



COMMUNITY PARTNER: ALBEMARLE HOUSING IMPROVEMENT PROGRAM

PRECEDENTS FOR SUSTAINABLE RENOVATIONS IN ORCHARD ACRES

Global Sustainability, Fall 2011

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ABSTRACT

While many non-profit organizations travel abroad to offer their aid to citizens of developing nations, addressing local issues allows us to get involved in and improve our communities. An issue that faces both rural and urban parts of our nation including Charlottesville is the lack of safe and affordable housing for low-income families and individuals. Housing that betters our community through sustainable means can become a reality in Charlottesville and surrounding Albemarle County with the necessary research and funding.

To assist the Albemarle Home Improvement Program (AHIP) with their efforts to implement a sustainable approach to renovations of low-income housing, our team has focused on identifying precedent programs and projects to inform possible approaches as well as examples of funding strategies to help bring the work to fruition. We have focused specifically on information that will assist in the work in the Orchard Acres neighborhood of Crozet. We are interested in identifying programs and projects that used green building approaches to renovate existing houses and the funding that made them possible. We have explored low-income housing renovation precedents and funding strategies that are sustainable both in terms of the environmental and social outcomes they facilitate. Ultimately we hope that AHIP will be able to utilize these strategies efficiently and effectively both in the short and long term.

OUR APPROACH

Our original approach entailed the identification of specific home renovation projects that could be used as examples of the types of approaches that could be taken by AHIP in their work in the Orchard Acres neighborhood, in terms of the building techniques and strategies employed. During our research, we adjusted this approach to reflect our changing understanding of AHIP's needs, expanding beyond our search for specific renovation projects to examine programs whose processes and strategies might provide illuminating examples for AHIP.

We divided our research into three categories: programs, projects, and funding. Each of us conducted research on one of these topics, and we collaborated to share research strategies, lessons learned, and ideas for further search. Working together, we drafted a preliminary report for comment, then explored opportunities to incorporate additional graphic elements including diagrams, graphs, and flow charts to help more clearly articulate the ideas presented in our paper. The final report is organized by category, but several underlying themes: identifying and examining helpful examples, exploring the elements of those examples that could be useful to AHIP, and articulating those ideas in a summary of lessons learned, flow throughout the final report.

INTRODUCTION

While many non-profit organizations travel abroad to offer their aid to citizens of developing nations, addressing local issues allows us to get involved in and improve our communities. An issue that faces both rural and urban parts of our nation including Charlottesville is the lack of safe and affordable housing for low-income families and individuals. Housing that betters our community through sustainable means can become a reality in Charlottesville and surrounding Albemarle County with the necessary research and funding.

To assist the Albemarle Home Improvement Program (AHIP) with their efforts to implement a sustainable approach to renovations of low-income housing, our team has focused on identifying precedent programs and projects to inform possible approaches as well as examples of funding strategies to help bring the work to fruition. We have focused specifically on information that will assist in the work in the Orchard Acres neighborhood of Crozet. We are interested in identifying programs and projects that used green building approaches to renovate existing houses and the funding that made them possible. We have explored low-income housing renovation precedents and funding strategies that are sustainable both in terms of the environmental and social outcomes they facilitate. Ultimately we hope that AHIP will be able to utilize these strategies efficiently and effectively both in the short and long term.

Programs

We searched for programs around the country that promote sustainable home renovations for low-income residents in order to identify program processes, strategies, and best practices that AHIP could employ in its efforts to provide similar services to the residents of Orchard Acres. Three programs of particular interest are Austin's 1house at a Time program, the HandsOn Nashville Home Energy Savings Program, and the Chicago Green Homes Program.

1house at a Time

Founded in 2007, this Austin, Texas program assists low-income home owners in completing home utility retrofits and implementing renewable energy technologies. Their goal is to reduce home utility bills by 20 to 70 percent through the participation of program partners, volunteer labor and skilled leadership. For every \$1 contributed in monetary donations, \$3 of in-kind volunteer services are leveraged.¹ Program partners include The Applied Materials Foundation, Meals on Wheels and More of Austin, Austin Energy, Austin Water Utility, American YouthWorks, Austin Community College, and Habitat for Humanity.



Home retrofit activities include home weatherization and installation of new energy- and water-efficient appliances, HVAC systems, water fixtures, rain barrels, as well as energy saving devices including programmable thermostats and compact fluorescent bulbs. In addition, qualifying homes receive 5,100 kWh per year solar panel systems.

There is a strong educational component to this program, both for volunteers and for homeowners, including behavior-based and content-based learning approaches. Educational opportunities include home efficiency work events, renewable energy system training, and Consumer Conservation and Leadership Workshops. All participating homeowners are trained in completing home weatherization projects. The goal of these educational offerings is to reduce participants' environmental footprint, save them money, and cultivate leadership.

¹Letter of Support for Nurtured World's Application for the Department of Energy "Austin Weatherization Innovation Grant."

