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*for the National Coalition to End Childhood Lead Poisoning*

## A Report Following the National Dialogue on Green and Healthy Homes



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*A Report by a Panel of the*

**NATIONAL ACADEMY OF  
PUBLIC ADMINISTRATION**

*For the National Coalition to End Childhood Lead Poisoning*

March 2011

# **Achieving Green and Healthy Homes and Communities in America**

## **PANEL REPORT**

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The views expressed in this report are those of the Panel. They do not necessarily reflect the views of the Academy as an institution.

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## FOREWORD

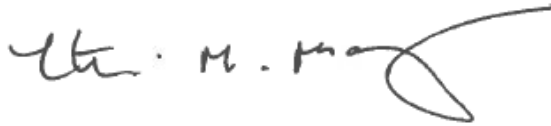
According to the Department of Housing and Urban Development's American Housing Survey from 2007, six million families are living in homes that are unhealthy and unsafe in the poorest of neighborhoods across our nation. Many of these homes are poorly weatherized resulting in high energy consumption and costs that places an additional financial burden on low income families. The National Coalition to End Childhood Lead Poisoning, home to the Green and Healthy Homes Initiative, is working to be a positive force to change this dynamic by bringing together disparate funding sources, erasing bureaucratic boundaries, and addressing all of the problems of a family home at one time by aligning and coordinating various resources into a single intervention.

The National Academy of Public Administration is pleased to have partnered with the National Coalition to design a collaborative online dialogue - The National Dialogue on Green and Healthy Homes - to identify ways to overcome the barriers that prevent children, families, and communities from having healthy, safe, and energy efficient housing. The Dialogue is a superb example of collaborative public administration, involving every level of government, as well as non-profit, philanthropic, and other stakeholder organizations.

This report of the Academy Panel lays forth an aggressive plan for addressing the health and safety needs of our nations' aging housing stock. It also identifies innovative ideas and leading practices offered by participants in the Dialogue that are already being utilized. The Academy hopes that the Green and Healthy Homes Initiative, the Department of Housing and Urban Development, and their partners can utilize these recommendations to break the link between unhealthy housing and unhealthy children, make homes energy-efficient, create "green" jobs, and promote improved health and economic outcomes for our nation's children.

Even beyond the specific subject matter, this project has important implications for how government at every level can work more effectively. So many Academy studies identify the need for government agencies (and programs within government agencies) to reach beyond their silos to solve the complex problems of our times. This project was initiated by a non-profit organization that recognizes that a collaborative approach to solving problems will both save money and produce better outcomes, and we are pleased to have the opportunity to join them in this effort.

We offer our thanks to Secretary of Housing and Urban Development, Shaun Donovan who supported this initiative and to our Academy Fellows Chris Mihm, who chaired the panel, Gary Christopherson, Parris Glendening, and Frank Reeder who provided their time, valuable insights and efforts on this important initiative.

A handwritten signature in dark ink, appearing to read "K. Marcy", with a stylized flourish extending to the right.

Kristine Marcy  
President and Chief Executive Officer

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## EXECUTIVE SUMMARY

*How can the nation integrate efforts and overcome barriers to make homes and communities healthy, safe, and energy efficient?*

Attainment of health, safety, and energy efficiency are conditions critical to good homes—an essential *quality of life* element. Failure to achieve these conditions, results in homes that cause disease, injury, and unnecessary expense. The National Dialogue on Green and Healthy Homes, conducted from November 4 through November 22, 2010, examined how to improve health and safety in low- to moderate-income homes and communities across the country. This report documents results of the Dialogue along with the analysis done by the Panel of National Academy of Public Administration Fellows.

Perhaps the most noteworthy finding of the Panel is that **an integrated approach to green and healthy homes not only contributes to the health and overall well-being of those who occupy those dwellings, it saves money.** Beyond the operational efficiencies of integrating inspection, remediation, and maintenance, the real savings may be found in the reduction of health care costs. Addressing all the health issues in a home at one time improves the health of children and families, thereby decreasing the cost of their medical care and saving them, their insurer, and the government money.

Over the last decade, a holistic approach has begun to emerge in the way providers of public health, environmental health, and public safety address health related issues within the home. Although each field has unique characteristics, the challenges they address are interrelated and produce both singular and cumulative impacts. These providers are redefining how they measure success by their ability to change the “quality of life” for individuals and families for the better.

These issues are complex but have real impact:

- *Generations of chronic disinvestment in low income communities have left over 6 million families trapped in unhealthy and energy inefficient homes.*<sup>1</sup>
- *Unhealthy homes are the source of 250,000 new cases of childhood lead poisoning,<sup>2</sup> 750,000 asthma related emergency room visits,<sup>3</sup> 10,000 cases of carbon monoxide poisoning,<sup>4</sup> and 13 million preventable home related injuries every year.*<sup>5</sup>

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<sup>1</sup> HUD. “American Housing Survey” 2007.

<sup>2</sup> Centers for Disease Control and Prevention. National Childhood Lead Poisoning Surveillance Data.

<sup>3</sup> Centers for Disease Control and Prevention. “The State of Childhood Asthma, United States, 1980-2005.

<sup>4</sup> Centers for Disease Control and Prevention. “Carbon Monoxide Poisoning Fact Sheet” August 2004.

<sup>5</sup> Home Safety Council. National Vital Statistics System, National Hospital Discharge Survey, National Health Interview Survey, National Electronic Injury Surveillance System.

