandard housing for income-qualified households in non-entitlement localities by installing indoor plumbing in units lacking complete facilities (or those where existing water supply or waste disposal systems has failed). The program also provides for the general rehabilitation of the units, which may include accessibility improvements or the correction of overcrowding conditions. Completed houses must comply with DHCD's Field Guide for Section 8 Housing Quality Standards (HQS). DHCD contracts with local subrecipients to administer the program. The local subrecipients are responsible for most program operations, including outreach, intake, beneficiary and property eligibility determination, financial packaging, construction management and loan servicing.

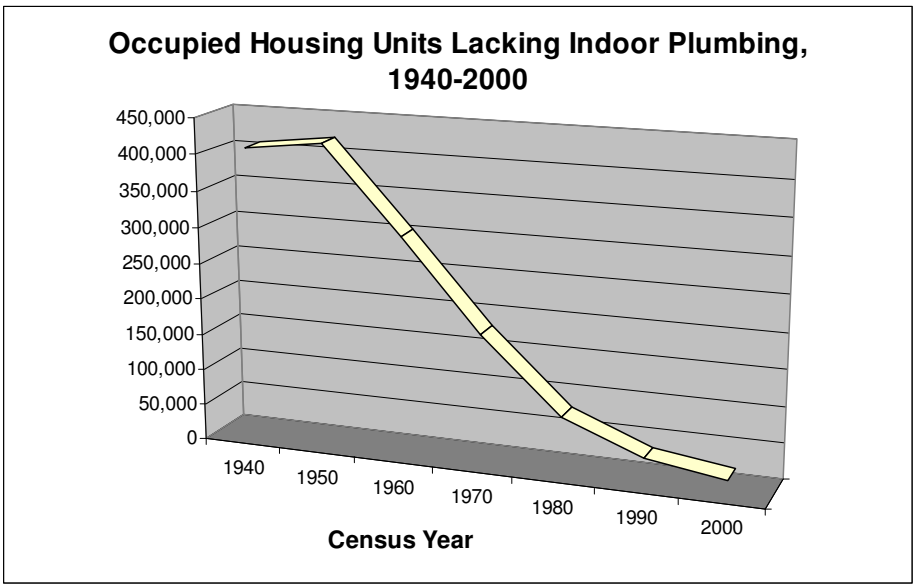
The Indoor Plumbing Rehabilitation Program (IPR) and its predecessor programs have received state funding since FY 1990. Initially, these funds were provided as a component of the Virginia Housing Partnership Fund. Since the late 1990s, even as general fund appropriations for the housing activities supported by the Partnership Fund were curtailed, the IPR program continued to receive significant funding.



For nine of the past ten fiscal years, the program has received an average of just under $3 million in general fund appropriations annually. In the current fiscal year, this increased to nearly $4.5 million. In addition, for several years, DHCD has annually allocated up to $5 million in federal HOME Investment Partnership Program (HOME) funds to this purpose.

The Indoor Plumbing Issue

The IPR program originated with the recognition in the 1980s that Virginia continued to rank among the top ten states in terms of the number of housing units (including seasonal and unoccupied units) not meeting the Census Bureau's definition of complete plumbing.[1] As shown on the chart below, the number of such units in Virginia had fallen dramatically since 1950. However, the perception remained that this housing deficit was being overcome at an even faster pace in other states and the nation as a whole. The program targeted those primarily rural areas of the state where the absolute numbers of such units and their share of the overall housing stock were relatively high.



As the number of substandard units fell during the past five decades, so did their share of the overall occupied housing stock—marking the elimination or upgrading of existing units, the construction of hundreds of thousand of modern housing units, and the extension of public utilities. Between 1950 and 2000, the percentage of occupied housing units meeting the census definition declined from about one-half to less than one percent of the state total.

[1] The 2000 Census defined complete plumbing facilities as: (1) hot and cold piped water, (2) a flush toilet, and (3) a bathtub or shower. All three facilities had to be located inside the house, apartment, or mobile home, but not necessarily in the same room. Housing units lacked complete plumbing facilities when any one of the three facilities was not present. Census data from 1990 and 2000 were not strictly comparable with earlier data. Before 1990, complete plumbing facilities were defined as hot and cold piped water, a bathtub or shower, and a flush toilet in the housing unit for the *exclusive* use of the residents of that unit. In 1990, the Census Bureau dropped exclusive use from the definition. Approximately one-quarter of the year-round housing units were classified in 1980 as lacking complete plumbing because the facilities were used by members of another household. From 1940 to 1970, separate and more detailed questions were asked on piped water, bathing, and toilet facilities. Before 1990, questions on plumbing facilities were asked on a 100-percent basis. In 1990 and 2000, they were asked on a sample basis. U.S. Census Bureau, 2000 Census of Population and Housing, *Summary Social, Economic, and Housing Characteristics, Selected Appendixes,* PHC-2-A, Washington, DC (2003).

The Locus of the Problem

Until 1950, urban areas represented about one-quarter of the plumbing deficient units. From 1950 through 1990, and despite efforts to reduce their numbers, rural areas accounted for most of the deficient units.[2] During the 1990s, however, significant progress in eliminating these substandard units occurred in rural areas. This may have been partially responsible for a change that became apparent in the 2000 census. Urban areas accounted for a larger share of units lacking complete plumbing than in previous decades. In some urban jurisdictions, the number of units reporting incomplete plumbing actually increased.[3] One-third of these units were located within the planning districts encompassing the state's most populous metropolitan areas—Northern Virginia (PDC 8), Richmond Regional (PDC 15), and Hampton Roads (PDC 23). Three-fifths of the localities with 250 or more deficient units were urban rather than rural. Several different factors may explain this surprising and unexpected result.