<http://www.ci.austin.tx.us/edims/document.cfm?id=153754>

Figure 1. Program Effectiveness - 2008 and 2009 Use Rate Comparison

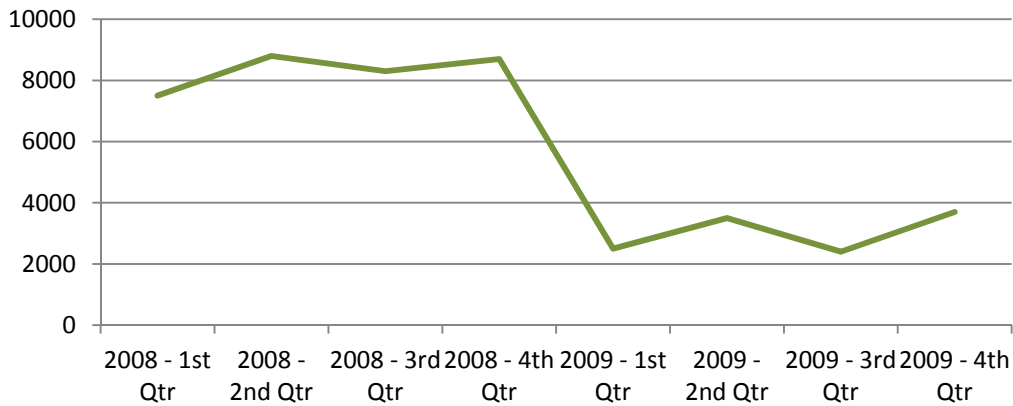


Chart based on data presented at: <http://www.1houseatamodel.org/howitworks.shtml>.

Program effectiveness is evaluated by performing a quarterly comparison of household water and energy use against the previous year's use for the first year following project completion. During this evaluation, program volunteers provide additional education to homeowners as needed. In addition, phone interviews with volunteers are conducted to evaluate the changes they have made in their own household energy and water consumption. According to its website, the organization "has been a leader in EPA Region 6 and nationwide in developing measurement methods both for the consumer and industrial sectors and has trained other states in use of our methods."²



HandsOn Nashville Home Energy Savings Program (HESP)

This program harnesses the efforts of volunteers to perform home energy efficiency upgrades to low-income homes in North and East Nashville. Qualifying homeowners are provided with an energy consultation, evaluation and blower-door test. Once opportunities for improvement and the baseline consumption have been established, groups of 10 to 15 volunteers work to make energy and water efficiency improvements.

Typical efficiency projects completed include installation of attic and basement insulation, weather stripping and caulking to doors and windows, low-flow shower heads and sink aerators, CFLs, insulated water heater blankets, insulation of hot water pipes, taping of HVAC ducts, and installation of carbon monoxide, smoke detectors, and reusable air filters.

Like 1house at a time, this program incorporates an important follow-up evaluation procedure once changes have been implemented. This provides



² <http://www.1houseatamodel.org/howitworks.shtml>

an opportunity for additional homeowner education in maintenance of energy improvements, and utility bills are monitored to evaluate program efficacy. According to its website, as of October of this year, the program has completed renovations in 26 homes, engaged more than 140 volunteers, reduced home air infiltration by 24 percent on average, and reduced CO₂ emissions by 391 tons.

Chicago Green Homes Program (CGHP)

This voluntary certification program provides technical support and expedited permitting to homeowners, builders, and developers for sustainable residential construction and renovation projects. Program participation involves completing an application and orientation session, submitting a contractual checklist and permitting drawings, submitting to verification that stated work has been completed, and final certification of sustainability. Through this program, participants benefit from discounted consultant fees, access to green industry professionals, and support from the CGHP team, City departments, and the Chicago Center for Green Technology's Green Building Resource Center.



Lessons Learned

- Leverage the skills and resources of partner organizations and volunteer labor to make the most of funding dedicated to the renovations. (1house at a Time)
- Provide access to technical expertise and information to assist home owners in their renovation efforts. (CGHP)
- Incorporate behavior-based educational efforts to have the greatest possible impact on household energy and water conservation. (1house at a Time) Provide this education not only at the time of initial project installation, but also during follow-up activities. (HESP)
- Offer volunteer training in order to build leadership capacity within the program and to increase environmental impact through changes in volunteers' consumption habits. (1house at a Time)
- Evaluate program efficacy through before-and-after water and energy consumption assessments and phone interviews. (1house at a Time and HESP)



Projects

First Homes gREen-HABs

FirstHomes is a non-profit division of the Rochester Area Foundation which aims to promote affordable and sustainable housing in Rochester, Minnesota. In 2010, they completed the gREen-HABs project, an endeavor in which eight single-family homes that ranged in size from about 1,500 to 3,000 square feet received a renovation, transforming the historic homes into state-of-the-art residences that comply with Enterprise Green Communities Criteria, a sustainability standards system that addresses eight categories (Integrative Design, Location and Neighborhood Fabric, Site Improvements, Water Conservation, Energy Efficiency, Materials Beneficial to the Environment, Healthy Living Environment, and Operations and Maintenance)³.

FirstHomes also took great care in executing the renovations in a cost-effective manner, rehabilitating some houses for just \$2.80/sq ft. While the project included 3 large homes, the smaller homes (less than 2,000 heated square feet) better relate to the homes in Orchard Acres, and thus will be the primary focus of our research.



³ <http://www.greencommunitiesonline.org/tools/criteria/>

Reducing energy use saves money for the homeowner and significantly lowers the home's impact on the environment. The FirstHomes gREen-HAB homes aimed to improve their energy efficiency through various means. Major contributors to energy consumption were upgraded, including the heating systems, which were upgraded to high-efficiency gas furnaces, water heaters, and air conditioners. In addition, windows were replaced with double-pane, argon-filled windows at two of the homes, and insulation and sealing was upgraded. Household appliances were also replaced with Energy Star devices, and all lighting was transferred to timed fluorescent fixtures. These improvements ranged from \$4,000 to \$10,000 depending on the individual homes' needs. While the costs of energy retrofitting may seem steep up front, the lasting effects undoubtedly benefit the homes in the long run. Even the immediate effects, however, are convincing, as seen in Figures 2 and 3.