- *Forty percent of asthma episodes are due to asthma triggers in the home, representing \$5 billion lost annually in preventable medical costs.<sup>6</sup> Home injuries are the 2<sup>nd</sup> leading cause of death for children under 5 years and lead to more than 10 million emergency room visits per year; this results in \$222 billion in medical costs annually.<sup>7</sup>*
- *Lead poisoning contributes to an income loss of \$110-\$319 billion per generation.<sup>8</sup> Additionally, low income households typically spend 14% of their total income on energy costs versus 3.5% for other households.<sup>9</sup>*

The green and healthy homes approach treats the home as a system; a complex environment where residents are exposed to multiple stressors whose combined impact can be greater than the sum of its parts. To improve the quality of life in the home, this approach calls for the inspection and remediation of all hazards and maintenance of safeguards concurrently. The holistic approach to housing assistance has grown new practitioners faster than government can adapt. Governmental housing programs are defined by legislation, regulations, and standards, many of which have not been updated to reflect the social and technological changes that have occurred in this field. The result is that many public housing programs fund only single-condition inspections and interventions. This single focus funding does not align well with holistic, multi-focused home interventions thus creating inefficiencies. The Green and Healthy Homes Initiative (GHHI) is one effort designed to create an opportunity for better alignment.

The GHHI is funded, in part, by an American Recovery and Reinvestment Act (Recovery Act) grant awarded to the National Coalition to End Childhood Lead Poisoning (National Coalition). The National Coalition and its many partners which include the Department of Housing and Urban Development, Department of Energy, Environmental Protection Agency, and the Centers for Disease Control and Prevention are implementing a 15-site pilot program to test green and healthy homes approaches on a national scale. One purpose of this effort is to document that a holistic approach can improve housing conditions in less time and for less cost than the current single-issue government approach. Initial reports are documenting both effectiveness and efficiency gains.

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<sup>6</sup> Robert Wood Johnson Foundation Commission to Build a Healthier America. "Beyond Health Care: New Directions To A Healthier America Report" April 2009.

<sup>7</sup> Home Safety Council. National Vital Statistics System, National Hospital Discharge Survey, National Health Interview Survey, National Electronic Injury Surveillance System.

<sup>8</sup> National Center for Environmental Health, Centers for Disease Control and Prevention. "Economic Gains Resulting from the Reduction in Children's Exposure to Lead in the United States" June 2002.

<sup>9</sup> Weatherization: A Grand Program." October 2001: 1. Web. 25 Jun 2010. National Renewable Energy Lab.

## The Dialogue

The National Coalition partnered with the National Academy of Public Administration (Academy) to conduct an online National Dialogue (Dialogue) to complement its efforts. The Dialogue was designed to create a forum where members of the larger green and healthy homes movement could come together to discuss the core question—“*How can we integrate efforts and overcome barriers to make homes healthy, safe, and energy efficient?*” The goal was to capture conversations from a broad range of stakeholders who identified specific implementation challenges and provided possible solutions to further the success of the green and healthy homes approach.

In reviewing the Dialogue, the strongest sentiment was that an integrated approach to green and healthy homes is the right way to do business. Participants made a strong case for endorsing a single inspection, single repair/remediation approach as an improvement over prevailing practices.

A second topic of interest was the need for focused messaging from the green and healthy homes movement and its constituents. The breadth of the movement’s constituents can be a barrier because too many voices speaking at once can register as noise—seekers of green and healthy homes information can be overwhelmed by the number of sources and materials available. This breadth can also be a benefit. A diverse community that unifies around a common message can leverage each of their voices to promote the green and healthy homes approach, educate decision makers and citizens, and build support for those efforts that will have the greatest impact.

A third area of discussion focused on how the green and healthy homes community can influence governments to change the way they approach housing issues. There was overwhelming support for updating federal, state, tribal, and local housing standards. Dialogue participants called for the establishment of a federal green and healthy homes standard that could govern federally-funded housing programs and serve as a model on which state, tribal, and local governments could base their own guidance, regulations, and codes. Participants also suggested that this standard include a provision requiring a green and healthy homes inspection upon any transfer of property or occupancy. Establishment of such a standard and inspection requirement would be an excellent start; however participants pointed out that a standard without performance goals for achievement, or without adequate funding for inspection and enforcement, lacks the gravitas to be an effective driver of change.

The final area of significant attention was on how to change the way government funding for housing assistance is spent. Dialogue participants called for greater flexibility in the way single-focus grants can be expended. Other participants called for inventive partnerships and financial incentives with hospitals, insurance, and mortgage lenders.

## **Consolidated List of Recommendations**

An Academy Panel was convened to oversee the Dialogue and offer advice and recommendations to the National Coalition to End Childhood Lead Poisoning based on the Green and Healthy Homes Dialogue and discussions with National Coalition staff and a steering committee of partners involved in the green and healthy homes movement. The Panel offers twelve recommendations:

**Recommendation 1** – Given the energy and health challenges facing the United States in the near- and long-term future, the Panel strongly recommends that the United States have all homes be healthy, safe and energy efficient as soon as is feasible, by actively pursuing a comprehensive approach—construction, inspection, and maintenance—to housing.

**Recommendation 2** – The GHHI and its many partners around the country have improved the health, safety and energy efficiency of low- to moderate-income homes. To build on this success, the Panel feels that this work should be taken to scale nationally.

**Recommendation 3** – The Panel recommends that the Chair of the federal Healthy Homes Work Group, within the next year, seek funding to conduct an evaluation effort that involves a broad range of stakeholders from all levels of government, the public, and private sectors, to determine the adequacy of current housing standards in meeting the Nation’s health, safety, and energy efficiency needs. This effort should incorporate existing data to avoid unnecessary redundancy.