Because the definition of complete facilities relates to individual dwelling units, an increase in residential units with shared bathroom or shower facilities is a more likely hypothesis than a sudden increase in outhouses in urban Virginia. "Non-sampling errors," that is mistakes by those filling in the census forms, may also play a role. The census definition of complete plumbing may have confused respondents. Language barriers in communities with significant foreign born populations (e.g., Fairfax County) may have added to the confusion. Another potential contributing factor, "sampling error", reflects that unlike previous censuses, plumbing status was determined through sampling rather than a 100 percent count. Sampling error addresses the possibility that the reported values were due to random variations in the estimates obtained from the sample.[4]

In 2003, following the publication of this information, Virginia Tech's Center for Housing Research examined the 2000 census results relating to indoor plumbing in some detail. They paid particular attention to the confidence intervals (the range within which one can be confident to a specified degree that the actual value is present) associated with the reported changes occurring between 1990 and 2000. [5] The Center noted that more than half of the sixteen reported increases in occupied units lacking plumbing were statistically indistinguishable from zero. Because of this sampling variability, the Center recommended that any reported increases should be interpreted with extreme caution. Further, because

---

[2] The National Rural Community Assistance Program, *Still Living without the Basics, A Report on the Lack of Complete Plumbing That Still Exists in Rural America* (1995).

[3] C. Theodore Koebel and Curtis C. Brown, "Units Lacking Complete Plumbing Facilities in Virginia, 2000", Virginia Tech Center for Housing Research (2003), 1.

[4] Koebel and Brown, "Units Lacking Complete Plumbing", 2.

[5] For example, in 2000 the statewide estimate of occupied units lacking complete plumbing facilities was 19,550 with a 95% confidence interval of ± 671. Thus the true number is expected to lie between 18,879 and 20,221. When the number of units is very small, it becomes increasingly difficult to estimate them with the desired accuracy.

these units constitute a relatively small and shrinking component of the state's housing stock, they will be harder to track accurately in subsequent censuses.[6]

In spite of these caveats, Census 2000 provided the most complete *estimate* of the number of occupied units lacking complete plumbing facilities for all Virginia localities. The table below summarizes by planning district the count of occupied housing units, their share of the local occupied housing, and their contribution to the overall state total of plumbing deficient units.

2000 Census of Housing
Occupied Units Lacking Complete Plumbing Facilities by Planning District

Planning District	Occupied Housing Units	Occupied Units Lacking Complete Plumbing	Percent of Occupied Units Lacking Complete Plumbing by PDC	Percent of State Total of Occupied Units Lacking Complete Plumbing
1--Lenowisco	37,244	647	1.74%	3.31%
2--Cumberland Plateau	47,262	698	1.48%	3.57%
3--Mount Rogers	78,701	959	1.22%	4.91%
4--New River Valley	64,234	477	0.74%	2.44%
5--Roanoke Valley-Alleghany RC	110,228	554	0.50%	2.83%
6--Central Shenandoah	97,763	1,061	1.09%	5.43%
7--Northern Shenandoah Valley	72,728	885	1.22%	4.53%
8--Northern Virginia	680,942	2,471	0.36%	12.64%
9--Rappahannock-Rapidan RC	49,660	783	1.58%	4.01%
10--Thomas Jefferson	77,520	809	1.04%	4.14%
11--Region 2000	89,736	611	0.68%	3.13%
12--West Piedmont	102,803	1,060	1.03%	5.42%
13--Southside	34,246	934	2.73%	4.78%
14--Commonwealth Regional Council	35,266	773	2.19%	3.95%
15--Richmond Regional	338,574	1,548	0.46%	7.92%
16--George Washington Regional Commission	83,709	495	0.59%	2.53%
17--Northern Neck	20,257	547	2.70%	2.80%

[6] Koebel and Brown, "Units Lacking Complete Plumbing", 3 and Table 3.

2000 Census of Housing
Occupied Units Lacking Complete Plumbing Facilities by Planning District

Planning District	Occupied Housing Units	Occupied Units Lacking Complete Plumbing	Percent of Occupied Units Lacking Complete Plumbing by PDC	Percent of State Total of Occupied Units Lacking Complete Plumbing
18--Middle Peninsula	32,826	482	1.47%	2.47%
19--Crater	61,493	544	0.88%	2.78%
22--Accomack-Northampton	20,620	649	3.15%	3.32%
23--Hampton Roads	563,361	2,563	0.45%	13.11%
TOTAL	2,699,173	19,550	0.72%	100.00%
Data Source: Census 2000, Summary File 3, Table H48				

The maps shown in Appendix B amplify the data from the preceding table and provide additional detail from the census. They confirm the high count of units in some of the state's largest and most urbanized localities. Six of the top ten localities by unit count lay in major metropolitan areas, though high counts also occurred in parts of Southside, the Eastern Shore, and Southwest Virginia—the traditional locus of the program. A different picture emerges when the *percentage* of a locality's occupied housing units that lacked the requisite facilities are depicted. In this case, rural rather than urban areas show a higher relative need.

More recent estimates through 2006 are available through the American Community Survey (ACS);[7] however, this source is currently limited to providing estimates of the state total and localities with populations of 65,000 or more. The relatively small sample size of this source leads to correspondingly larger margins of error even to attain a 90 percent confidence interval. [8]The ACS data corresponds with the results of the 2000 census in one sense. Large urban localities accounted for 45 percent of the estimated total of units for the state as a whole. This again suggests that the locus of the problem, depending on the extent of sampling and non-sampling error, may be shifting somewhat to urban settings where the problem is distinct from the traditional concept of lacking complete plumbing symbolized by the iconic outhouse.