Figure 2. Home Energy Rating Scores (HERS): First Homes - Small

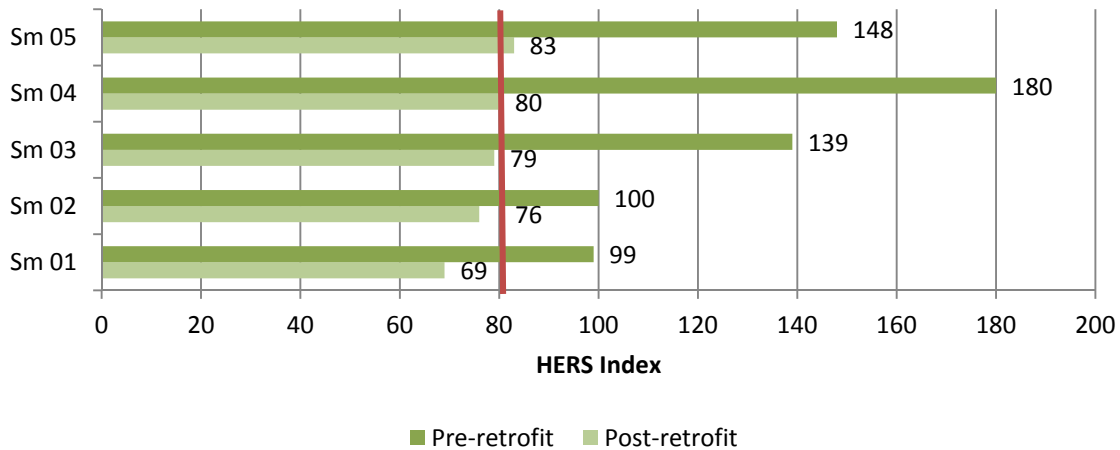


Chart based on data presented at: <http://www.develop.csbr.umn.edu/mnshi/kb/casestudies/firsthomes.html>

Figure 3. Total Annual Energy Intensity: First Homes - Small

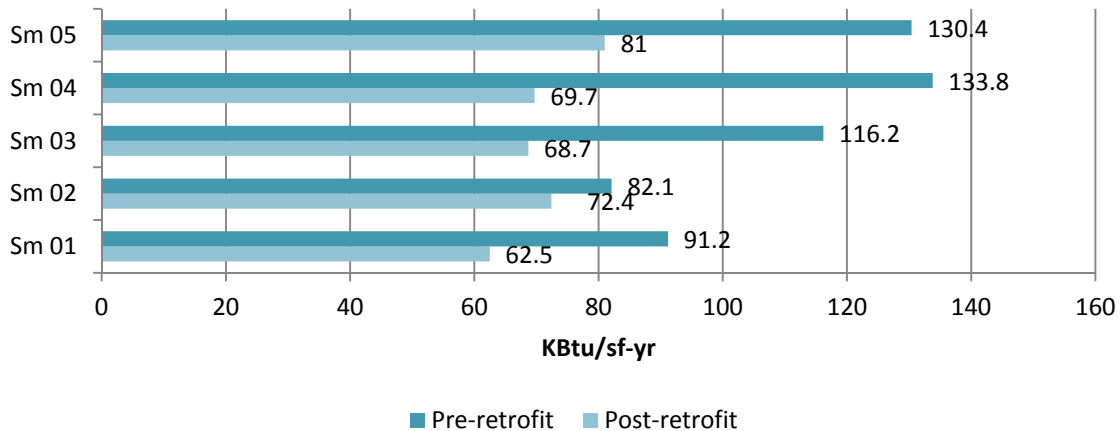


Chart based on data presented at: <http://www.develop.csbr.umn.edu/mnshi/kb/casestudies/firsthomes.html>

Water systems were also redesigned with the environment in mind. Toilets and showers were equipped with maximum flow rates, and kitchen and bathroom faucets were replaced with low-flow fixtures that cost as low as \$100 per home.

In keeping with their aims to build safer homes, improvements were also made to promote best practices in indoor air quality. Many of the renovations made in this category simply updated the homes to comply with Minnesota Code requirements, such as outside air ventilation, HVAC equipment sizing, and exterior vented dryer exhaust. Measures were taken in order to promote durability of the home through the prevention of mold, moisture, and pests. Site grading to redirect the flow of rainwater, installing flashing to prevent building wear/moisture accumulation, and use of appropriate water and corrosion-resistant materials were all implemented throughout the home rehabilitation process.