**Recommendation 4** - The Panel recommends a collaborative federal, state, tribal, and local effort be undertaken, within one year of the completion of the evaluation effort [Recommendation 3], to develop a model, tiered performance standard for healthy, safe, and energy efficient homes. This performance standard could then serve as a basis for modifying regulations governing federally-funded programs and as a model for state, local, and tribal building codes and regulations.

**Recommendation 5** - The Panel recommends that decision makers, in the legislative and executive branches at all levels of government, consider grouping programmatic funding streams that are single-purpose, or reallocating individual programmatic funding streams, to better align government programs with comprehensive, healthy, safe, and energy efficient home approaches, and improve accountability for results.

**Recommendation 6** - The Panel recommends that the National Coalition to End Childhood Lead Poisoning engage its partners and a wide range of stakeholders to educate decision makers about

the advantages of reallocating government funding to resolve underlying home problems instead of simply treating symptoms.

**Recommendation 7** - The Panel recommends that a long-term funding strategy be developed to ensure that healthy, safe, and energy efficient home and community efforts continue once American Reinvestment and Recovery Act funding expires.

**Recommendation 8** - The Panel recommends that community coordination at the local level be included as a key component of the green and healthy homes and communities approach.

**Recommendation 9** - The Panel recommends that the National Coalition to End Childhood Lead Poisoning, in collaboration with other partners, establish a permanent, national online community in which Dialogue participants and other stakeholders can interact and continue to inform future health, safety, and energy efficient home activities.

**Recommendation 10** - The Panel recommends that federal, state, tribal, and local governments adopt a requirement—where applicable by law—that homes undergo health, safety and energy efficiency inspection prior to sale, transfer, or change in purpose, and that results of the inspection be disclosed to the resident and/or buyer.

**Recommendation 11** - The goal of the green and healthy community of practice should be to reach beyond just low- to moderate-income families. Therefore, the Panel recommends that the Department of Housing and Urban Development, foundations, and other interested parties, fund the development and implementation of a multi-faceted public awareness and education effort for healthy, safe, and energy efficient homes and communities that includes tailored materials for diverse constituencies.

**Recommendation 12** - The Panel recommends that by 2013, federal, state, local, and tribal governments—where permitted under the law—set short- and long-term targets and timelines to make all homes and communities in the United States healthy, safe and energy efficient.

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## BACKGROUND

### The Green and Healthy Homes Initiative

*“Through [the Green and Healthy Homes Initiative], we want to make sure that every home is designed, built, rehabbed, and maintained to support the health and economic security of American families.”<sup>10</sup> – Shaun Donovan, Secretary of Housing and Urban Development*

**An individual’s quality of life is directly influenced by the health of his/her home.** There are many steps that can be taken to ensure the energy efficiency, health, and safety of a home. These steps include weatherization and home remediation for mold, radon, and lead-based paint, as well as other simple, inexpensive steps to reduce energy costs, such as replacing incandescent light bulbs and lowering the thermostat. However, particularly for families with limited incomes who live in older homes, such issues frequently go unresolved, which can transform them into hazards that seriously impact individuals’ and families’ quality of life.

Every year, unhealthy housing is the source of 250,000 new cases of childhood lead poisoning,<sup>11</sup> 750,000 asthma related emergency room visits,<sup>12</sup> 10,000 cases of carbon monoxide poisonings,<sup>13</sup> and 13 million preventable home related injuries.<sup>14</sup> Triggers within the home lead to 40 percent of asthma episodes, representing \$5 billion lost annually in preventable medical costs.<sup>15</sup> Home injuries are the 2<sup>nd</sup> leading cause of death for children under 5 years and lead to more than 10 million emergency room visits per year, which results in \$222 billion in medical costs annually.<sup>16</sup>

Although resolving some of these issues can be expensive, if left unchecked they can prove detrimental to a family’s health and well-being, and create an even more expensive burden for the family and for federal, state, and local home assistance programs. The health of low- to moderate-income families can be improved, and associated costs reduced, by providing early, integrated assistance.

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<sup>10</sup> Video introducing Dialogue featuring Shaun Donovan.

[http://www.youtube.com/watch?v=8GiCg8ZJQxM&feature=player\\_embedded#!](http://www.youtube.com/watch?v=8GiCg8ZJQxM&feature=player_embedded#!)

<sup>11</sup> Centers for Disease Control and Prevention. National Childhood Lead Poisoning Surveillance Data.

<sup>12</sup> Centers for Disease Control and Prevention. “The State of Childhood Asthma, United States, 1980-2005.

<sup>13</sup> Centers for Disease Control and Prevention. “Carbon Monoxide Poisoning Fact Sheet” August 2004.

<sup>14</sup> Home Safety Council. National Vital Statistics System, National Hospital Discharge Survey, National Health Interview Survey, National Electronic Injury Surveillance System.

<sup>15</sup> Robert Wood Johnson Foundation Commission to Build a Healthier America. “Beyond Health Care: New Directions To A Healthier America Report” April 2009.

<sup>16</sup> Home Safety Council. National Vital Statistics System, National Hospital Discharge Survey, National Health Interview Survey, National Electronic Injury Surveillance System.