[7] In 2010, the ACS will supplant the long form used in previous censuses. Aggregated data from several years will allow reporting on smaller units of census geography.
[8] For a discussion of sampling error with this source see "2006 Data Users Handbook, *The American Community Survey*", 7-8; http://www.census.gov/acs/www/Downloads/Handbook.2006.pdf

Other Dimensions of the Indoor Plumbing Problem

The census definition of units lacking complete plumbing is the most commonly used indicator of deficient housing quality. For many, it has come to define the entire indoor plumbing problem. However, it may not fully correspond to public perceptions of the problem or to actual circumstances in the field. Nor, for that matter, did it always match the program definition of "lacking complete plumbing facilities." In 2005, for example, an eligible unit could qualify on the basis of lacking a functioning kitchen sink, which was not one of the census criteria used to characterize incomplete facilities.[9] The most recent program eligibility criteria match the census definition.

Indicators of need not based on the census may identify housing excluded from the samples used in the decennial census or the ACS. Related problems include homes with failing septic systems that effectively obviate the benefit of indoor plumbing; instances of the "straight piping" of sanitary waste into rivers and streams, which significantly impairs water quality in the affected aquatic environment while posing a downstream health risk; and reliance on compromised, deficient, or substandard water supply sources such as cisterns or contaminated springs.

Unfortunately, because the census no longer collects information on water supply sources or the means of sewage disposal, information comparable to the complete plumbing concept has not been available on a consistent basis since 1990. This and further limitations of future census data on housing quality suggest that other sources of information may also need to be consulted.

The Virginia Department of Health (VDH) has been working for some time on an effective means for determining the rate of septic tank system failure. In 2002, VDH noted that simply counting the number of annual applications for the repair of failing systems was an inadequate measure because it only included owners voluntarily approaching the agency for assistance. Inadequate as it was, nevertheless in FY 2006 this measure reported over 5,400 applications for repair permits—approximately ½ percent of the estimated number of existing systems.[10] Some portion of these failing systems, depending on their location and other factors, might qualify for assistance through the IPR program. VDH anticipates that the Virginia Environmental Information System (VENIS) will eventually allow a much more accurate assessment of the status of onsite sewage systems in the state.

"Straight piping" wastewater into Virginia's rivers and streams has received increased attention during the past decade. Here the problem is not ailing septic tanks and drainfields

[9] The 2000 Census and the ACS both include a category that defined "complete kitchen facilities" as having a sink with piped water as well as a range or stove (and oven for the ACS) and a refrigerator.

[10] Virginia Department of Health, *Five Year Report on the Status of Onsite Sewage Handling and Disposal*, Senate Document No. 21 (2002), 7; Virginia Department of Health, *Five Year Report on the Status of Onsite Sewage Handling and Disposal*, Report Document No. 227 (2006), 6.

but their complete absence—even if conventional plumbing facilities are found within the unit. Like failing septic systems, straight piping sometimes eludes a full accounting, though VDH and the Department of Environmental Quality (DEQ) have been pursuing an accurate assessment of the problem through different methodologies while allocating resources to correcting identified instances. The recent appropriation of a portion of the Water Quality Improvement Fund (WQIF) to the Southern Rivers Watersheds targeted the correction of straight pipes in these waters (e.g., the Big Sandy, Clinch-Powell, Holston and other drainage basins not reaching Chesapeake Bay).

Water supply shortcomings may be even more elusive. Problems can involve water quality, quantity, or some combination of the two. These problems have been especially noteworthy in southwest Virginia.[11] The absence of reliable water supply sources may be as significant factor preventing some housing—even units with customary plumbing facilities in place—from performing as intended.

Finally, there may be instances where the accessibility of facilities becomes an issue because a disability has impaired the mobility of housing occupants. Older existing housing units with narrow hallways, narrow doors, or small bathing/toilet facilities may hamper or even prevent the use of nominally complete facilities.

The constructive lack of access to complete plumbing facilities, caused by the factors considered above, has the same impact on the dwelling unit and its residents as does the absence of complete plumbing as defined by the census.

Identifying Future Indoor Plumbing Needs

The terms of the census definition, the sampling methodology used by the census and ACS, and the apparent ongoing reduction in the count of readily identifiable deficient units all suggest that in the future fewer and fewer units will easily be found that fit the classic concept of "lacking indoor plumbing." At some point they are likely to approach a statistical vanishing point—at least from the perspective of census sampling. As the 2000 census results suggested, a substantial portion of the total count of deficient units according to the census definition may be found in urban settings, representing a different set of housing circumstances than the traditional image of the outhouse.

Sources other than the census may provide better targeting in future years. The indoor plumbing problem may be shrinking on a statewide basis relative to other housing issues. However, for the remaining households lacking access to complete plumbing--for whatever reason--and for the localities that are home to them, the issue continues to loom large. It, poses an ongoing threat to the health and well-being of the occupants, and in some cases to

[11] Report of the Joint Subcommittee Studying *Drinking Water Supply Problems and Funding Mechanisms to Correct Drinking Water Deficiencies in Southwest Virginia*, House Document No. 3 (1998), 1-6, Appendix B.

other households, the larger community, and the environment. The houses that remain in this category may be the most difficult to serve because of their remoteness, their limited options for water supply and wastewater handling, and the resources of their occupants.

Program Features

The Indoor Plumbing Rehabilitation program has evolved over the past two decades to emphasize increased effectiveness in addressing the targeted problem and greater efficiency in the use of available resources. The current program incorporates requirements and policy tenets established by the Board of Housing and Community Development. The key policy tenets provide that:

- Only houses lacking functional indoor plumbing qualify for assistance,
- Program beneficiaries will repay loan funds based on their ability to pay, and
- Self-help and homeownership opportunities create responsibility for ongoing property maintenance while increasing wealth for lower-income participants.