Figure 4. Green Criteria Costs: First Homes - Small

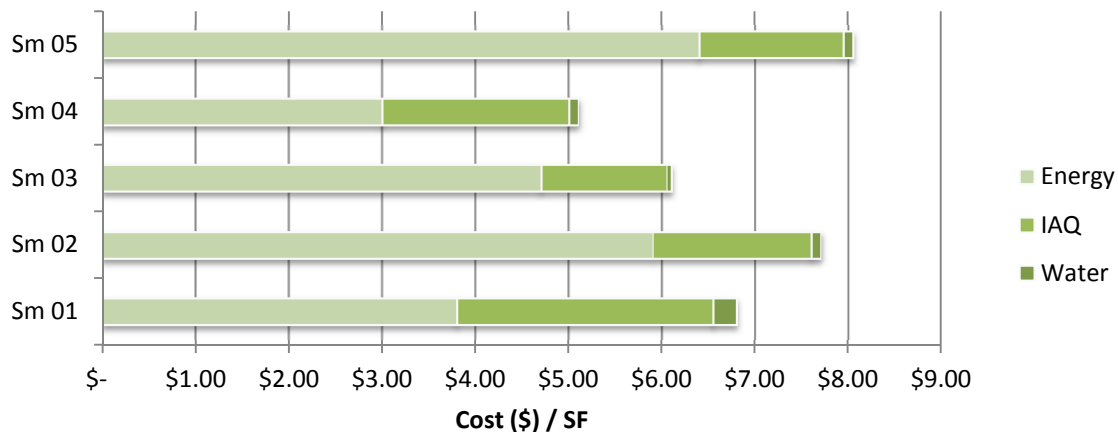


Chart based on data presented at: <http://www.develop.csbr.umn.edu/mnshi/kb/casestudies/firsthomes.html>

These renovated homes sit on land owned by the non-profit Community Land Trust which allows buyers access to affordable, eco-friendly homes without paying for the cost of the land in the mortgage. When the home appreciates value, the homeowners receive half the profit while the buyers pay the same amount, keeping the houses affordable through generations of homeowners. Furthermore, homeowner education services and free maintenance sessions are offered to prevent foreclosure and keep the homes from becoming a burden to owners.

Cherry Street Home⁴

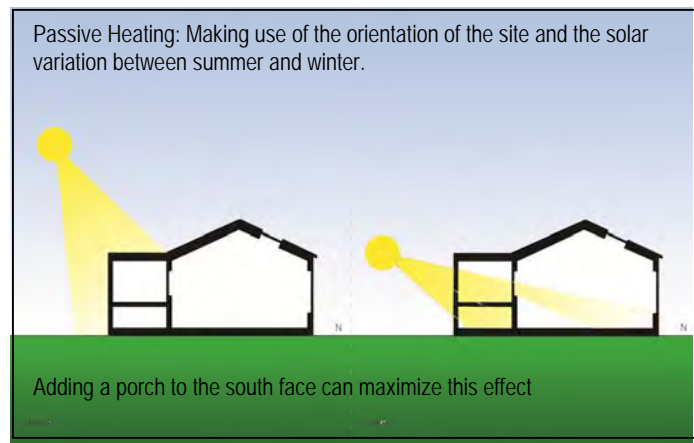
Also located in Minnesota and part of the Minnesota Sustainable Housing Initiative, the Cherry Street Home, completed in 2010, is another renovated single-family home which prioritized energy efficiency and occupant safety while striving to become a model sustainable home. While its budget (\$319,350), funded by various federal, state, and local agencies, likely exceeds that of AHIP's in Orchard Acres, the home is similar in size (2,000sf), age (built 1965) and neighborhood (low-density, single-family suburban, susceptible to foreclosures) to those in Crozet. Thus, it is effective in demonstrating the sustainable potential of AHIP's interventions in Orchard Acres.

Unique to the Cherry Street Home is its yard. The roof redirects 50% of the rain water it collects into a rain garden where native, low-maintenance plants filter and redirect it back into the drainage basin. More rainwater is collected and gathered in rain barrels which supply the vegetable garden with water. Patios and other paved surfaces consist of semi-permeable concrete to encourage infiltration that expedites water table regeneration. The roof boasts active solar panels which heat 65% of the home's hot water, saving on

⁴ <http://www.mnshi.umn.edu/kb/casestudies/cherrystreet.html>

average 2,000 pounds of carbon dioxide emissions a year. A skylight, or solar tube, was installed to bring light from the yard into the core of the home and reduce electricity usage.

The Cherry Street Home exemplifies how not only the final product, but the entire process of rehab, can be a sustainable one. Much of the existing material in the house was re-purposed to reduce waste, while new materials introduced were recycled, local, and/or sustainably manufactured. 71% of construction waste was diverted, much of which recycled. Other construction waste was sent to a landfill as Alternative Daily Cover, a non-hazardous substrate that covers up harmful landfill contents to protect public health. This project engenders a cradle-to-grave consciousness that promotes sustainability and results in a quality product, both of which being major goals of AHIP.



Habitat for Humanity (HFH) GreenBuild - Jefferson City, MO⁵

Like many towns and cities in America, Jefferson City, MO boasts many historic homes that have become vacant due to lack of upkeep, foreclosure, or a combination of the two. Recently, Habitat for Humanity selected one home to retrofit with a total green renovation. The goals were to attempt to preserve the character of the home while updating it and implementing practices that will keep it durable and sustainable for centuries to come.

With the support of over fifty local volunteers from around the community and surrounding schools, Habitat composed a list of goals for the renovation. First, they aimed to retain the home's footprint, yet increase living space by building up. This was accomplished by lowering the main floor-ceiling height to 8ft, which made room for an extra bedroom, bathroom, and more storage. In addition, the team hoped to better insulate the home through envelope improvements, thereby reducing the amount of heat and energy that was wasted by escaping through the windows and walls while improving interior air quality. In order to keep the home from degrading due to water, a moisture management hole was dug beneath the home to keep unwanted condensation from inhibiting the performance of the foundation and structure. Lastly, the home's yard was improved to better redirect stormwater runoff and planted with local vegetation.