Recognizing the need to enhance home intervention programs in economically-challenged communities, the National Coalition to End Childhood Lead Poisoning (the National Coalition) created the Green and Healthy Homes Initiative (GHHI), a public-private partnership uniting the federal government, national and local philanthropy, and local partners in 15 GHHI project sites—13 cities and two Native American Tribes.<sup>17</sup> The GHHI brings together funding sources, eases bureaucratic boundaries, and works to assess and address all of the health, safety, and energy-efficiency issues a home may have through a single intervention. The GHHI aims to lead a national effort to ensure that all families and children live in homes that are healthy, safe, energy-efficient, and sustainable.

Since the GHHI began in 2008, it has completed green and healthy home interventions in 180 homes nationwide, leading to reductions in energy costs and tangible improvements in health outcomes, resulting in fewer hospital visits, and days missed from school and work due to illness.<sup>18</sup> The GHHI has also developed a comprehensive assessment process for home inspections and completed multiple remediations as part of a single intervention, which avoids duplicative inspections and saves 25 cents for every government dollar spent.<sup>19</sup> Normally, approximately 12 to 20 percent of houses in urban communities are precluded from participating in weatherization programs because other existing health and safety issues in the home disqualify them from receiving assistance.<sup>20</sup> Taking on all the issues in a home at the same time removes the barriers created by “siloed” funding and program requirements.

The GHHI refocuses how home assistance repairs are completed and improves homes in low- to moderate-income communities. By aligning and coordinating various resources, the GHHI uses a single intervention to fix the full range of problems in a home, while ensuring that the work is safe for both residents and workers. In an effort to find ways to further improve this approach, the National Coalition partnered with the National Academy of Public Administration (Academy) to hold an online dialogue called the National Dialogue on Green and Healthy Homes (the Dialogue).

The Academy convened a Panel of four Fellows who guided the project and work of the project team. The Panel met three times over a period of 6 months to discuss the Dialogue and review

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<sup>17</sup> The 15 GHHI pilot sites include: Atlanta, Baltimore, Buffalo, Chicago, Cleveland, Cowlitz Indian Tribe in Washington, Denver, Detroit, Flint, New Haven, Oakland, Philadelphia, Providence, San Antonio, and Spirit Lake Tribe in North Dakota. For more information, visit <http://www.greenandhealthyhomes.org>.

<sup>18</sup> Case Studies: 3211 Lake Avenue. Green and Healthy Homes Initiative, Case Studies - 3917 Garrison Avenue. Green and Healthy Homes Initiative, Case Studies - 5415 The Alameda. Green and Healthy Homes Initiative

<sup>19</sup> *Green and Healthy Home Initiative Overview*. Green and Healthy Homes Initiative pg. 3

<sup>20</sup> Ibid.



its results. This report provides the Academy Panel's analysis of the Dialogue, as well as its recommendations for improving efforts to achieve green and healthy homes and communities.

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## INTRODUCTION

### The National Dialogue on Green and Healthy Homes

In September 2010, the National Coalition partnered with the Academy to host a time-limited, online Dialogue.<sup>21</sup> The Dialogue, which was open for participation twenty-four hours a day from November 4-22, was based on the concept of mass collaboration—that members of a large group, in open discussion, can pool their individual and collective experience and expertise to provide innovative ideas and valuable insights for decision makers. Leveraging the power of Web 2.0 tools, the online Dialogue solicited ideas and feedback from the community on ways to overcome the barriers that prevent individuals, children, families, and communities from having healthy, safe, and energy-efficient homes and communities.

Conducting an online dialogue offered several benefits not afforded by more traditional means of stakeholder consultation. Such a dialogue does not impose a limit on the number of participants or amount of input that they provide, both of which are frequent constraints during in-person town-hall meetings or listening sessions. In addition, the Dialogue was powered by a platform that enabled members of the green and healthy homes community to suggest ideas, refine and build on them in open discussion, and rate those they found most compelling. Participants could contribute anonymously if they chose.

### Preparation

In the weeks before the Dialogue went live, the Academy worked with the National Coalition, its partners, and a Steering Committee of subject matter experts to develop and refine a set of goals and objectives, and translate them into meaningful content for the Dialogue website. The result was agreement on one overarching question and a series of “jumping-off” questions that were designed to highlight a specific component of the green and healthy homes issue, and create a thematic outline for submissions to the Dialogue. These questions were also intended to engage participants and solicit actionable feedback. The list of



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<sup>21</sup> The Dialogue site is archived at <http://www.greenandhealthyhomesdialogue.org>.

‘jumping-off’ questions can be found in Appendix A. The overarching question developed by the team as the focal point of the Dialogue was:

**How can we integrate efforts and overcome barriers to make homes healthy, safe, and energy efficient?**

To host the Dialogue, the Academy chose a web-based discussion platform, the “Dialogue App,” created by Delib, an e-democracy technology and consulting firm. This platform allowed participants to submit their own ideas for making homes greener and healthier, to comment on the ideas of others, and to vote the best ideas to the top.<sup>22</sup> The Dialogue website also featured a welcome video featuring Department of Housing and Urban Development Secretary Shaun Donovan, an “About the Issues” page that provided background information on the issues being discussed and customized graphics designed to mirror the GHHI website. The Dialogue was hosted at [www.GreenandHealthyHomesDialogue.org](http://www.GreenandHealthyHomesDialogue.org), where it will remain archived in its entirety until the summer of 2011.