In developing the current program design, DHCD and its Board have considered various alternatives relating to funding and funding sources, program eligibility, cost containment, and the extent to which structures should undergo rehabilitation. Thus, the topics discussed in the remaining sections of this report are familiar ones. In each case, the information reflects both long term and recent experience with the program.

Leveraging Options

As noted in the Introduction, since its inception almost twenty years ago the IPR program has relied on annual general fund appropriations. Although this funding source has been central to the ongoing effort to eliminate this category of substandard housing, it has not been the sole source of program support. IPR has sufficient flexibility to draw on a variety of other funding sources and leverage inputs from related programs.

For several years, through its annual Consolidated Plan Action Plans, required as part of its responsibility for administering federal **HOME Investment Partnership (HOME)** and other U.S. Department of Housing and Urban Development (HUD) formula program funds, DHCD has allocated as much as $5 million per year in HOME monies for use in the IPR program. In recent years this has been the largest single source of program funds. However, units assisted with funds drawn from this source must meet all program requirements associated with the HOME program, which limits its flexibility. These include income eligibility, construction standards, fund matching, and other federal standards and assurances.

Virginia Community Capital (VCC) is a more recent potential source of loans for qualified households participating in the IPR program. This statewide community development financial institution (CDFI) offers innovative, flexible financial products designed to support housing and community development ventures, increase jobs and build sustainable communities. In 2005, VCC received $17 million in equity capital enabling it to operate throughout the state. Through its single-family home improvement program, VCC extends loans to localities, housing authorities and non-profits who in turn make 5 to 15 year permanent mortgage loans on single-family homes for critical infrastructure improvements, which could include indoor plumbing rehabilitation. These loans are generally tied to state and federal grants for qualified low and moderate income individuals who need additional borrowed funds to complete renovations. These generally target individuals or families earning 80% or less of area median income.

Because the IPR program design provided for assistance in the form of a no-interest loan, some **Program Income** is generally available for recycling. Although it has not been a major source of revenue, program income can expand program capacity. Program income is money earned or received because of the expenditure of IPR HOME funds. It includes loan payments, loan payoffs and the interest earned on rollover funds. DHCD requires its program sub-recipients using IPR HOME funds to have a Program Income Plan listing the activities eligible to use program income. IPR also has requirements respecting the adoption of the Plan and applicable accounting procedures for program income. For example, funds received during an open contract year are accumulated and considered *Active Program Income*. Active program income earned during the contract period must be used before requesting additional funds from DHCD. When funds reach $1,000, the subsequent funding request must be reduced by the amount of program income received to date or returned to DHCD. *Inactive Program Income* comprises funds received after the end of the contract year. These may be used for eligible activities described in the program income plan, which are intended to bring deficient properties up to DHCD's Housing Quality Standards. Program income must be placed in a revolving loan fund with an approved program income plan. No more than ten percent of program income can be used for administrative costs of a construction project. Program income is to be used only for applicants whose household incomes are at or below 80% of median income. DHCD requires that all program income must be expended within the County where it was earned until all houses without bathrooms have been served. Afterwards, the income can be spent in other counties, although the locality receiving the program income must indicate where program income was earned and spent.

Some properties may qualify for loan or grant funds available from **U.S. Department of Agriculture Rural Development**. Section 504 loans and grants are available to very low income homeowners in rural areas to repair single family homes. An aggregate of up to $20,000 may be borrowed for a maximum term of twenty years at a fixed interest rate of 1 percent. Qualifying very low-income seniors may be eligible for more limited grants for similar purposes. Water and wastewater systems must meet Rural Development Housing and Community Facilities Program (HCFP) requirements.

The **Federal Home Loan Bank of Atlanta** Affordable Housing Program (AHP) offers low-interest loan and grant programs for construction and renovation. These are awarded to project sponsors through an application process. Some projects involve construction, such as the recent grant of $70,200 towards the construction by the Fauquier Habitat for Humanity of nine housing units. Others, such as the award of $100,000 to the People Incorporated Homebuyer Program operating in Southwest Virginia, can be used to acquire existing homes requiring renovation. In any event, this is another potential source of source of funding for the type of home renovations associated with indoor plumbing.

Non-profit organizations such as **Habitat for Humanity** can also play a role. That organization's ability to use sweat equity, volunteer labor and donated materials to construct affordable housing enables them to dovetail with the IPR program.

The **Southeast Rural Community Assistance Program (Southeast RCAP—formerly the Virginia Water Project)** has a long history in working with rural water projects dating back to the National Demonstration Water Project of the 1970s. Since 1978, the General Assembly has appropriated funds to support various Southeast RCAP activities in six program areas: community organizing, water and wastewater infrastructure development, system operation and management assistance, housing, rural economic development and rural environmental resource issues. Several of the activities included within these programs can work in tandem with or parallel to IPR. These include emergency grants to low-income families to replace or repair damaged plumbing and providing subsidies to cover tap fees and hook-on costs for low-income families. In FY 2007, the General Assembly appropriated an additional $900,000 to the organization with the requirement that it be used exclusively for indoor plumbing rehabilitation.

Fund Sources for the IPR Program

FY 2005 – FY 2007

Fiscal Year	State Appropriation	Leveraged Funds	Total Funds Expended	$ Leveraged per State $ Appropriated	Leveraged $ as a Percent of Total $
2005	$2,880,000	$5,003,625	$7,883,625	$ 1.74	63%
2006	$2,880,000	$2,338,340	$5,218,340	$ 0.81	45%
2007	$2,880,000	$8,495,039	$11,375,039	$ 2.95	75%
3-Year Total	$8,640,000	$15,837,004	$24,477,004	$ 1.83	65%

Over the life of the IPR program, DHCD has partnered with all of the aforementioned entities as well as others in an effort to leverage community resources toward improving housing conditions in rural Virginia. Over the past three fiscal years, the amount of federal and private funds leveraged considerably exceeded the state appropriations during the same

period. Although the amount leveraged varied substantially from year to year, in the aggregate, each state dollar appropriated for the IPR program brought in an additional $1.83 in federal or private funding for qualified activities, accounting for almost two-thirds of the expended funds.