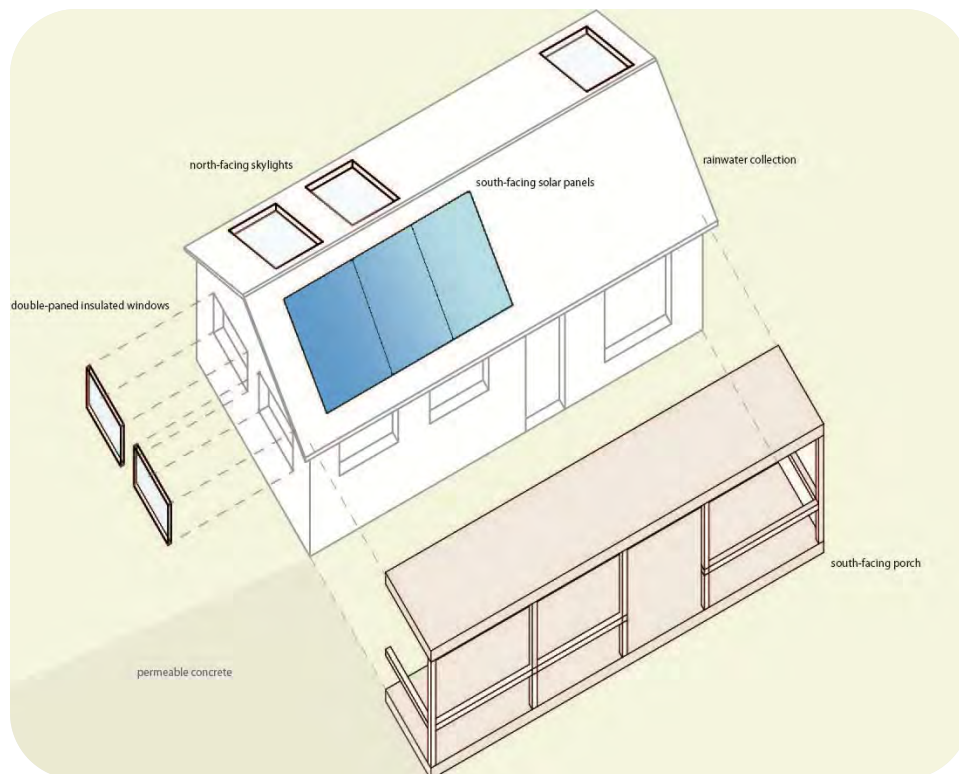


While original plans called for solar panels, Habitat decided it would become a burden on the homeowners in addition to being costly. Instead, they accommodated for the ability for them to be added later.

⁵ <http://www.greenbuildingadvisor.com/homes/jefferson-city-deep-energy-retrofit>