## **Participation & Results**

The Dialogue went live on Thursday, November 4, 2010, and remained open for two-and-a-half weeks through Monday, November 22. Traffic and activity analysis contained in this report is based on data collected between November 8 and November 22, 2010. Due to a technological glitch with the site, the Academy was unable to record traffic and activity data for the first four days of the Dialogue; however, server requests were recorded for the entire Dialogue.<sup>23</sup> While not an ideal measurement, as a proxy value, they showed robust activity on the Dialogue shortly after it opened, which is consistent with the pattern observed in similar Academy initiatives. This glitch did not affect participants’ ability to submit feedback; the Dialogue collected ideas and comments for the entire 18 days that it was live. A more detailed discussion of this analysis can be found in Appendix B.

During the two-week period when traffic and activity data were collected, the National Dialogue received over 2,500 visits from 1,175 unique visitors, who came from 48 different states and territories and 352 U.S. cities. Over the course of the entire Dialogue, three hundred and twenty (320) users registered to participate, and this community submitted 100 ideas, 362 comments,

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<sup>22</sup> The *GHH Dialogue* platform distinguished between “Ideas” and “Comments.” Ideas were long-form, user-generated feedback limited to 10,000 characters, to which users could apply tags, comments, and ratings. Comments were short-form, user-generated feedback attached to previously posted ideas. They were intended to continue the discussion and could not be rated.

<sup>23</sup> Server Requests are the number of requests to a web server for a file. [http://en.wikipedia.org/wiki/Hit\\_\(Internet\)](http://en.wikipedia.org/wiki/Hit_(Internet))

and 290 ratings. Based on information provided at registration, participants represented a wide range of sectors, including:

- Federal, state, local and tribal government;
- National and local philanthropy and non-profits;
- Private sector;
- Construction/Contractors;
- Homeowners/Landlords; and
- Tenants.

More detailed information on site traffic and participation is available in Appendix B.

The feedback received from the Dialogue covered a variety of topics, ranging from improving energy efficiency in older homes to increasing the flexibility of federal funding. In addition to the online discussion, the Academy held a number of in-person discussions on green-and-healthy-homes issues with the Panel, Steering Committee and other subject matter experts during the design and execution of the Dialogue. The content of these meetings, along with the experience and expertise of the Panel members informed the conclusions and recommendations of this report.

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## SECTION I

### Supporting Green and Healthy Homes and Communities

The National Coalition and its partners have developed and piloted a comprehensive and integrated approach to making our nation's homes healthy, safe, and energy-efficient, focused on solving problems instead of treating symptoms. This is an idea whose time has come. Helped most recently by funding through the American Recovery and Reinvestment Act (Recovery Act)<sup>24</sup>, the stakeholder community supporting these efforts has grown in size, experience, and expertise. Many Dialogue participants expressed a desire to capitalize on the momentum created by recent comprehensive home remediation efforts, including those supported by the GHHI. Although only a small amount of Recovery Act dollars was allocated for testing this comprehensive approach, the money which was available elevated the understanding of this nation's housing problems. It is demonstrating that a comprehensive approach, executed through partnerships, can be more efficient and effective than traditional, single-focus government programs (i.e., lead abatement, mold elimination, or weatherization).

**Recommendation 1 – Given the energy and health challenges facing the United States in the near- and long-term future, the Panel strongly recommends that the United States have all homes and communities be healthy, safe and energy efficient as soon as is feasible, by actively pursuing a comprehensive approach—construction, inspection, and maintenance—to housing.**

In reviewing Dialogue discussions, it is apparent to the Panel that there is a great variety of stakeholders and providers who have a strong interest in taking this comprehensive approach mainstream and making it a model for home inspections and interventions for children and family health support. However, there is concern about how to make this approach sustainable once Recovery Act funding ends, especially for low- to moderate-income homes and communities. To ensure continued momentum, the Panel believes that the core elements of this approach should be institutionalized in a number of ways, including the establishment of a permanent home and voice for these intervention efforts.

*What does it mean to provide the green and health homes approach a home and voice?*

- It means **spurring public and private sector actions** to support comprehensive health, safety and energy efficiency in homes and communities.

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<sup>24</sup> Public Law No. 111-5

- It means **providing support**—people and dollars—to ensure the use of this approach is adopted as the new standard.
- It means **promoting public awareness** so that residents can identify and correct substandard conditions in their homes and communities.
- It means **government action** to ensure that housing standards are updated, regulations are current, and inspections are adequate.
- It means **securing innovative funding** directly from governments, such as incentives for home owners, as well as expanding private-sector and foundation support for similar activities.

The Panel found that the “green and healthy homes community” is a developing community of practice. Early collaborative efforts show great promise for what this community can become—a group of complementary actors across organizational, jurisdictional, and geographic boundaries carrying out a unified and integrated approach to home intervention. This community has the makings of a cross-sector, high-performance partnership, as described below:

*“High-performance, cross-sector partnerships are becoming one of the most important approaches a community can use to address difficult, complex issues. They bring together an array of organizations that have a stake in making a difference. Collaboration provides communications, greater trust, and mechanisms to share resources, decision-making, and accountability for results. Most important, the performance component distinguishes a high-performance, cross-sector partnership from other collaborative efforts.”<sup>25</sup>*

Establishing a formal organizational home for the green and healthy homes movement offers many advantages for this community of practice to achieve the goals they share. Establishing a national organization shows decision makers at all levels that this approach has a dedicated base of support, as evidenced by both personal and financial investments. It can commoditize the green and health homes approach and promote a product of demonstrated utility and value. This will make the approach easier to market, distribute, and take to scale. Another advantage is that it provides a single point of contact where a community member, builder, government official, or homeowner can start to learn how they can make their home environments green and healthy. Such an organization can be an incubator for expanding the reach of this approach, and can have a multiplier effect in its distribution and implementation. It can also be a vehicle to provide new

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<sup>25</sup> *Powering the Future; High-Performance Partnerships*, National Academy of Public Administration, April 2003.



tools, training, virtual communities, and analyses that are not currently offered to, or by, members of the community of practice. Dialogue participants expressed support for bringing different actors together. In support of greater collaboration, one participant stated, “*we must collaborate, combine funding sources and reduce redundant programs to better utilize the funding available for the tremendous number of folks who need assistance greening their homes...*”<sup>26</sup> To provide support to this effort, an organizational structure and core staff are needed.