DHCD recently developed another approach that may stretch available resources further. Public funding constraints limit the amount of work that IPR subrecipients and Community Development Block Grant (CDBG) grantees can perform on any one house. Although eligible households generally must have incomes ≤ 80% of area median income, some may be willing and able to borrow a limited amount of additional funds to pay for basic home improvements over and above what these programs can provide. The **Supplemental Loan Program** will allow IPR subrecipients and CDBG grantees to originate, process, underwrite, close and service (including pre-and post-loan closing counseling) mortgage loans for additional home improvements as part of their ongoing programs. Subrecipient and grantee participation in this program is voluntary. Program Administrators may integrate necessary elements into their existing program policies and procedures. In exchange for this flexibility, the program administrators not only must demonstrate a capability and capacity to administer Supplemental Loans, but also share in the risk by co-insuring ten percent of any loan default losses. Mortgage loan and counseling training and technical assistance will be available.

Virginia Community Capital has made a line of credit available for this program. At least one other funding source is expected to participate, thus giving local administrators different funding options. Loans will be available in amounts up to $20,000 per household for a term of ten years at an interest rate linked to the 10-year Treasury rate plus additional basis points to cover the cost of the entities making the credit available and the local program administrator. The loans may only be used for actual property improvements and not to cover soft costs. They will occupy a relatively senior lien rank (as first or second deed of trust). The loan program includes a number of additional safeguards, addressing ability to pay and other features that are intended to secure the long term viability of the loans for borrowers, lenders, and program administrators.

Cost Reduction Options

The cost and scope of work done under the IPR program have been perennial concerns. Over the past two decades the cost of improving a unit has increased. Many factors affect program costs. These include variables such as the location and size of the unit; the program definition of "lacking complete plumbing"; the specific deficiencies qualifying a unit for the program; whether rehabilitation or substantial reconstruction[12] is necessary; the applicable rehabilitation standards; the age of the unit (which affects whether lead-based

[12] Substantial reconstruction involves demolishing an existing unit and replacing it with new construction. See page 15.

paint may be present); changes in the cost of materials, equipment and labor; whether the unit has access to an approved water supply source; and options for handling wastewater.

External factors that influence the cost of materials and supplies have sometimes affected the IPR program. In the wake of Hurricane Katrina, for example, the sudden increase in the demand for gypsum wallboard needed to renovate thousands of homes flooded or destroyed along the Gulf coast and in metro New Orleans combined with the loss of production from plants damaged by the storm to raise drywall costs by an expected 15-20 percent during 2006.[13] PVC pipe and other materials were similarly affected by increased demand and production reductions attributable to the storms of that year.

Soil conditions in many of the areas where the IPR program operates limit options for wastewater handling. Conventional drainfield installations may be impractical in areas where there is a high water table, soils with unusually rapid percolation rates, or where soils form only a thin layer over shallow bedrock. A variety of alternative technology onsite systems may be technically feasible, but they present other challenges because of their cost or other limiting features. Some alternatives, such as mound systems, are relatively expensive. Others, such as peat leach fields can be expensive and may require particular care in installation to avoid premature failure.

The necessity to address the possible presence of lead-based paint introduces another cost area. Most homes lacking complete plumbing were originally constructed before the 1978 phase-out of lead-based paint for domestic purposes. Responding to the identified or presumed presence of lead hazards can constitute an estimated 10-15 percent of project costs.

DHCD has developed program requirements, including cost limits, as a means to keep per unit costs under control and to assure that resources continue to be available across the Commonwealth. Over time, and in the face of rising costs and at the request of subrecipients themselves squeezed by the rising cost of materials, DHCD has increased program limits for the various eligible categories of housing.

Current IPR Construction Cost Limits for Major Work Categories

Project Category	Maximum Possible Per Unit Costs
Housing Rehabilitation—Incomplete Plumbing	$40,000(pre-1978 unit); $50,000 (post-1978 unit)
Housing Rehabilitation—No Bathroom	$70,000
Substantial Reconstruction—Incomplete Plumbing	$55,000
Substantial Reconstruction—No Bathroom	$70,000

[13]See *Engineering News-Record*, September 28, 2005,"Third Quarterly Cost Report, Materials, Katrina Keeps Inflation Roaring," http://www.pinnacleone.com/press_releases_pdf/ENR_3rd_Q_Cost_Report_09262005.pdf

In addition to the cost limits established for basic categories of rehabilitation and construction, the IPR program has provided for "exceptions" that address specific features of a project that are unique to the circumstances of the individual unit concerned. This approach dampens tendencies to overbuild while providing a means to accommodate the costs attendant upon special circumstances such as large families, mobility limitations, or the need to provide an approved source of water. Exceptions include such categories as:

- Construction of a bathroom when rehabilitating a unit that lacks a bathroom
- Installation of a successful, tested and approved well and/or a septic system
- Provision of water and/or sewer connections
- Survey (as needed); permit fees (e.g., Health Department), soil evaluations; and actual laboratory costs for lead clearance testing

DHCD also establishes limits for administrative costs, construction–related soft costs (e.g., architectural or engineering services and some required testing), and maintenance education for the homeowners.

Finally, DHCD has implemented a number of policies that address concerns such as preventing conflicts of interest that violate state and federal requirements. Still other policies encourage and incentivize additional local leveraging efforts and encourage, while not requiring, the use of Universal Design elements and Energy Star rated appliances where economically feasible. These latter policies address the long-term usability of rehabilitated units as well as their long-term efficiency and economic affordability.