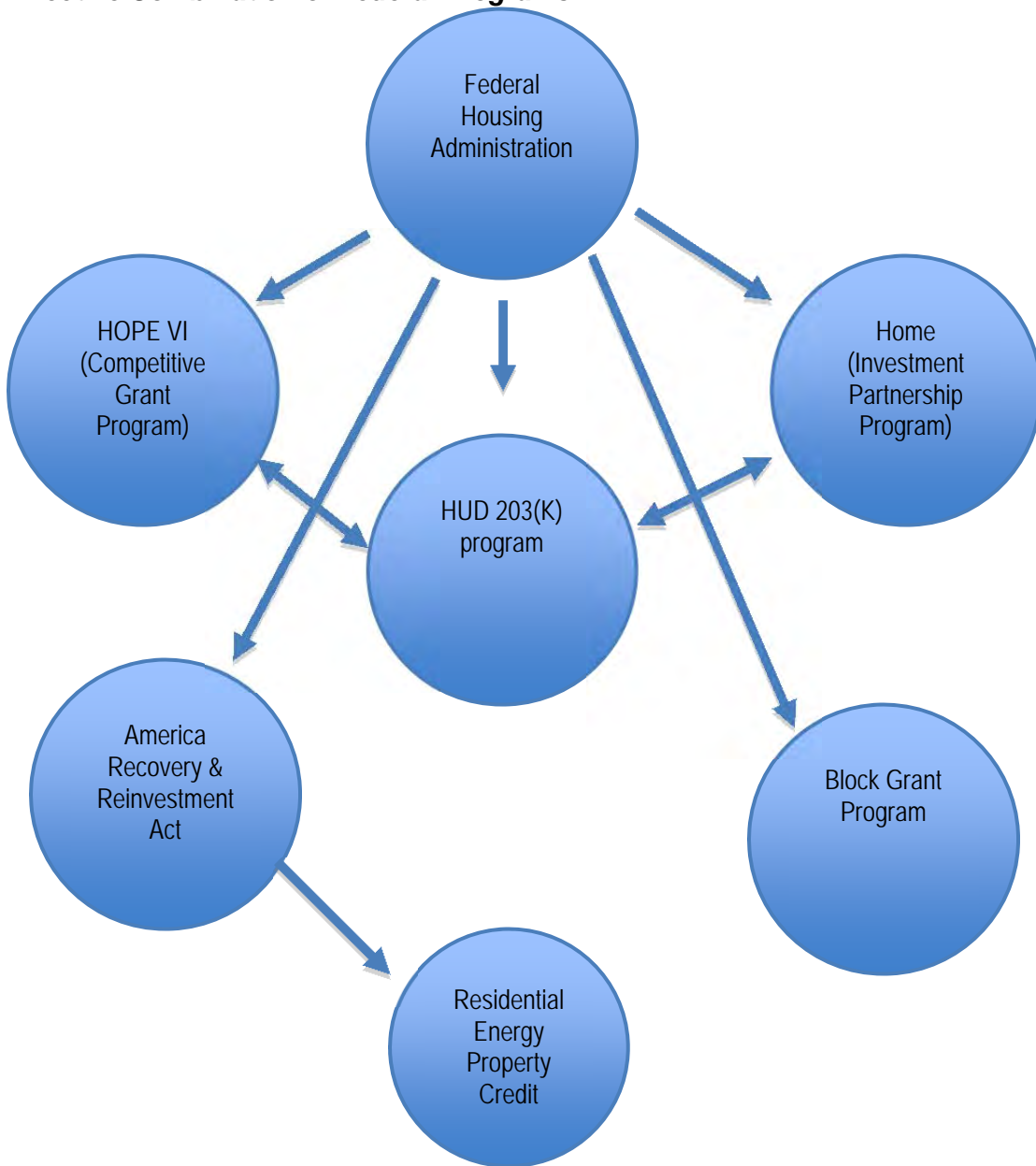
Lessons Learned

- Work with the existing home. If materials or structure need not be replaced, simply repurposing or touching up may be sufficient in order to save money and resources. Large improvements can be made that do not require entirely new construction.
- Utilize local resources, material, and labor.
- Expect unforeseeable circumstances. Dilemmas may hinder the renovation processes, but creative problem solving and flexibility can allow for a new, sustainable take on home rehab.
- Consider the sustainability of the process, not just the end product. Manage construction waste and research the origins of materials used.
- Expand beyond the walls of the home. While the health and satisfaction of the occupants within are top priority, consider working with the site the home sits on in order to encourage sustainable interaction with the existing environment/rest of the neighborhood.
- Durability is sustainability. Build with the future in mind. Leave room for expansions while generating a reliable, quality end product.



Funding Sources

Effective Combination of Federal Programs



Many of the Federal Housing Administration's programs can be combined to obtain more funding that can be used for home improvements including increasing energy efficiency compared to any single program. For example, HUD's 203(k) mortgage program can be combined with HOME, HOPE VI, and Community Block Development Programs to obtain larger amounts of funding. Below are brief descriptions of the programs.

Department of Housing and Urban Developments 203(k)

The 203(k) is the Department of Housing and Urban Development's primary tool to aid repair and rehabilitation of single family homes. Through Federal Housing Administration approved lending institutions, home owners can get a single mortgage loan at a long term fixed (or adjustable) rate to finance both purchasing and rehabilitation of their property. This allows home owners to secure one lower rate mortgage as opposed to having to take out an additional mortgage for interim financing which traditionally involves higher interest rates and short amortization periods. The amount of the mortgage is based on projected value of the property after the improvements taking costs into account. As an added energy saving bonus, the mortgage can be increased up to 20% if necessary for the installation of solar panels.



HOME

The HOME Investment Partnership Program is a federal block grant that provides State and local governments funds to create affordable housing for low-income households. HOME is noted for its flexibility that allows communities to utilize strategies based on their own needs and priorities (which would give our project the opportunity to utilize funds for home improvements including energy retrofiting). Although the HOME program does require participating jurisdictions to match 25 cents from every dollar that comes from HOME, the 25 cents can include volunteer labor and in-kind donations. Additionally, HOME requires that homes utilizing HOME funds remain affordable (defined by the United States government as housing which the owner/tenant pays 30% or less of his/her income on housing) for the next 20 years, ensuring that the funds have a long term impact in the community and the improvements they provide.

HOPE VI

HOPE VI is a competitive grant program that provides funds to convert distressed public housing into mixed use, mixed income communities. Because of its congressional design, HOPE is flexible for funding purposes and has recently realigned its focus on best practices and meaningful neighborhood impact as opposed to only focusing on output. Through its design HOPE VI combats the poor planning of the 1960s and addresses housings relationship to issues like health care, education, community, and job access. Since its inception in 1993, HOPE has awarded grants totaling around \$6.2 billion.

Community Development Block Grant Programs (CDBG)

THE CDBG program is aimed to provide affordable housing to vulnerable communities, and like HOPE VI, focuses on the community as a whole addressing issues like job access and business retention. Although AHIP would have to use CDBG funds as a "non-entitlement" entity (because Charlottesville and the surrounding Ablemarle does not meet the definition of a Metropolitan Statistical Area), one of the activities CDBG funding must address is "community development needs having a particular urgency because existing conditions pose a serious or immediate threat to the health or welfare of the community for which other funding is not available." This is extremely consistent with AHIP's mission statement of ensuring "safe and decent housing for our low-income neighbors" and to "help individuals and families stay in their homes and stay safe in their homes".



America Recovery and Reinvestment Act (ARRA)

Part of the ARRA focuses on providing tax incentives for individuals to invest in energy-efficient products. By receiving tax credits and reducing the amount of money owed to the state, the ARRA helps reduce the financial burden of energy improvements. Below is a brief overview of some of the programs.