The Dialogue produced relatively few ideas for improving access and connections between families and individuals in need and current providers of green and healthy home services. There were also few specific suggestions of ways that existing organizations could improve their operations. This implies that the community of practice, from a functional perspective, is not highly integrated and that there is a lack of information about the sum of all the activities, services, and initiatives being undertaken its members. Although the Dialogue received input from a fairly representative group of stakeholders, discussion rarely centered on opportunities to connect, partner, or combine efforts to overcome barriers. While partnering does occur, the absence of discussion about it suggests that this approach may not be commonplace and deserves further consideration given this community of practice’s strong affinity.

**Recommendation 2 - The GHHI and its many partners around the country have improved the health, safety and energy efficiency of low- to moderate-income homes. To build on this success, the Panel feels that this work should be taken to scale nationally.**

The emerging national leadership must be able to speak with a unified voice, influence difficult decisions, and generate the political will needed to make them. Government agencies at the federal, state, and local level, funders, and other partners will be more likely to engage with a lead organization that is well-organized and has achievement of green and healthy homes as its clear mission. It also can provide the green-and-healthy-homes community of practice with the necessary scale to work across sectors and attract new partners.

The organization’s mission and purpose within the community of practice should be to promote a green and healthy homes approach by its members, even if an individual member has a narrower or broader mission focus. It will promote shared goals that come from its membership. Therefore, independent leadership of this organization must be focused on a single, comprehensive mission guided by the needs of its membership. The Panel finds that establishing an “umbrella” organization composed loosely of members that share an affinity for an idea, but do not share resources, is insufficient; however, by establishing a membership organization in

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<sup>26</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

which all members can cooperate on equal terms, individual members could collaborate effectively, without requiring incorporation into the new organization. Dialogue participants discussed the need to have both the right stakeholders at the table, and the need for the table itself.

This type of national leadership could provide a focal point for innovation – for generating, supporting and distributing ideas and approaches. On a functional level, it could provide a center ground among its constituent members, facilitating and integrating these groups toward shared goals, which would lead to increased efficiency and efficacy for this innovative community of practice. In the longer term, this organization should consider establishing a new grant-making foundation for projects to improve the implementation of the comprehensive approach.

The Panel finds the next step necessary to meet this community's current and future needs is to support the national organization leadership and development. Those needs were highlighted in the Dialogue comments which are discussed in the following sections of this report. It is the opinion of the Panel that such an organization must be responsible for meeting these needs—better housing standards, identifying levers for action, and achieving sustainable support—if a green and healthy homes community of practice is to be supported and the goals of its constituents met.

## SECTION II

### A Healthy, Safe, and Energy Efficient Housing Standard

*“To improve the nation’s health, we must improve the health of the nation’s homes and ensure that safe, healthy, affordable, accessible, and environmentally friendly homes are available to everyone in the United States.”<sup>27</sup> - Rear Admiral Steven K. Galson, USPHS, Acting Surgeon General*

According to the Dialogue Steering Committee, existing housing standards and federal assistance programs do not fully incorporate current knowledge about home environmental health and safety issues, or the importance of energy efficiency. The current standards were developed at a time when the myriad home-related factors that affect the health of residents were not fully understood or appreciated. As research and knowledge have evolved, we have developed a deeper understanding of causes and effects, as well as contributing relationships among issues such as water infiltration, mold, and ventilation. During the Dialogue, participants consistently reinforced the importance of updating current housing standards as a key step in aligning and improving the work of all partners in this effort. Creating a new green and healthy homes model for the United States would help create a baseline of expectations for government agencies, builders, home repair firms, and the public. It would also serve as a framework for achieving the common goal of ensuring that this nation’s homes and communities are healthy, safe, and energy efficient.

### Document the Benefits of a Comprehensive Approach

There are a number of organizations and municipalities that have already shifted, or are in the process of transitioning, to a comprehensive approach for green and healthy home improvement.<sup>28</sup> The Panel believes that their work demonstrates the viability of this approach and that much can be learned from their experiences. The next step toward mainstreaming this approach is to collect and analyze data from across the housing community to deepen understanding and guide the formation of a new standard. The perspectives of both providers and recipients of housing assistance should be solicited as part of this analysis.

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<sup>27</sup> *The Surgeon General’s Call to Action to Promote Healthy Homes*. Office of the Surgeon General Pg. 45

<sup>28</sup> *Baltimore Pilot Project Initiative Green and Healthy Homes*. National Coalition to End Childhood Lead Poisoning

The federal Healthy Homes Work Group (HHWG), which was initiated by HUD to strengthen coordination among federal agencies to advance and implement the healthy homes concept,<sup>29</sup> would be best-positioned to lead this research and documentation if it was expanded to include officials from other agencies who work in this area, and if it were adequately resourced. HHWG member agencies could each contribute funds to undertake the necessary research and documentation of the current housing stock to support a new standard that would apply to all federal housing and housing assistance programs, and guide future investments. However, since many of the federal programs are administered in partnership with, or directly by, states and tribes, HHWG will want to include input from these critical partners to increase the likelihood that the federal standard would be adopted by other levels of government. The GHHI pilot program offers an excellent opportunity to begin a rigorous, independent analysis. Should the results of the analysis be favorable, as the early evidence suggests, it could help make the case for a new green and healthy housing standard.