The combined average per unit costs over the past three fiscal years, while remaining below the currently established program limits, nevertheless shows a slow but steady increase, reflecting the effect of many of the cost push factors discussed in previous paragraphs.

Average IPR Program Per Unit Cost
FY 2005 – FY 2007

Fiscal Year	Cost Per Unit
2005	$48,070
2006	$51,667
2007	$53,404

DHCD regularly reviews the cost structure of the IPR Program. Cost containment has been both an implicit and explicit feature of the program. Options for reducing the cost of rehabilitation must generally focus on items such as the point at which rehabilitation should not be considered, the housing quality and other standards applicable to the unit undergoing rehabilitation, and the long term affordability of the unit.

By using the current Housing Quality Standards rather than the more stringent Section 8 housing standards, DHCD has attempted to balance the need for basic habitability with the need to reach as many of the remaining indoor plumbing units as possible. In some cases, for example where lead hazards exist, certain additional costs are an inevitable to comply with standards intended to protect the life and health of occupants. Because the houses eligible for IPR are generally among the oldest components of the housing stock, the option of not working where there is an identified lead based paint hazard would preclude their rehabilitation or require even more extensive use of a demolition and substantial reconstruction option, which would generally be more expensive in the aggregate.

Options for the safe handling of wastewater present another area of concern. Alternative technologies sometimes present the most satisfactory means for sewage handling. However, costs may be significantly higher than those where conventional means are a viable method. To the extent that Virginia develops a regulatory structure that permits the use of alternative technologies at reasonable cost, their increased use could provide a modest reduction in cost or at least dampen cost increases.

The program has attempted to incentivize leveraging of local funds. Although this does not reduce costs, it at least spreads the burden across a greater base. Similarly, the availability of supplemental loans may enable DHCD to focus its direct involvement on core needs while permitting qualified owners to make additional related improvements.

The recent downturn in housing sales and production may benefit the IPR program by stabilizing the cost of some key construction materials. During previous economic slowdowns, contractors and suppliers have reduced prices to attract work. Although this effect is not yet evident, the program may be positioned to take advantage of opportunities as they arise.

Alternatives to Housing Rehabilitation

Since its inception, the nearly exclusive focus of the Indoor Plumbing Rehabilitation Program has been on single family housing located in rural areas of the Commonwealth. This necessarily limits the available options.

This initiative was originally known as the Indoor Plumbing Program (IPP). Program activities generally mirrored the name. Projects were usually limited to structural additions or modifications that directly addressed the absence of plumbing facilities and such ancillary aspects as water sources and septic tanks/drainfields. However, it eventually became apparent that such an approach was equivalent to patching a bald tire. If the long term habitability or serviceability of the housing unit as a whole was questionable, the benefit of the improved plumbing would remain at some risk.

The 1995 Appropriations Act included an item directing that the IPP be administered using the Federal Housing Quality Standards (HQS) in place on July 1, 1994. The legislature also directed the Board of Housing and Community Development to "develop guidelines for the expenditure of general and nongeneral funds appropriated to . . . the Indoor Plumbing Program."[14] On July 19, 1995, the Board of Housing and Community Development approved a resolution adopting new guidelines for the renamed Indoor Plumbing/Rehabilitation program.[15] To preserve the value of the indoor plumbing improvements, the program that now began operating under the IPR rubric provided for additional rehabilitation activities on an eligible housing unit meeting the HQS. This became the preferred approach to providing a serviceable unit with the requisite plumbing facilities.

There are cases, however, where it is necessary or advisable to consider alternatives to rehabilitation. Alternatives may be necessary due to the cost of rehabilitation, the site, location or condition of the original structure, or household circumstances. The most typical alternatives are **permanent relocation** and **substantial reconstruction**. Finally, there may be other considerations unrelated to the structure itself that affect the response of a subrecipient to a potential beneficiary.

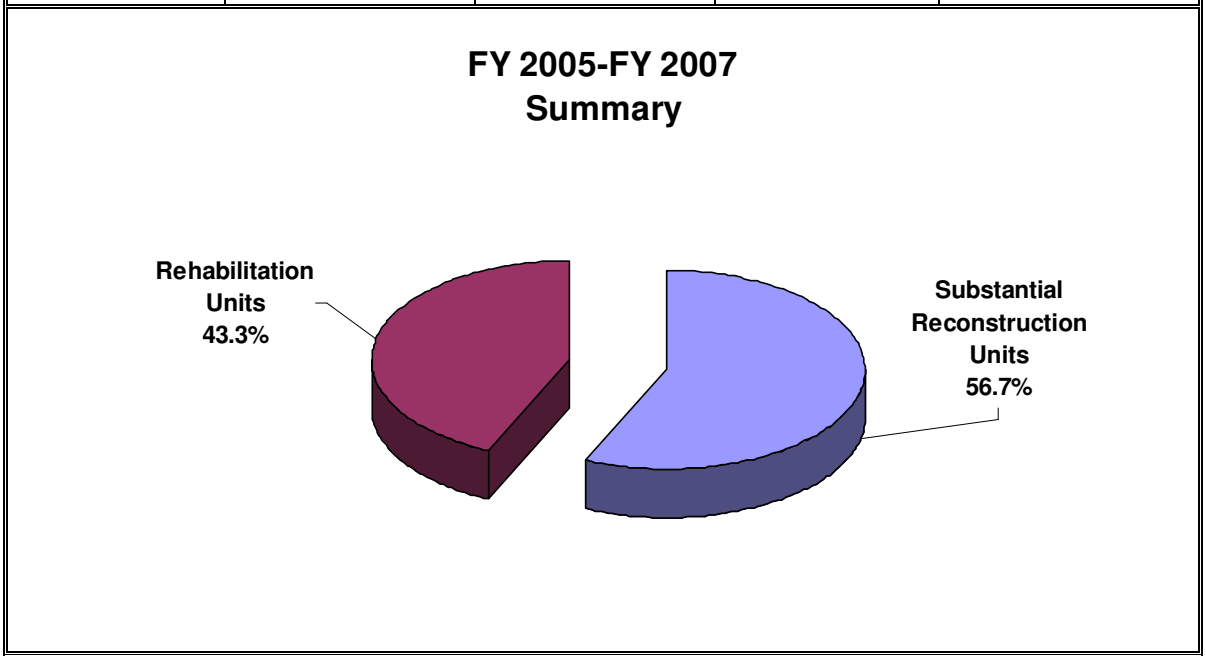
Permanent relocation may be necessary if the condition of the house is such that rehabilitation is impossible within program cost limits. The relocation must be to a house that either already meets the housing standard or that will undergo rehabilitation in accordance with the Housing Quality Standards. In the latter event, the rehabilitation must take place within the established cost limits and the house being vacated must be acquired and demolished by the subrecipient administering the local program.

