This report provides recommendations for actions to be taken to further three major goals in providing sustainable and healthy housing options to the citizens of the District of Columbia.
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Executive Summary

The Green Affordable Housing task force convened to review best practices and meet three main objectives; (1) setting standards for the rehabilitation of affordable and public housing to be green and healthy; (2) examining the feasibility of public housing meeting net zero energy standards; and (3) providing guidance for the elimination of environmental health threats. The task force reviewed the current state of green building in affordable and public housing in the District, best practices in net zero housing standards, and current local and national indoor environmental health standards and threats. This research covered indoor air quality, lead, mold, carbon dioxide, radon, and volatile organic compounds (VOCs). As a result of this research and ongoing task force meetings, the task force developed the following recommendations.

**GOAL 1: Set Standards for the rehabilitation of Affordable and Public Housing to be Green and Healthy**

**ACTION 1.1:** Revise the Green Building Act of 2006, the legislation that sets the standards of green and healthy housing in the District, to apply to all new construction and substantial renovations of affordable and public housing over 10,000 square feet receiving any level of District financial subsidy, rather than the current law which sets the subsidy threshold at 15%.

**ACTION 1.2:** Convene an advisory group of governmental and non-governmental stakeholders to develop a strategy for encouraging the green construction and rehabilitation of housing under 10,000 square feet that is currently not regulated by the Green Building Act or Green Construction Code.

**ACTION 1.3:** Hire an interagency staff person to serve as the green affordable housing coordinator between the District Department of the Environment (DDOE), Department of Housing and Community Development (DHCD), and DC Housing Authority (DCHA).

**GOAL 2: Examine the Feasibility of Public Housing Meeting Net Zero Energy Standards.**

**ACTION 2.1:** Identify $300,000 to match a like-sized contribution by the DC Housing Authority (DCHA) to implement proven renewable energy measures such as fuel cells and solar arrays at the Langston Dwellings property. DCHA has identified funds for the pre-development of a Net-positive energy installation at the Langston Dwellings,
but require additional funding to meet the baseline estimates to fully fund the implementation activities produced by the Sustainable DC funded Feasibility Studies.

ACTION 2.2: Identify $150,000 to match a like-sized contribution by the DC Housing Authority to complete a portfolio-wide analysis to determine the feasibility of achieving net zero on all properties in the public housing portfolio.

**GOAL 3: Provide Guidance for the Elimination of Environmental Health Threats.**

ACTION 3.1: Create an indoor air remediation fund prioritizing low-income residents and communities with high concentrations of indoor environmental health risks.

ACTION 3.2: Strengthen enforcement of existing laws, regulations, and codes supporting indoor environmental health threats, particularly those recently enacted, by cross-training inspectors and strengthening interagency coordination.

ACTION 3.3: Provide funding to expand the outreach and educational work of the DC Partnership for Healthy Homes, including the Healthy Homes Hub hosted on the District Department of Education’s website, so more information about potential health hazards is available to residents living in and moving into affordable housing.
Background & Methodology

Introduction

The movement to transform grey buildings into green buildings is producing meaningful environmental and health benefits for people and for the planet. Moreover, specifically promoting and incentivizing green building for the affordable housing sector may be one of the most important actions a sustainability-focused government can take in order to help its low-income residents save money and live in healthier environments.

From 2000 to 2010, rents in the District rose 50% over inflation.¹ In that same time period, the District lost more than half of its low-cost rental units and more than 70% of its low-value homes (those priced at $250,000 or less). By 2010, approximately 20% of District residents paid more than 50% of their income to housing costs, with the greatest burden occurring for those residents with incomes below 30% of the area’s median. A major contributor to the increasing housing cost burdens faced by District residents is rising utility costs. Some solutions for reducing the utility costs for affordable and public housing are provided herein. These solutions include green technologies and public policies to encourage affordable and public housing to be healthier, as well as more energy and water efficient.

In order to preserve affordable housing and protect the District’s most economically vulnerable citizens, it is essential that the city address utility affordability. But energy, water and waste efficiency and cost reductions are only a few of the myriad benefits of green building. Well-constructed and green affordable housing also helps to limit the health impacts of toxic materials and other indoor air quality problems ranging from lead, mold, volatile organic compounds, and other issues. Poor indoor quality affects the health and well-being of individuals and families and many impact productivity and academic performance.² Measures taken to improve the indoor environmental quality and energy efficiency of homes have been

¹ DC Fiscal Policy Institute, “DISAPPEARING ACT: AFFORDABLE HOUSING IN DC IS VANISHING AMID SHARPLY RISING HOUSING COSTS”: http://www.dcfpi.org/wp-content/uploads/2012/05/5-7-12-Housing-and-Income-Trends-FINAL.pdf
shown to improve general, respiratory and mental health.\(^3\) For example, steps to improve ventilation and minimize moisture reduce the incidence of asthma and other respiratory diseases. Also, the use of an integrated pest management approach reduces residential exposure to toxins.\(^4\)

**Background**

**Current State of Green Building Policies for Affordable and Public Housing\(^5\)**

The District has an impressive history of progressive green building policies, and leads the nation on a per capita basis in the application of the national standards of green and healthy housing,\(^6\) including U.S. Green Building Council (USGBC)’s LEED green building certification program and the United States Environmental Protection Agency’s (EPA) ENERGY STAR program. With the Green Building Act of 2006, the District was the first city in the country to pass a law that required green building certification for both the public and private sector, including affordable housing developments that the government is either building itself or supports financially, thereby setting the standards for green and healthy housing. The Green Building Act is also unique because it was created collaboratively by a public-private task force that met regularly for six months to determine the necessary scope and details of the legislation. The resulting legislation helped transform the marketplace of the built environment in the District, while simultaneously addressing the concerns of practitioners.

In 2008, the District again became a pioneer in green building by being the first city in the nation to pass a law requiring energy and water benchmarking of public and private buildings. The District continued promoting its green policies over the next few years by passing

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\(^5\) For the purposes of this report, public housing is a defined portfolio of buildings owned and managed by the DC Housing Authority or other District governmental or quasi-governmental entity. “Affordable housing”can be more broadly interpreted, but the task force has defined it as properties that have been subsidized, directly or indirectly, by the District government. Our scope does not include rent-controlled properties or market affordable homes and rental properties, but our findings could be expanded through a follow-up effort to address these property types.

\(^6\) See the *Green Building Report for the District of Columbia, 2012.*
innovative green building related laws, including the Energy Efficiency Financing Act of 2010, the Distributed Generation Amendment Act of 2011, the Community Renewables Act of 2013, extensive new stormwater regulations, the establishment of a Green Area Ratio in 2013, and finally the new Energy Conservation and Green Construction Codes in 2014. This legacy has allowed the District to take a leading position in the nation in the deployment of green buildings, allowing the nation’s capital to become increasingly energy and water efficient, and create buildings that are healthier for its residents.