Residential Energy Property Credit

(Section 1121)

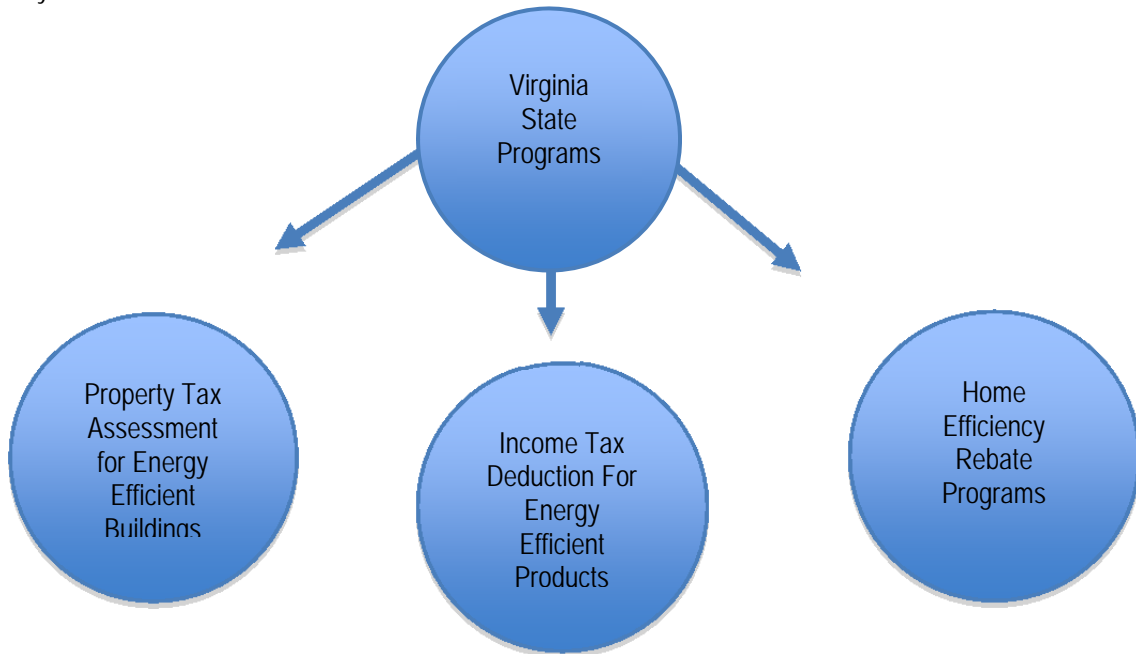
Increases the energy tax credit to 30% of cost of improvement and raises the maximum credit limit to \$1500 for homeowners who make energy improvements to their homes (applies to adding insulation, energy efficient windows, and energy efficient heating and cooling systems, all consistent with our goal of home improvement, energy retrofitting, and reducing utilities for owners/tenants).

Section (1122)

Provides a nonrefundable energy tax credit up to 30% of cost of qualified property for alternative energy equipment including geothermal, wind, and solar technology.

Virginia State Programs

Although there are numerous funding opportunities and tax incentives through the federal government there are more specific and regionally relevant programs through Virginia's state government. Some of them are briefly described below.



Income Tax Deduction for Energy-Efficient Products

Individuals may claim a deduction of 20% up to \$500 on Virginia state income tax return for sales tax for certain energy efficient products including dishwashers, washing machines, air conditioners, fans, fluorescent light bulbs, programmable thermostats, and refrigerators that meet or exceed federal Energy Star Standards.

Property Tax Assessment for Energy Efficient Buildings

in 2008, Virginia passed legislation that allowed energy efficient buildings to have a lower rate of property taxes. As the City of Charlottesville is one of the communities that have adopted this policy, AHIP could help clients save money on taxes by renovating homes to exceed the efficiency standards of the Virginia Uniform Statewide Building Code or that meets the performance standards of Leadership in Energy and Design. Additionally, AHIP might consider contacting governments of other counties where they operate and renovate houses and encourage them to adopt this energy efficient legislation.

Home Efficiency Rebate Program

Another program that AHIB could possibly take advantage of is Virginia's Home Efficiency Rebate Program. Through Virginia's Department of Mines, Minerals, and Energy, homeowners can receive rebates for up to 20% (up to \$595) of costs of energy saving products and services. By saving money on products or installation, AHIB can either install higher quality energy saving techniques that possibly cost additional money or use the saved funds for other projects.

Lessons Learned

- Effectively utilize volunteer labor and in-kind donations to save funding for other uses (1 House at a Time).
- Utilize partnerships with local universities to obtain volunteers that either want to provide service or obtain internship opportunities that fulfill academic requirements (HandsOn Nashville).
- Develop synergies with other local non-profits to save time and money identifying potential new clients and their eligibility for services (1 House at a Time).
- Understand relationship between federal funding sources and how they can be combined for greater access to funding.
- Utilize federal and state tax incentives to reduce financial burden of energy retrofitting projects (ARRA).
- Make sure that State tax incentives are applied for to reduce cost of energy saving products and retrofitting.