**Recommendation 3 - The Panel recommends that the Chair of the federal Healthy Homes Work Group, within the next year, fund and conduct an evaluation effort that involves a broad range of stakeholders from all levels of government, the public, and private sectors, to determine the adequacy of current housing standards in meeting the nation's health, safety, and energy efficiency needs. This effort should incorporate existing data to avoid unnecessary redundancy.**

### **Establish a New Standard**

The need for a green and healthy housing standard was one idea that generated significant discussion within the Dialogue. As one participant noted, “*it seems clear that Healthy Homes is much in need of the development of federal standards (or at least recommendations), remediation protocols, etc. for various aspects of HH.*”<sup>30</sup> Implementing a performance-based standard that establishes goals to be achieved without mandating specific solutions would give communities the flexibility to use different pathways to achieve green and healthy homes and communities.<sup>31</sup> Some communities may decide to set standards that go beyond any minimum housing standard. Likewise, some consumers (e.g., homebuyers and renters) will want more than the minimum standard for their families. When making these decisions, communities and consumers will want credible information about the costs and benefits of additional investments in order to avoid confusion or the potential for unscrupulous business practices.

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<sup>29</sup> More information on the federal healthy Homes Work Group can be found at <http://www.leadssafe.org/elements/uploads/files/fileManager/HHWGoverviewNAPA.pdf>

<sup>30</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>

<sup>31</sup> One example of this could be a green and healthy housing standard that requires radon levels to be below a certain point without requiring a specific action be taken or technology implemented.

The Panel believes that the best way to spur additional interest in investments that meet or exceed a minimum standard is to establish a tiered standard.<sup>32</sup> The lowest tier of the standard could apply to all federal housing and assistance funding and would define the minimum conditions under which a home could be considered green and healthy. Direct government assistance might go toward meeting the minimum for those most in need, while incentives, such as tax credits, could be applied for higher income households or towards meeting a higher tier. Some Dialogue participants suggested that a home scoring or rating system could help consumers better understand the status of their residence, and a tiered standard could put that score into context. A combined scoring system and tiered housing standard could be used to help prioritize the need for and impact of additional remediation activities on a home or residence. A system such as this could also help guide public education and awareness efforts.

Existing rating systems, such as the Energy Star Program and the Leadership in Energy and Environmental Design (LEED), are useful examples, but do not meet all the critical needs that a green and healthy housing standard could address. These systems can serve as a good starting point for a new rating system that accounts for the full range of health, safety and environmental issues that affect the livability of a home.

Equally important in the development of such a standard is the need for performance metrics whereby multiple programs and agencies can work towards a common goal, but are also able to document their individual contributions to agency specific goals; for example, a U.S. Department of Energy (DOE) metric would focus on meeting the energy efficiency component of the comprehensive standard. Such measures would allow individual agencies and programs to retain their mission focus as they collaborate on a common goal. Performance measures and a data collection and reporting system should also be developed to support an assessment of the effectiveness of the new standard.

**Recommendation 4 - The Panel recommends a collaborative federal, state, tribal, and local effort be undertaken, within one year of the completion of the evaluation effort [Recommendation 3], to develop a model, tiered performance standard for healthy, safe, and energy efficient homes. This performance standard could then serve as a basis for modifying regulations governing federally-funded programs and as a model for state, local, and tribal building codes and regulations.**

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<sup>32</sup> A “tiered standard” is a standard with multiple levels of certification of increasing stringency, where compliance with more stringent requirements would allow homes to receive a higher level of certification, similar to how the LEED standard is currently structured.

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### SECTION III

#### **Flexible, Integrated, and Sustained Funding for Green and Healthy Homes and Communities**

Single-issue focused home improvement programs, such as lead abatement and weatherization, have certainly helped many people. However, as early as 2009, HUD recognized that “*targeting building deficiencies that contribute to a multitude of health and safety hazards was more cost-effective than implementing interventions on a hazard-by-hazard basis and proposed a healthy homes program.*”<sup>33</sup>

Funding was provided under the Recovery Act to support such an approach, in order to accelerate a reduction in the backlog of identified home remediation efforts and pilot a comprehensive home intervention approach.<sup>34</sup> However, Recovery Act funding will run out long before the backlog has been eliminated. Particularly in a constrained government funding environment, the Panel believes that sustained funding for this purpose may best be achieved using a new funding model.

Focusing on issues such as mold or lead one at a time does not address the full range of health, safety, and energy efficiency issues that exist in a home. As a result, individuals and families who are unable to afford a comprehensive assessment and remediation effort remain in suboptimal housing conditions. Dialogue participants expressed the belief that increasing the flexibility of funding to address a broader range of issues would alleviate many challenges, because many of the problems found in a home are related. For example, as described in the Dialogue, some indoor air quality issues, such as dampness, mold, and mildew can be exacerbated by weatherization. A home that could otherwise benefit from weatherization assistance would be deemed ineligible to receive that assistance because of a preexisting problem in the home.<sup>35</sup> Both of these issues can be resolved if multiple problem areas within a housing unit are addressed as part of a single, comprehensive intervention.