The progressive history of green building policy in the District incorporates the leading standards for green buildings in the nation—including the USGBC’s LEED program, EPA’s ENERGY STAR, and for affordable housing, the Enterprise Green Communities standard. The LEED program, which focuses on whole building sustainability strategies rather than just energy, is arguably the most successful set of green building standards in the world (at least in terms of the total number of projects and square footage certified globally). There are more than 3 billion square feet of LEED projects certified globally, with more than 1.7 million square feet of commercial building space becoming LEED certified each day in more than 140 countries and territories. Since 1998, the LEED standard has gone through multiple iterations involving tens of thousands of hours of USGBC staff time and volunteer work to develop. It is a robust system and considered the common standard for green building certification.

Though LEED is an appropriate standard for all types of green building development, the Enterprise Green Communities Criteria was codified as the preferred standard for affordable housing in the District as part of the Green Building Act of 2006. In part, this is because it is the first standard in the nation to address the particular needs of affordable housing. Like LEED, the Enterprise Green Communities Criteria has developed and progressed since the first publication in 2006, involving thousands of hours of staff and volunteer time, and multiple iterations. Enterprise is currently again updating the 2011 Criteria to respond to developments in the marketplace and to advance the goal of driving deeper green buildings. The new Criteria are anticipated to be completed and published in 2015.

This task force discussed at length internally and with its advisory group of industry professionals, to determine whether there were any other national standards that the affordable housing community should rely on, or the feasibility of the District to creating its own standard. It was determined that both LEED and Enterprise Green Communities Criteria provide an excellent set of standards, and that it would be an epic undertaking and create market confusion for the District to attempt to create its own standard.
Both LEED and Green Communities at their basic levels have substantially raised the bar for green building both nationally and globally. In order to achieve the aggressive goals laid out in the Sustainable DC plan, the District will need to expand the scope of the green building program in the District. Currently, the Green Building Act requires all non-residential new construction or substantial improvement private by-right projects 50,000 square feet or larger to get LEED certified at the basic level of certification. Public and publicly-financed, as defined in the Act, new construction and substantial improvements to commercial projects receiving at least 15 % of the total project costs from a District agency are required to get LEED certified at the Silver level. Public or publicly-financed residential new construction and substantial improvement projects 10,000 square feet and larger receiving at least 15 % of the total project costs from a District agency must be certified under Enterprise Green Communities at the basic level or LEED certified at the Silver level. Though the Green Building Act was visionary when it became law in 2006, as currently written it leaves out many project types. For example, all by-right private residential projects that are not deemed publicly financed are not required to comply with the Act. Affordable housing projects tend to be covered by the Green Building Act because they generally receive substantial public funding, but there could be housing projects that do not meet the Act’s 15 % public funding threshold and are therefore exempt from the Act. Also, projects that are not considered new construction or substantial improvements (where construction costs equal at least 50% of the pre-construction property value) are not subject to the requirements of the Green Building Act.

On March 28, 2014, the District passed its first Green Construction Code that applies to all commercial projects 10,000 square feet and larger, and all residential projects four stories and higher and 10,000 square feet and larger that are not already covered under the Green Building Act as new construction or substantial improvements. The new green code will result in greener buildings among a much larger cross-section of construction projects and building typologies. The standards set by the green code are comparable to LEED and Green Communities at the basic level of certification. However, there are also gaps in the Code as written. Currently, it does not include any projects less than 10,000 square feet, including single family and low-rise multifamily properties. In order to fully realize the Mayor’s goal of a truly sustainable DC, the District will need to continue to push the level of the District’s green building requirements, as well as find ways to expand green building goals to small commercial, single family and low-rise multi-family projects.
Current Efforts to Examine Feasibility of Public Housing Meeting Net Zero Energy Standards

The second component of the Mayor’s Order requires the task force to examine the feasibility of public housing meeting net zero energy standards. The DC Housing Authority (DCHA) commissioned a study for Langston Dwellings through the inaugural Sustainable DC Innovation Challenge grant program that examined the feasibility of redeveloping an idle on-site power plant once fueled by coal into a model for renewable energy generation. The analysis concluded that not only is net zero energy use achievable on these public housing sites, but that a net positive energy use could be possible. As the District’s oldest public housing site with a historic designation, Langston Dwellings is an ideal test case for implementation due to its age, condition, building typology, historic renovation limitations, and strong community support.

Through the Sustainable DC grant, DCHA explored several renewable energy scenarios through an intensive community driven process over the course of a year which included over 15 meetings, a community-wide survey, hiring a Sustainable DC intern, and awarding 4 scholarships to public housing youth pursuing degrees in science, technology, engineering, and math. The process resulted in 2 renewable energy scenarios that emerged as viable options. The preferred scenario that the DCHA is planning to further explore would utilize solar panels and a district-scale biogas fuel cell on site. A recent portfolio-wide scan suggests that the roofs at the Langston Dwellings site are ideal for a solar array. While on-site natural gas consumption would increase as it is the fuel source for fuel cells, DCHA would purchase biogas downstream to offset the natural gas usage, unit-for-unit. The overall analysis of this renewable energy producing scenario suggests that a solar array and fuel cell installation at Langston Dwellings could produce upwards of 15 % of the electricity need in DCHA’s entire portfolio. The alternative renewable energy scenario would employ solar panels and a geothermal system to be located under the open courtyard, a celebrated feature of the architect’s design for the site.

DCHA has committed to the Better Building Challenge, which commits the agency to reduce its energy consumption by at least 20 % by 2021. DCHA is now working with the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Energy (DOE), DDOE, the District Department of General Services (DGS), and other stakeholders to analyze energy consumption throughout its portfolio. DDOE has provided solar analysis through MapWell, which will be used by DCHA as baselines to which external bids and proposals for solar installations can be compared. HUD has recommended consultants to assist in the analysis of DCHA’s entire portfolio. With matching funding from the Sustainable DC, this analysis could be complete as early as the second quarter of fiscal year 2015. Implementation of the Langston
Feasibility Study will move the needle closer to meeting both the District’s Sustainable DC goals and President Obama’s Better Building Challenge goals. Further, Langston Dwellings could serve as a model for other buildings in the agency’s 8,000-unit portfolio, and could become a model of the feasibility of net-positive public housing for the nation. Each and every DCHA property is unique and has varying degrees of capital repair needs, real estate development potential, and on-site community support. The Langston Feasibility study is groundbreaking, but additional analysis is required to apply this feasibility model across DCHA’s portfolio.