Funding Conclusion

Specifically within funding there is no "silver bullet" as far as obtaining additional funding is concerned. Through research of federal and local initiatives, it is important to understand how federal programs combine with national legislation and how these programs can be specifically combined with state programs to obtain maximum funding opportunities. As far as day to day operations go, it is particularly important for AHIP to continue to utilize volunteer labor and in-kind donations, especially when it is possible to receive matching funds from various programs. Finally, AHIP could partner with other local nonprofits to ensure that environmentally friendly legislation comes to the areas it works with. For example, Virginia has a Property-Assessed Clean Energy program that allows property owners to borrow money for energy improvements and repay them over a number of years. However, as of August 2011 this legislation did not apply to either Charlottesville or Albemarle County. Hopefully, with the cooperation of others and AHIP's clients, AHIP can convince local governments that this is a policy worth adopting.

CONCLUSION

In conclusion, no single program, project, or funding source perfectly fits with AHIP's goals in Orchard Acres. Be it due to limitations of municipality, geography, climate, or rehabilitation techniques, disparities between the precedents and the project ahead pose challenges where critical thinking and innovation in the design process are required to fill in the gaps. The eligible homes are as individual and unique as the homeowners, the ultimate beneficiaries of AHIP's work. Attempting to pigeonhole rehab projects into the site-specific framework laid by the precedents is ineffective; rather, AHIP can draw from the advantages of the researched precedents while simultaneously learning from the dilemmas they encountered.

NEXT STEPS

In the future, AHIP must select which of the options are most feasible for their specific intervention in Orchard Acres. For the next steps, AHIP may want to reach out to some of the programs discussed in the report. Communication between parties with similar goals can unveil solutions to common problems and could establish a national support network that AHIP and the other programs can access as a resource. Through such a network, tips learned from similar projects and endeavors could be shared, encouraging a more efficient process and quality product. Alongside the research, AHIP should also be conducting community engagement to find out not only what is best for their program and the environment, but for the neighborhood of Orchard Acres. Once these assessments have been thoroughly conducted, it is up to AHIP to follow through with their plans, adjusting to the limitations of funding and accommodating the needs of the clients as the project develops. While the entirety of the process may take anywhere from several months to well over a year, the lasting effects on the community could be priceless.

LESSONS LEARNED

Retrospectively, several improvements could have been made to streamline and improve the precedent research. From the beginning, a closer relationship with the community partner AHIP would have allowed us to better understand their goals in Orchard Acres. Without a full grasp on their intentions, it was difficult to conduct research that would best fit the community. Several questions we had at the end that would have been important to have from the start include:

- What are AHIP's intentions in Orchard Acres?
- How many clients have contacted AHIP to assist them in Orchard Acres?
- What degree of disrepair are the homes of Orchard Acres in?
- How extensive would the rehabilitation be? Was new construction considered?
- How important is sustainability to the people of Orchard Acres?

Overall, our research was fairly general because we were uncertain of the aforementioned items. After looking at precedents in programs, projects, and funding; visiting the site; and discussing our research amongst ourselves and our peers, we learned the importance of constant communication with the community partner. While we met with them at the beginning, questions (many of which presented above) arose throughout the process that remained unanswered. Regardless, we attempted to assess precedents that capture the mission statement of AHIP and incorporate lessons learned from our multidisciplinary curriculum in the Global Sustainability class.

APPENDIX 1: RESOURCES

Programs

1house at a Time

- Program website: <http://www.1houseatatime.org>.
- Two-page brochure: http://www.1houseatatime.org/images/1house_r8.pdf.
- Letter of Support for Nurtured World's Application for the Department of Energy "Austin Weatherization Innovation Grant."
<http://www.ci.austin.tx.us/edims/document.cfm?id=153754>

HandsOn Nashville Energy Saving Program

- Program overview:
http://www.hon.org/AboutUs/index.php/docs/Home%20Energy%20Savings%20Program%20Overview%20_2_.pdf
- HandsOn Nashville web page: <http://www.hon.org/AboutUs/index.php/HESProgram.html>
- Featured project: <http://www.hon.org/AboutUs/index.php/docs/Featured%20HES%20project.pdf>

Chicago Green Homes Program

- Program website:
http://www.cityofchicago.org/city/en/depts/dae/supp_info/chicago_green_homesprogramoverview.html

Other Programs

- Pittsburg Sustainable Home Improvement Partnership (SHIP)
<http://www.pittsburghpa.gov/servepgh/ship/>
- GRID Alternatives' Solar Affordable Housing Program
<http://www.gridalternatives.org/solar-affordable-housing-program>

Projects

FirstHomes gREen-HABs

- Minnesota Sustainable Housing Initiative: First Homes website:
<http://www.develop.csbr.umn.edu/mnshi/kb/casestudies/firsthomes.html>

Cherry Street Home

- Minnesota Sustainable Housing Initiative: Cherry Street Home website:
<http://www.mnshi.umn.edu/kb/casestudies/cherrystreet.html>

Funding

Federal

- Department of Housing and Urban Development's 203(k) Website:
http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/203k/203kabou
- HOME website: <http://www.hud.gov/offices/cpd/affordablehousing/programs/home/index.cfm>
- HOPE VI websites:
http://portal.hud.gov/jamwiki/en/HOPE_VI

- http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/hope6/grants/revitalization
- Community Development Block Grant Programs (CDBG)
http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs
- American Recovery and Reinvestment Act
<http://www.irs.gov/newsroom/article/0,,id=206875,00.html>

Virginia State Programs

- <http://www.dsireusa.org/incentives/index.cfm?re=1&ee=1&spv=0&st=0&srp=1&state=VA>