In some cases where the existing deficient unit is structurally unsound and rehabilitation costs are determined to be in excess of program limits, substantial reconstruction on the same site may be the appropriate response. In this case, the existing structure will be demolished and a new structure built. Substantial reconstruction is a last resort after other alternatives have been examined and determined to be infeasible. The subrecipient must document the determination that substantial reconstruction was the most cost-effective solution and that rehabilitation was impossible. Construction bids must fall within the established program limits, and the cost for the proposed substantial reconstruction must be less than the estimated cost of the existing home.

[14] Chapter 853, 1995 Virginia Acts of Assembly, Items 102. C. and 102. D.
[15] Minutes of the Board of Housing and Community Development, July 19, 1995.

Rehabilitation and Reconstruction Alternatives
FY 2005 – FY 2007

Fiscal Year	Substantial Reconstruction Units	Rehabilitation Units	Total Units	Percentage Substantial Reconstruction
2005	89	75	164	54%
2006	66	35	101	65%
2007	116	97	213	54%
3 Year Total	271	207	478	57%



Manufactured homes may be eligible for IPR rehabilitation in cases where the unit lacks functional indoor plumbing, the head of household owns the unit and the underlying real property, and the cost of rehabilitation will not exceed $10,000 plus an additional $10,000 for well and septic tank installation.

As the preceding table and chart indicate, more than one-half of the recent IPR work has involved reconstruction rather than the rehabilitation of existing structures. This may indicate that the remaining units lacking indoor plumbing are those in the poorest condition and are thus more likely to be candidates for replacement rather than renovation.

Conclusion

Over the past two decades the Indoor Plumbing Rehabilitation program has contributed substantially to the downsizing of Virginia's stock of occupied homes lacking complete indoor plumbing. Changes in census methodology and the relatively small proportion of homes remaining in this category will make census data an imperfect guide to the problem in the next decade. There will, nevertheless, continue to be areas of the Commonwealth where this remains a significant component of the overall housing quality problem. Many of these will be in places that are more difficult to serve because of their isolation, remoteness from viable drinking water sources, or other site-related factors.

Each year the program has obligated and expended all available funds to complete the upgrading of deficient units. Because DHCD recognizes limits on the availability of state funding for this program, it has developed and encouraged options for leveraging additional funds from federal, local, and private sources. The creation of Virginia Community Capital and the introduction of supplemental loans are only the most recent examples of this approach. By encouraging and incentivizing efforts to leverage outside funding sources, DHCD is attempting to stretch state appropriations to the fullest possible extent.

Reducing overall and per unit program costs has been a challenge in the recent housing market. By focusing on maintaining a reasonable set of housing quality standards, setting limits on the amount of work that can be completed under the rehabilitation option versus reconstruction, using appropriate approaches to lead hazards, and other steps DHCD has attempted to dampen inflationary impacts. Whether the current economic circumstances of the housing industry affect the program adversely or positively will become clearer in the next year.

Alternatives to rehabilitation have long been a feature of the program. In the most recent three-year period, substantial reconstruction has been more common than rehabilitation. If the remaining stock of units lacking complete plumbing is in poorer condition than the units that have been served by the program in the past, relocation and reconstruction or the use of manufactured units may become more prevalent. At any rate, the overall program design and the policies that implement it will continue to emphasize the most cost-effective response to the circumstances encountered on the ground.