In recent years, the governing Board of Commissioners for the DCHA adopted Development Principles and Modernization Principles, two documents that guide planning and development strategies for DCHA. “Sustainable Building Design” and “20-Year Viability” are among the outlined Modernization Principles which will be promoted with the successful implementation of the Langston Dwellings net-positive energy installation.

Each year, HUD spends billions of dollars providing utility subsidies to public housing authorities. DCHA spends millions of its operating funds paying the utility bills of its residents. Decreasing investment from HUD and a need for reliable and cost effective energy has pushed DCHA to push towards innovation. DCHA has a direct financial incentive to reach the District’s net zero goal in public housing and has started on the path towards this goal with new strategies, including becoming the first public housing authority in the nation to self-perform as its own energy services company and standardizing its building products to meet sustainability criteria. Moving DCHA’s portfolio to net zero will improve the District’s electricity grid resilience, reduce the District’s carbon footprint, expose low-income residents to green job opportunities within the District, improve resident thermal comfort, and set the stage for the nation to continue to follow D.C.’s lead.

**Current Efforts to Eliminate Indoor Environmental Health Threats**

There is currently groundbreaking activity happening in the District related to the third goal explored by the Green Affordable Housing Task Force, eliminating indoor environmental health threats in public and affordable housing. The District has a strong coalition in place focusing on lead and other indoor air quality issues called the DC Partnership for Healthy Homes. Consisting of 20 government agencies and non-profit organizations, the DC Partnership for Healthy Homes refers cases to the DDOE Healthy Homes Specialists who perform a housing condition

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assessment to identify health threats such as lead-based paint hazards, mold, poor ventilation, and the presence of an assortment of indoor allergens. DDOE case managers then provide customized education to property owners and tenants, technical assistance to property owners on mitigating hazards, and coordination with code enforcement officials at DCRA and with property managers at DCHA to correct problems when necessary. The Healthy Homes staff also follow up with affected tenants to analyze the health outcomes of the improved living conditions. While this program is still in its nascent stage and there is not yet a statistically significant sample of individuals, it has already won an “Innovative Program Award” from the Environmental Council of the States in 2012. Even with its small sample size, the program is proving to have measurable health benefits for participants, many of whom are households that include a child with asthma.

Although the DC Partnership for Healthy Homes and DDOE have made tremendous strides, indoor air quality continues to be an area of concern for the District. According to the Centers for Disease Control and Prevention, asthma rates, to which poor indoor air quality is a major contributor and is atypically high in the District, particularly for children. This issue is also an equity concern, since low-income children of color are 3 times more likely to have asthma than white children, with concentrated rates of asthma occurring in the lowest-income neighborhoods.

The following sections discuss the current state of various indoor health threats in the District, including: lead, mold, carbon monoxide (CO), radon, and volatile organic compounds (VOCs).

**Lead**

Almost 90% of the District’s housing stock was built before lead-based paint was restricted in 1978. Further, lead pipes still exist in many properties. Fortunately, the District has several strong programs that respond to lead hazards and, in particular, cases of lead poisoning in children. Due to these programs, the District has started seeing some positive results: between 2008 and 2012 there was a 60% overall decline in new cases of lead poisoning with a similar decline in blood lead levels of those already identified with lead poisoning. Part of this decline

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can likely be attributed to the enactment of one of the most health-protective local lead laws in the nation, the Lead Hazard Prevention and Elimination Act of 2010.

Two District government agencies primarily work to make homes healthy and lead-safe. Part of the recent lead poisoning may be attributable to organizational changes within these agencies to better streamline lead programs, including the creation of DDOE’s Lead and Healthy Housing Division (LHH). LHH works to make District homes healthier in several capacities. First, LHH provides education and outreach to tenant organizations, immigrant populations, property owners and managers, contractors, pediatricians, and other District agencies. Second, the division provides enforcement initiatives, including letter campaigns to property owners, audits of landlord files to ensure appropriate documentation of lead law compliance, and audits of lead inspectors to ensure they are maintaining high standards of workmanship. Finally, LHH collaborates with other District agencies, including working with the Department of General Services to ensure schools are being made lead-safe during renovations; with DC Water to collaborate on investigation of elevated levels of lead in water; with the Child and Family Service Agency to ensure the homes of prospective foster care parents are lead safe prior to a child moving in; and with the Department of Consumer and Regulatory Affairs to ensure their Notices of Violations include language specifying the need for lead-safe work practices whenever painted surfaces are disturbed.

DHCD also actively works to make District homes lead-safe, adding to the recent decline in lead poisoning. The agency’s Lead Safe Washington (LSW) program integrates lead hazard reduction with existing housing programs and catalyze lead poisoning prevention, rehabilitation, and weatherization in the District’s most at risk, low-income communities. Over the past eight years LSW has leveraged HUD lead hazard reduction funding in conjunction with DHCD’s Housing Production Trust Fund to produce lead safe rehabilitated properties in the District. LSW is strategically designed to coordinate DHCD’s resources with other District agencies. Supported by the enactment of the District of Columbia Lead Hazard Prevention and Elimination Act of 2010, the LSW program has succeeded in making many District homes lead safe.

**Mold**

Mold is commonly a result of excess moisture and thrives in dark and humid areas with poor ventilation. Moisture is often caused by leaky plumbing, rotting or loose windows or doors, or holes in walls or roofing, which are also violations under the District’s housing regulations. Fixing these violations will help prevent mold, which can cause allergic reactions, including
sneezing, runny nose, red eyes, itchy eyes, and skin rashes. Mold can also trigger asthma episodes and respiratory problems.  

To date, mold is not adequately addressed due to the wide variety of mold types and the varying levels of danger of each. Additionally, the causes of mold formation are not always clear or easily attributable to either the landlord or tenant. Currently, most mold policies and guidelines are preventative rather than designed to correct existing mold contamination. The new Green Construction Code discussed earlier includes comprehensive building envelope requirements and on-site inspections to ensure that all drainage and water flow are properly designed and installed to prevent water collection and moisture build-up. Further, legislation has recently been enacted to address mold issues in the District (D.C. Council Public Law 20-0135 – Air Quality Amendment Act of 2013).

**Carbon Monoxide (CO)**

According to the Centers for Disease Control and Prevention (CDC), each year unintentional CO poisoning in America results in more than 400 deaths, more than 20,000 emergency room visits, and more than 4,000 hospitalizations. Carbon Monoxide is an odorless, colorless gas that can cause sudden illness or death, and is difficult to diagnose. It can be found in combustion fumes in homes produced by stoves, lanterns, gas ranges, and heating systems and can build up in enclosed spaces. People can die in their sleep before ever experiencing symptoms of carbon monoxide poisoning.  

Pursuant to the adoption of the Green Construction Code, beginning in March 2015 more residential dwellings in the District will be mandated to have carbon monoxide detectors. This is an excellent start, but not adequate on its own to address this citywide health issue.

**Radon**

DDOE defines radon as a radioactive decay product of radium, which is itself a decay product of uranium. Uranium and radium are both common elements in the soil. It is harmlessly dispersed in outdoor air, but when trapped in buildings, can be harmful, especially at elevated levels. Exposure to radioactive gas radon causes lung cancer in thousands of Americans each year. In fact, since the 1980s it is estimated that 500,000 Americans have died due to radon-induced cancer. Many of the risks associated with radon have not been truly addressed across the

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10 Id.
nation. Despite being a leading environmental cause of cancer death in the US, radon has been difficult to remediate in existing properties due to the lack of public awareness of its deadly effects, as well as the cost and complexity of remediation strategies (e.g. under-slab ventilation and crawlspace ventilation). Currently, DDOE distributes information about radon, how it gets into a house, the health effects associated with exposure, and ways to address the presence of radon. Also, District residents can obtain a free radon test kit by calling DDOE’s radon hotline at (202) 535-2302.

Though not considered a major threat District-wide, there are localized concentrations of radon in the District that can reach dangerous levels. The most effective way to eliminate radon threats is to create a system of ventilation from the ground (the source of the radon) to the outside of the home. However, this process can be costly in existing buildings, thereby preventing the appropriate remediation of radon gas.

**Volatile Organic Compounds (VOCs)**

VOCs are emitted by many products, including many paints and lacquers, cleaning supplies, building materials, and furnishings.\(^\text{12}\) A landmark study conducted by the U.S. Environmental Protection Agency (EPA) found levels of nearly a dozen organic pollutants to be 2 to 5 times higher inside homes than outside, regardless of geographic location.\(^\text{13}\) The study indicated high indoor pollutant levels that can persist long after the initial exposure, and subsequent assessments have found that exposure to VOCs can result in negative health effects. Fortunately, the District currently has several programs that address the presence of VOCs during construction, including those required by the Green Building Act and the new Green Construction Code. Additionally, because the District has high ozone levels, it falls under the auspices of the Ozone Transport Commission’s (OTC) federal guidelines, which includes fairly stringent requirements for the types of paints, adhesives and sealants that can be sold in the District.

The OTC, however, only regulates VOCs based on how they combine to produce smog and not based on their direct impact on indoor air quality. By requiring LEED and Enterprise Green Communities certification, the Green Building Act promotes indoor air quality through further

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reductions in VOC content compared to the less stringent OTC requirements. The new Green Construction Code expands the scope of the Green Building Act to smaller sized projects and moderate renovations, further limiting the amount of VOCs in buildings throughout the District. However, neither the Green Building Act nor the Green Construction Code covers single family and low-rise multi-family dwellings, so additional analysis needs to be conducted to determine if additional regulations, outreach, or both are needed to reduce the prevalence of VOCs in these property types.

**Methodology**

The Green Affordable Housing Task Force plan has been developed as a collaboration between the Deputy Mayor’s Office for Planning and Economic Development (DMPED), the Deputy Mayor’s Office for Health and Human Services (DMHHS), the Department of Consumer and Regulatory Affairs (DCRA), DC Housing Authority (DCHA), Department of Housing and Community Development (DHCD), and the District Department of the Environment (DDOE). The task force held regular meetings to iteratively work through the development of recommendations to achieve the Sustainable DC goals as set out in the Mayor’s Order. Additionally, the task force hosted a stakeholders meeting on April 15, 2014 with a large group of experts in the field of sustainability, green building and affordable housing to get input on the plan.

In addition to the advisory group meeting, members of the task force have relied upon their own knowledge of green building practices, as well as research of available literature concerning best practices involving green building and affordable housing nationally. The task force has reviewed the “Green Building Report for the District of Columbia, 2007-2011”, and the “Green Building Report for the District of Columbia, 2012”, to determine the pace at which affordable housing units are being renovated to green standards in the city. Resources from Enterprise Community Partners, the National Center for Healthy Housing, the Healthy House Institute, the U.S. Green Building Council, and other organizations have been utilized for further development of the analysis presented in this report.
Findings & Recommendations

GOAL 1: Set Standards for the rehabilitation of affordable and public housing to be green and healthy

ACTION 1.1: Revise the Green Building Act of 2006, the legislation that sets the standards of green and healthy housing in the District, to apply to all new construction and substantial renovations of affordable and public housing over 10,000 square feet receiving any level of District financial subsidy, rather than the current law which sets the subsidy threshold at 15%.

a. **Summary**: Currently, under the Green Building Act of 2006, new construction and substantial renovation of affordable and public housing over 10,000 square feet are only required to build to the Enterprise Green Communities Criteria basic certification level or to LEED at the Silver level if they are receiving 15% or more of their total construction costs from a District subsidy. Thus, projects receiving less than 15% of District subsidy are not necessarily being built to the current standards for green and healthy housing. The task force recommends that the District require all new construction and substantial renovations of affordable and public housing over 10,000 square feet receiving any level of District subsidy build to the Enterprise Green Communities Criteria or to LEED at the Silver level. This would effectively close an existing gap to achieve the goal of requiring green and healthy housing for all affordable housing.

b. **Expected Benefits**: Green and healthy housing built to the Enterprise Green Communities Criteria has numerous economic, health, and environmental benefits to residents, owners, the District and the broader community. As noted above, the task force determined, with extensive input from its advisory board, that Enterprise Green Communities Criteria provides an excellent baseline of standards. With regards to health benefits, the Criteria has many mandatory requirements to improve indoor air

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14 A “District subsidy” is defined in the Green Building Act as “District-financed” or “District instrumentality-financed” means: (A) Financing of a project or contract where funds or resources to be used for construction and development costs, excluding ongoing operational costs, are received from the District, or funds or resources which, in accordance with a federal grant or otherwise, the District administers, including a contract, grant, loan, tax abatement or exemption, land transfer, land disposition and development agreement, or tax increment financing, or any combination thereof; provided, that federal funds may be applied to the financing percentage only if permitted by federal law and grant conditions; or (B) Financing whose stated purpose is, in whole or in part, to provide for the new construction or substantial rehabilitation of affordable housing.
quality including adequate ventilation, low emission materials, bans on certain hazardous chemicals, and best practice moisture management strategies. These strategies combined create healthy environments for residents.