Appendix A
Budget Item 104 B.3

Chapter 847, 2007 Acts of Assembly

Item 104 B.3

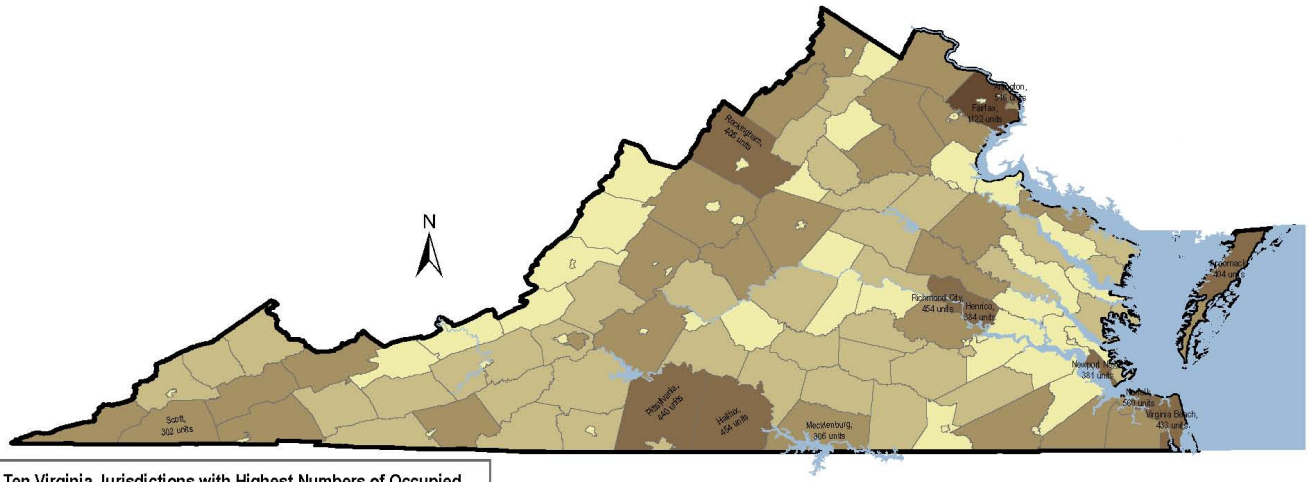
The Department of Housing and Community Development shall prepare a report on the Indoor Plumbing Program. As part of the report, the Department shall identify the need for indoor plumbing program services by planning district commission; strategies for leveraging state dollars with resources from other public agencies, nonprofit organizations, and the private sector; options to reduce the costs to rehabilitate housing; and alternatives other than rehabilitation of existing structures. The Department shall submit the report to the Chairmen of the Senate Finance and House Appropriations Committees by December 1, 2007.

Appendix B
2000 Census Maps

1. Distribution of Occupied Units Lacking Complete Plumbing Facilities by City and County

2. Percentage of Units Lacking Complete Plumbing Facilities by City and County

Occupied Housing Units Lacking Complete Plumbing Facilities in 2000



Ten Virginia Jurisdictions with Highest Numbers of Occupied Housing Units Lacking Complete Plumbing Facilities (in year 2000)

1. Fairfax County	1122 occupied housing units
2. Norfolk	560 occupied housing units
3. Arlington County	516 occupied housing units
4. Halifax County	454 occupied housing units
5. Richmond City	454 occupied housing units
6. Pittsylvania County	440 occupied housing units
7. Virginia Beach	433 occupied housing units
8. Rockingham County	405 occupied housing units
9. Accomack County	404 occupied housing units
10. Henrico County	384 occupied housing units

# of Occupied Units Lacking Complete Plumbing Facilities

- 0 - 78
- 79 - 179
- 180 - 306
- 307 - 560
- 561 - 1122

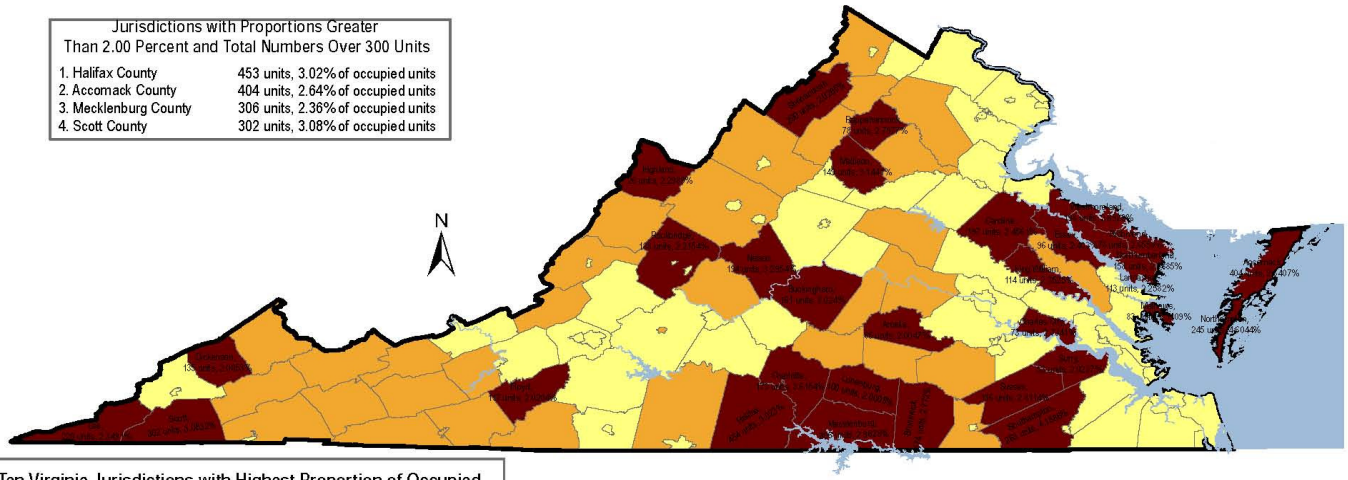
DHCD

Updated: October 19, 2007

Percent of Occupied Housing Units Lacking Complete Plumbing Facilities in 2000

Jurisdictions with Proportions Greater Than 2.00 Percent and Total Numbers Over 300 Units

1. Halifax County	453 units, 3.02% of occupied units
2. Accomack County	404 units, 2.64% of occupied units
3. Mecklenburg County	306 units, 2.36% of occupied units
4. Scott County	302 units, 3.08% of occupied units



Ten Virginia Jurisdictions with Highest Proportion of Occupied Housing Units Lacking Complete Plumbing Facilities (in year 2000)

1. Northampton	4.60 percent
2. Southampton	4.19 percent
3. Charlotte	3.62 percent
4. Nelson	3.30 percent
5. Madison	3.14 percent
6. Scott	3.08 percent
7. Buckingham	3.02 percent
8. Halifax	3.02 percent
9. Westmoreland	2.89 percent
10. Northumberland	2.89 percent

Percent of Occupied Housing Units

- 0.00% - 0.99%
- 1.00% - 1.99%
- 2.00% - 5.00%

DHCD

Updated: October 19, 2007