Additionally, the cost effectiveness of Enterprise Green Communities has been researched through two “cost” studies\(^\text{15}\) that reviewed and analyzed the incremental cost of building to the Criteria with the estimated lifetime savings from energy and water efficiency upgrades. The most recent study found that additionally an initial investment of $3,546 per unit, using the 2008 Criteria, yielded $3,709 in lifetime savings.\(^\text{16}\) While energy and conservation measures vary across projects in the study, the median simple payback period was 5.59 years. It is important to note that the studies only considered quantifiable benefits and did not include many green building benefits that are qualitative, including benefits to the occupant such as improved health and access to transit, as well as broader community and regional benefits such as improved air and water quality.

c. **Completion Date:** Starting in January 2015, DDOE, DCRA, DGS and other agencies, with input from the Green Building Advisory Council, will draft legislative changes to be released for public comment. After public comments have been reviewed, the revised proposal would be sent to the Mayor’s office for approval and then to the Council of the District of Columbia. The approval process for revising the Green Building Act is anticipated to be completed in calendar year 2015 and, ideally, the changes could become law by 2016.

d. **Fiscal Impact:** This recommendation does not have an immediate fiscal impact for the District.

e. **Political/Citizen Impact:** Citizens would likely be pleased by increased health benefits and sustainability of their homes, as well as decreased utility costs that will result from a “greener” building. Developers whose projects would not otherwise be covered by the Green Building Act, will most likely be initially challenged by the additional requirements and real or perceived expenditure of additional time, money, and resources, but after completing a project and becoming comfortable with the

\(^{15}\) Enterprise Green Communities Criteria: Incremental Cost, Measurable Savings (version 2009 and 2012)

\(^{16}\) Enterprise defined “lifetime savings” based on a conservative assessment of costs, assuming 20 years before replacement or of renewal building materials and systems. See: http://www.enterprisecommunity.com/servlet/servlet.FileDownload?file=00P3000000DTXl6EAH
process it will become much easier, streamlined and more cost-effective. Based on information from DHCD and the Office of the Deputy Mayor for Planning and Economic Development (DMPED), most projects receiving subsidies and disposed of by the District already fall under the Green Building Act of 2006, so this action item will likely only affect a small number of projects.

f. **Legislative/Regulatory Impact:** Legislation will be required.

g. **Recommendations:** The task force recommends that the Green Building Act of 2006, the legislation that sets the standards of green and healthy housing, be revised to apply to all new construction and substantial renovations of affordable and public housing over 10,000 square feet receiving any level of District financial subsidy, rather than the current 15% threshold. The task force recommends that this change be included as part of the larger rewrite of the Green Building Act being proposed by the Green Construction Code Transition Plan Task Force.

h. **Incentives (if applicable):** N/A

**ACTION 1.2:** Convene an advisory group of governmental and non-governmental stakeholders in Fiscal Year 2015 to develop a strategy for the green construction and rehabilitation of housing under 10,000 square feet that is currently not regulated by the Green Building Act or Green Construction Code.

a. **Summary:** Currently, residential projects less than 10,000 square feet, affordable or otherwise, do not have any green building requirements under the Green Building Act or the Green Construction Code. Examples of buildings not covered include the majority of single family homes, rowhouses, and some small low-rise multifamily projects less than four stories in height. In the District, this is a significant portion of the building stock and an important sector that needs to be addressed to meet the long-term goals of the Sustainable DC plan and to ensure that affordable housing is green and healthy. It is important to engage stakeholders from the government, private and public sectors to develop a strategy for green construction and rehabilitation of smaller residential buildings. This advisory group will not only address small affordable housing residential buildings but all residential buildings not currently covered under the Green Building Act or Green Construction Code. The group should incorporate community input and take into account the effects new policies could have on landlords, tenants and homeowners.
b. **Expected Benefits:** The recommendations that come from this advisory group could have a significant impact on the District’s overall environmental health and sustainability. The District includes over 110,000 small (under 10,000 square feet) residential buildings (e.g., rowhouses, townhouses, duplexes, low-rise apartments), which make up a large percentage of the District’s built environment and account for approximately 20% of total building-related carbon emissions in the District. If these building types are improved to higher green and healthy standards, the District will be much closer to meeting the Sustainable DC goals as well as providing healthy as well as energy and water efficient housing.

c. **Completion Date:** The advisory group could be convened beginning in January 2015 and would require up to 12 months to conduct a thorough analysis as well as a citizen participation process. The advisory group would compile recommendations for potential policies and programs to advance health and efficiency for smaller property types.

d. **Fiscal Impact:** This recommendation does not have an immediate fiscal impact; however the advisory group could produce recommendations that have fiscal impacts.

e. **Political/Citizen Impact:** Introducing new green building policies and programs for smaller residential projects will have a positive impact for citizens as long as it is properly funded and incentivized. Also, there must be a rigorous citizen participation process so that the concerns of District property owners and residents can be fully considered and addressed before any recommendations are released. The advisory group’s recommendations will aim to provide healthier and more energy and water efficient housing for citizens and will examine the possible financial impacts to homeowners to ensure that new policies would not be overly burdensome.

f. **Legislative/Regulatory Impact:** Convening such an advisory group will not require legislation. Depending on the recommendations of the advisory group there could be new policies or incentives developed for small residential affordable housing.

g. **Recommendations:** The task force recommends that a residential advisory group be formed to look at residential buildings that are not addressed under the Green Building Act or Green Construction Code. The advisory group would not only look at greening affordable housing that is not currently regulated, but also private sector market-rate
residential projects that are not regulated. The task force recommends that the advisory group be made up of public and private partners. It is important that they offer solutions that balance new policies with incentives that do not burden homeowners and the production of affordable housing.

h. Incentives (if applicable): The advisory group will examine possible incentives that could be offered and implemented.

ACTION 1.3: Hire an interagency staff person to serve as the Green Affordable Housing Coordinator between DDOE, DHCD, and DCHA.

a. Summary: It was determined during the course of developing the Sustainable DC Plan, and in conjunction with recommendations from the Mayor’s Green Building Advisory Council, that there would be great value in hiring a staff person that would specifically work on interagency coordination to drive green building in the affordable housing sector in order to ensure inter-agency coordination, specifically amongst DDOE, DCHA and DHCD. Due to the importance of this recommendation, the District has already posted and filled this position. The staff person, who has recently been hired and started in September 2014, will focus on the following activities:

- With DCHA, the staff person will create a train-the-trainer program for tenant behavior in public housing developments in order to reduce energy and water consumption and improve tenant health. Utilizing the 2012 DCHA Building Products Standards Guide, the staff person will assist in developing a Green Operations and Maintenance Manual for use by DCHA staff and residents. The staffer will also aide in innovative green building efforts at DCHA, such as the net zero/positive energy project at Langston Dwellings.

- With DHCD, the staffer will focus on ensuring compliance with the Green Building Act for publicly financed projects, and work on creating programs to drive innovation for projects that DHCD is funding.

- With DDOE, the staff person will work on public outreach related to the greening of affordable housing and develop policy initiatives to drive innovation in the green affordable housing sector. The staff person will also begin the process of implementing the recommendations contained in this report.
b. **Expected Benefits:** The creation and subsequent hiring of an interagency staff person that focuses on affordable housing exclusively breaks down silos between the three sponsoring agencies and ensures that the agencies coordinate programs and activities to achieve the greatest possible level of green building innovation.

c. **Completion Date:** COMPLETED. DDOE has hired the staff person for this position and the individual started prior to the completion of this report.

d. **Fiscal Impact:** $88,000 (fringe and benefits for FTE). This amount is currently being covered through the District’s Green Building Fund.

e. **Political/Citizen Impact:** The designated staff person’s focus on green affordable housing will greatly increase the capacity of DCHA to reduce costs and offer greater environmental benefits to public housing tenants. It will also help DHCD promote and enforce green building requirements for the projects funded by that agency. The unique interagency structure of this position will also prove to District citizens that the Sustainable DC process is already removing the silos between government agencies to further green affordable housing strategies.

f. **Legislative/Regulatory Impact:** N/A

g. **Recommendations:** Support and coordinate with the new staff person to help move the policy recommendations in this report forward.

h. **Incentives (if applicable):** It is possible that an incentive structure for tenant participation in the DCHA tenant behavior program will be necessary. The incentives could potentially be paid for through the energy and water savings, and other benefits that would be derived through changes in tenant behavior. The new staff person will work across agencies to determine potential funding sources for any incentives.
GOAL 2: Examine the feasibility of public housing meeting net zero energy standards.

ACTION 2.1: Identify $300,000 to match a like-sized contribution by the DC Housing Authority to pilot proven renewable energy measures such as fuel cells and solar arrays at the Langston Dwellings property.

a. Summary: A direct installation of a sizable solar array and/or fuel cell installation at one or several DCHA-owned sites would provide valuable data which DCHA staff and consultants can analyze to determine the cost, benefits, and challenges of installing renewable energy installations throughout its portfolio.

Langston Dwellings (21st St. N from Benning Rd. to H St., NE), DCHA’s oldest public housing site, has been analyzed and, after a lengthy community engagement process, has been found to have the potential to operate as a net-positive energy site if biogas fuel cell with solar PV or geothermal with solar PV is installed on the site. Findings from the Sustainable DC Budget Challenge feasibility study at Langston Dwellings exceeded the agency’s expectations with its net-positive findings. Once either of the recommended energy technologies is installed and the net-positive energy results are measured, Langston Dwellings could become a model for the redevelopment of public housing in the District and across the country.

b. Expected Benefits: Direct benefits from the implementation of a pilot program at Langston dwellings through the installation of new energy technology at the public housing site will include:

1. Improved resident thermal comfort: Energy-intensive window air conditioning units can be removed and replaced with efficient in-unit systems, thereby reducing carbon and energy consumption. Further, because residents will be able to control their thermal comfort within their unit, they will be less likely to use their cooking ovens for heat and open windows during winter months.

2. Reduced operating costs: A fuel cell and/or solar installation will reduce DCHA’s payments for utilities. These cost savings will allow DCHA to reallocate resources to other properties in desperate need of upgrades and improvements.
3. *Reduced carbon footprint*: Biogas will replace natural gas on a unit-by-unit basis thereby improving the overall carbon footprint of the District.

4. *Increased grid resiliency*: Langston Dwellings has the potential to be a net-positive site thereby directly reducing the energy needs of the surrounding community and improving overall resiliency of the energy grid.

c. **Completion Date**: Implementation of the pilot at Langston Dwellings can be achieved within a 12 month timeline.

d. **Fiscal Impact**: The pilot program will cost the District $300,000, which will be matched in kind by DCHA for a total project cost of $600,000. After the installation of the energy efficient technologies at Langston Dwellings, energy savings can be reinvested into DCHA’s shrinking operating fund. An infusion of additional funding will allow DCHA to rehabilitate units which are currently offline; construct new affordable units; and modernize existing units to meet Enterprise Green Communities and LEED standards.

e. **Political/Citizen Impact**: Piloting renewable energy in a disinvested community will increase morale and citizen awareness regarding sustainability measures. The installation of renewable energy measures will also reduce the equity gap between those who benefit from clean energy and those whose financial circumstances limit their ability to benefit. A recent solar map created by the Office of the Chief Technology Officer illustrates that most solar installations in the District are located in the northwest quadrant.

f. **Legislative/Regulatory Impact**: None

g. **Recommendations**: Identify $300,000 to fund a team, including an energy consultant, to implement the pre-development phase of one of the two clean energy-generating, net-positive scenarios identified in the Langston Dwellings Feasibility Study. Implementation of a pilot at Langston Dwellings will allow SDC to move towards its goal of not only “Examining the feasibility of public housing meeting net zero energy standards,” but also beginning implementation of the ultimate goal of this mandate.

h. **Incentives (if applicable)**: N/A
ACTION 2.2: Identify $150,000 to match a like-sized contribution by the DC Housing Authority to complete a portfolio-wide analysis to determine the feasibility of achieving net zero on all properties in the public housing portfolio.

a. **Summary:** A detailed analysis of DCHA’s portfolio should be performed by its energy consultant to identify properties capable of meeting net zero standards. An energy services contract was recently awarded to a firm in response to a Request for Proposals (RFP) process. The contract requires the energy consultant to compile electric, water, and gas bills from local utilities for nearly 8,000 units; re-align the data to remove inconsistencies and errors; and report findings. Although DCHA did not originally plan to conduct a portfolio-wide energy audit to determine the feasibility of achieving net zero energy usage when it issued an RFP for an energy consultant last year, language in the contracting documents allows for an in-depth investigation of energy matters. DCHA may execute its Job Order Contracting (JOC) procurement process to implement this portfolio-wide energy study and add it as a task order to the existing contract. The energy consultant is adept at this type of analysis, has experience working with DCHA, and is ready and able to complete a system-wide analysis of DCHA’s public housing portfolio if funds become available for this purpose.

The site-by-site analysis will determine viability and costs associated with rehabilitating existing public housing to be net zero energy using current housing conditions reported to HUD and findings from the portfolio-wide energy analysis. Once data from the pilot installation is analyzed, sites can be identified and prioritized for renewable energy installations based upon numerous factors including:

1. **Physical Conditions:** Sites requiring limited capital investments including ones which have relatively new roofs, boilers, chillers, and water heaters.
2. **Location:** According to GIS maps, Wards 5, 7, and 8 have fewer solar installations than wards located in the northwest quadrant of the District. Equitable distribution of renewable energy installations throughout the District will increase grid resiliency.
3. **Redevelopment Potential**: DCHA will determine which properties it plans to keep in its portfolio for the next fifteen to twenty years in order to ensure that renewable energy installations can fulfill potential financing obligations (i.e. 20-year Power purchasing agreement terms and PACE financing terms). As an agency with a development arm, financial assessments are often made per property to determine each site’s long-term highest and best use. To date, DCHA has redeveloped seven of its severely distressed and high crime sites into HOPE VI developments and has recently been awarded funding for planning activities from HUD for two Choice Neighborhoods.

Due to the estimated net-positive energy use predicted by the Langston Dwellings feasibility analysis, goals of the portfolio-wide feasibility analysis could be expanded to determine if, in sum, the Housing Authority’s portfolio can be net-zero in terms of energy use. To date, DCHA estimates that a successful implementation of renewable energy measures such as solar and fuel cells at the Langston Terrace Dwellings site may produce upwards of twenty percent (15%) of the energy required to fuel DCHA’s entire portfolio.

Net Zero public housing sites have the potential to be incubators for community business start-ups and on-site learning labs for the students. Student-run tours educating visitors of the on-site renewable measures have the potential to be commonplace at public housing sites throughout the District along with “Energy Ambassadors” who serve to guide visitors and residents alike through clean, sustainable, energy independent sites.

**b. Expected Benefits**: DCHA’s primary funding source is the US Housing and Urban Development (HUD), which has decreased allocations to local Public Housing Authorities (PHAs) over the past few years. As expectations for PHAs shift to “**doing more for less**”, it becomes incumbent upon local leaders to reduce utility consumption and limit their carbon footprints in order to more efficiently utilize scarce financial resources. With an aging federal housing stock desperately in need of modernization all options should be explored including on-site energy generation. On-site energy generation would, in many cases, lead to reduced utility costs for DCHA. Lower utility costs would free up funds which could be reallocated to build more public housing units or to invest in the modernization
of existing public housing units. At Langston Dwellings alone, DCHA spends over $490,000 per year on electricity and gas.

Another possible benefit of achieving net zero energy on public housing sites is that the properties have the potential to be incubators for community business start-ups and on-site learning labs for students. Student throughout the District could become “Energy Ambassadors” and run tours educating visitors and residents of the renewable, clean, and sustainable energy measures implemented on public housing sites.

c. **Completion Date:** A feasibility analysis of DCHA’s portfolio could be completed in 3 to 4 months.

d. **Fiscal Impact:** The initial analysis would require a total of $300,000 to complete. DCHA is able to cover $150,000 of this cost if the District can match these funds. After the initial analysis is completed and the key investment sites are identified, additional funding will likely be required over the next five years to rehabilitate sites determined to be net zero energy capable by the feasibility analysis.

The analysis of Langston Dwellings concluded that revitalization efforts are technically feasible and economically viable. Langston Dwellings was built in 1938 and serves as a sound example of typical building conditions currently present among many public housing sites. To determine the economic viability of redeveloping this property into a net zero site, the DCHA team examined current electricity, gas, and water usage and compared it to estimated savings. Six energy-generating scenarios were examined and the District-scale Biogas Fuel Cell emerged as the most viable. The expected yearly savings exceed $800,000 which includes financial benefits from tax credits and federal/local incentives, annual solar renewable energy credit value, and income derived from renting portions of the on-site Power Plant at Langston to local entrepreneurs.

DCHA properties use 67,364 megawatt hours of energy per year. The fuel cell at Langston is estimated to produce 10,424 megawatt hours per year or 15% of the total energy usage for DCHA’s entire portfolio. Analysis is currently underway to determine the exact monetary savings of such a deployment across the portfolio.
e. **Political/Citizen Impacts**: Transforming public housing sites into clean-energy generating examples of change in communities will provide several community benefits. At Langston Dwellings, for example, the following benefits were compared across the top four renewable energy generating scenarios.

f. **Legislative/Regulatory Impacts**: There are no legislative impacts identified at this time.

g. **Recommendations**: Identify $150,000 to match DCHA’s contribution and allow for the agency’s energy consultant to complete a feasibility analysis of DCHA’s entire portfolio, thereby achieving Sustainable DC’s goal of “Examining the feasibility of public housing meeting net zero energy standards.”

h. **Incentives (if applicable)**: N/A
GOAL 3: Provide guidelines for the elimination of environmental health threats such as mold, lead, and carbon monoxide

ACTION 3.1: Create an indoor air remediation fund prioritizing low-income residents and communities with high concentrations of indoor environmental health risks.

a. Summary: As described in the background section, indoor environmental health threats such as lead, mold, carbon monoxide, radon, and VOCs are highly prevalent and of serious concern in the District. While the District programs previously outlined are effective, the extent of the effects of these health threats is greater than can be addressed by the resources currently available. A significant amount of additional funding will need to be identified in order to begin approaching the elimination of these threats. Possible funding sources include a budget enhancement request, funds from the Housing Production Trust Fund, foundation support, and available federal funding, particularly around mold remediation.

To create an indoor air remediation fund, further analysis is required to determine which funding source is most feasible, what the eligibility requirements of the projects would be, and how the fund would be administered. While these analyses go beyond the scope of this task force, it is already clear that due to the high prevalence of indoor health threats and the significant expense of mitigating homes against threats like mold and lead, priority should be given to lower-income households that are less financially able to pay for improvements on their properties as well as geographic areas of the District with high concentrations of indoor health threats.

b. Expected Benefits: More housing in the District will be healthy and free from indoor environmental health threats. It is expected that fewer residents will suffer from lead poisoning, asthma, and respiratory diseases — all of which are disproportionately high in the District. Additionally, because low-income children and children of color are more likely to have asthma, funding that focuses on populations most affected will help decrease health disparities.

c. Completion Date: Planning could be begin immediately with legislation potentially passed in 2015 and program implementation in 2016.
d. **Fiscal Impact:** The average lead-removal project costs about $10,000 according to the EPA, but DDOE has found that costs are often closer to $15,000 within the District. Mold remediation typically costs between $2,000 and $5,000 per unit and, unlike lead, this health threat would require additional funds to establish the program and create an administrative process. An initial funding of $800,000 is a reasonable estimate for a small fund for this dedicated purpose.

According to the World Health Organization, for every $1 spent to reduce lead hazards, there is a benefit of $17 to $220 in return in increased productivity and reduced healthcare costs. According to the United States Surgeon General, asthma reduces annual productivity by $200 to $440 per person\(^\text{17}\) so a decrease in asthma rates would also have a positive fiscal impact on area employers.

e. **Political/Citizen Impacts:** Because of the extent of the indoor environmental health threats and their impact on lower income households and people of color in particular, there is likely to be broad public and political support for creating a reasonably sized fund to mitigate these threats.

f. **Legislative/Regulatory Impacts:** If funding is made available through the FY2016 budget, no further legislation would be required. Additionally, authority will need to be delegated to whichever entity within the District government that will administer the program.

g. **Recommendations:** Identify funding to launch a $800,000 fund to mitigate the most egregious indoor health hazards prioritizing low-income residents and geographic areas of particular concern as determined through further analysis.

h. **Incentives (if applicable):** N/A

\(^{17}\) United States Surgeon General “Economic Benefits of Preventing Disease.”
ACTION 3.2: Strengthen enforcement of existing laws, regulations, and codes supporting reduction of indoor environmental health threats, particularly those recently enacted, by cross-training DCRA and DDOE inspectors and strengthening interagency coordination.

a. **Summary:** The District currently has several strong laws and regulations regarding indoor environmental health threats discussed in the Background section, but currently lacks the appropriate number of specially trained inspectors to fully enforce the regulations. Presently, responsibility for enforcement of indoor health threats is divided among several agencies. Efforts have been made to better coordinate between agencies and cross train existing inspectors to more effectively enforce existing laws with limited resources. These efforts must to be expanded to ensure that any inspector examining a home is able to investigate the full range of indoor health threats and issue infractions for all violations upon such inspection. It would be particularly beneficial for Real Estate Assessment Center (REAC) inspectors who inspect homes more frequently than other inspectors. REAC inspectors could be trained to identify common problems such as visible mold or chipping paint to trigger a more thorough inspection by an employee specially trained to address that health threat.

The District recently passed broad new green building and energy codes as well as the Air Quality Amendment Act. These codes and legislation, while very forward thinking, are still relatively unknown to the general public. Property owners and occupants should be made aware of new requirements through outreach and education efforts. It is also critical that inspectors and relevant staff from District government agencies understand the new codes well and are able to interpret and enforce them appropriately. Additionally, new inspectors specially trained to understand the full range of indoor health threats, including a deep understanding of new codes and legislation should be hired to bolster the current number of inspectors. Together, these steps would allow for better enforcement of existing laws.

b. **Expected Benefits:** Stronger enforcement of existing laws, regulations, and codes makes current laws more effective. Additional benefits to the District include a healthier housing stock and better health outcomes for residents.
c. **Completion Date:** If implemented during the first quarter of FY 2015, the inspector cross training, increased enforcement and hiring of additional inspectors could be completed within two years, by the start of FY 2017. Increased agency coordination has already begun and will continue.

d. **Fiscal Impact:** It is estimated that new cross training programs for existing inspectors could cost $200,000 to $500,000 depending on the type of training and number of inspectors. Moderate revenue from fines resulting from stricter enforcement of existing codes and laws could be expected. Additional inspectors would cost around $80,000 per inspector including benefits. Stronger interagency coordination could result in increased efficiencies but is not likely to have a significant fiscal impact.

e. **Political/Citizen Impacts:** Increased enforcement of existing laws and codes may not be well-received by the construction and building management industries, but will likely be popular with the general public and with health advocates.

f. **Legislative/Regulatory Impacts:** By focusing on increased enforcement of existing laws, fewer new laws, regulations and codes are required.

g. **Recommendations:** Strengthen enforcement of existing laws, regulations, and codes, particularly those that have been recently enacted, to support the reduction of indoor environmental health threats.

h. **Incentives (if applicable):** N/A
ACTION 3.3: Provide funding to expand the outreach and educational work of the DC Partnership for Healthy Homes, including the Healthy Homes Hub hosted on DDOE’s website, so more information about potential health hazards is available to residents living in and moving into affordable housing.

a. **Summary:** Several years ago, DDOE launched the DC Partnership for Healthy Homes aimed at identifying and ending environmental health and safety threats in District homes ([www.dchealthyhomes.com](http://www.dchealthyhomes.com)). Currently, the Healthy Homes Hub website contains information on the following health topics related to indoor health hazards: asbestos, asthma triggers, radon, mold and mildew, roach infestation, secondhand smoke, lead poisoning, bed bugs, multiple chemical sensitivity, and carbon monoxide. The website also contains an “Interactive Homes” website (image below), through which residents of the District can click on various parts of homes and learn where common indoor health hazards exist.

This website and accompanying outreach is an excellent start, but to reach a larger portion of those affected by indoor air threats, more outreach is required. Using the website as a guide, healthy home guides could be written in clear, accessible language with accompanying illustrations. Information from the Office of the Tenant Advocate and the Tenant and Landlord Resource Center on tenant rights regarding indoor health threats should also be included. Guides would be translated and produced in the languages covered in the Language Access Act and made available in a variety of ways, including distribution at citywide festivals, housing assistance centers, and District government offices. Current
community outreach and engagement should be expanded in scope with a special emphasis on low-income communities and communities of color, who are more likely to be affected by poor indoor environments. To better engage these communities, District agencies should contract with nonprofit partners with experience in community outreach. Outreach should address strategies to make homes healthier indoors, available financial resources, and tenant rights regarding indoor health threats.

b. **Expected Benefits:** DC Residents are expected to benefit greatly from having more knowledge regarding common indoor home health hazards, including gaining the ability to identify and mitigate threats as they arise in their homes and knowing which District government agencies to contact for different types of hazards that residents encounter. By focusing on those communities currently most affected by poor indoor environments, health disparities in the city should decrease.

c. **Completion Date:** Outreach efforts could begin immediately and would be ongoing.

d. **Fiscal Impact:** Additional outreach and education materials (e.g. healthy home guides) for distribution as well as enhancements to online resources (e.g. DC Healthy Homes website) would cost approximately $200,000 and $500,000 depending on the level of outreach. Partnerships with community engagement organizations could cost approximately $150,000 annually.

e. **Political/Citizen Impact:** Citizens would benefit greatly by having more information regarding healthy home hazards and gain a greater understanding of common home health hazards and how to address them.

f. **Legislative/Regulatory Impact:** N/A

g. **Recommendations:** Expand current outreach efforts regarding indoor environmental air quality; providing clear solutions and available resources, including the creation of a healthy homes guide. Distribution should be citywide, but focused on low-income communities and communities of color currently affected disproportionately by indoor health threats.

h. **Incentives (if applicable):** N/A
References

U.S. Green Building Council’s Green Building Information Gateway
http://www.gbig.org/places/2001

Green Building Reports for the District of Columbia
http://ddoe.dc.gov/publication/green-building-reports

District of Columbia Lead Safe and Healthy Homes Hub
http://www.dchealthyhomes.com/

Volatile Organic Compounds Regulations (20 DCMR, Chapter 7)
http://ddoe.dc.gov/service/air-quality-regulations

Enterprise Green Communities

National Center for Healthy Housing
http://www.nchh.org/


Better Building Challenge
http://www4.eere.energy.gov/challenge/home