One suggestion made by a Dialogue participant was to allow a percentage (e.g., 15 percent) of targeted program funds to be used more broadly.<sup>36</sup> An alternative suggested by another participant was to permit the use of any savings produced through efficient use of assistance

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<sup>33</sup> *Leading Our Nation to Healthier Homes; The Healthy Homes Strategic Plan*. U.S. Department of Housing and Urban Development. July 9, 2009.

<sup>34</sup> Public Law No. 111-5, American Recovery and Reinvestment Act of 2009.

<sup>35</sup> “Up to 38% of units eligible for weatherization in many sites have been rejected due to health and safety issues in the home.” Green and Healthy Home Initiative Overview pg. 3

<sup>36</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

dollars to meet other components of a green and healthy home standard.<sup>37</sup> For example, if \$6,500 is allowed to weatherize a unit, and only \$4,500 is spent for that purpose, then one could apply the \$2,000 balance to address other outstanding health, safety, and energy issues within that unit. Increasing flexibility could also allow improvements to be made in homes that might be deemed ineligible for single-scope work because of other contributing or interrelated problems.

Another way to expand the capability to address multiple problems is to group multiple single-purpose funding streams and accountability mechanisms together to resolve the complete range of issues in a structure or unit. This could be done by combining grants from agencies such as HUD, DOE, and the U.S. Environmental Protection Agency (EPA), to resolve multiple issues in a single home. The initial pilot work of the GHHI has demonstrated that, by joining efforts, not only can one address the full range of problems, but one gains efficiencies by streamlining the process.<sup>38</sup> This resulted in a cost savings of approximately 25 percent.<sup>39</sup> The Dialogue participants discussed ways to make it easier to group single-focus programs, including aligning eligibility and reporting requirements and having local capacity for coordination across programs and funding streams. This grouping should go beyond federal assistance to include funding made available by other levels of government, philanthropic organizations, the private sector, and others.

**Recommendation 5 - The Panel recommends that decision makers, in the legislative and executive branches at all levels of government, consider grouping programmatic funding streams that are single-purpose, or reallocating individual programmatic funding streams, to better align government programs with comprehensive, healthy, safe, and energy efficient home approaches, and improve accountability for results.**

Over the course of the Dialogue, participants pointed out that it is much more expensive for government to treat the symptoms of substandard housing than to fix the underlying problems.<sup>40</sup> These expenditures take the form, for example, of Medicare and Medicaid payments to treat recurring episodes of lead poisoning, asthma, and allergic reactions to mold exposure or pest infestations. However, by removing the home health triggers for these health problems through programs such as the ones administered by HUD, DOE, Centers for Disease Control (CDC), Centers for Medicare and Medicaid Services (CMS) among others, the problems can be resolved with a single, much lower outlay of funds. Not only will the overall cost to the government be

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<sup>37</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

<sup>38</sup> Green and Healthy Homes Initiative: Data and Results at <http://www.greenandhealthyhomes.org/content/data-and-results/>

<sup>39</sup> Green and Healthy Home Initiative Overview pg. 3

<sup>40</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.



lower, but individuals and families will not be subjected to the stress and complications that result from illness, repeated hospital visits, falling behind in school, and jeopardized employment due to excessive absence.

Dialogue participants stressed the need to look carefully at how government funds are allocated.<sup>41</sup> By reallocating funds from programs that only relieve symptoms to programs that ultimately resolve problems, it is likely that progress can be made to break the cycle of repeated illnesses caused or exacerbated by home health hazards. Doing so is easier said than done, and implementation would need to be phased over time. While the intent of such an action is not to reduce the standard of care, critics will focus on the apparent cut to funding to address these issues. Therefore, thorough documentation of the cost savings and the improved health outcomes would be needed to demonstrate the net positive effect of a funding shift. In addition, such a change would require advocacy by a strong alliance of stakeholders that includes both health care providers and recipients.

**Recommendation 6 - The Panel recommends that the National Coalition to End Childhood Lead Poisoning engage its partners and a wide range of stakeholders to educate decision makers about the advantages of reallocating government funding to resolve underlying home problems instead of simply treating symptoms.**

### **Financial Funding Incentives**

In addition to rethinking how government support for home inspection and remediation can be achieved, Dialogue participants also offered a number of ways to provide financial incentives to promote green and healthy approaches to housing and spark voluntary action. The following is a list of possible approaches offered in the dialogue:

- **Provide Tax Rebates or Credits**—Build on the example of the federal-state programs to provide rebates to consumers buying energy-efficient appliances, or the federal “cash for clunkers” program. Such approaches could be applied to purchases for the purpose of making green and healthy repairs or buying green and healthy materials.
- **Apply Settlement Awards**—Make use of one-time settlement awards to fund clean and healthy home initiatives and staff support.
- **Partner with Health Insurers**—Public and private sector health insurance providers incur substantial costs for patients being treated for preventable, recurring illnesses

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<sup>41</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

caused by home health triggers; this approach treats the symptoms and not the problem. They could reduce their costs by providing financial incentives to treat the problem through green and healthy home interventions/remediations.

- **Partner with Hospitals**—In areas with high proportions of uninsured or under-insured populations, community hospitals absorb the cost of emergency care for recurring illnesses caused by home health triggers. They could reduce their costs by writing and paying for “home prescriptions” that remove the health triggers.
- **Partner with Home Insurers**—Insurance companies incur expenses against claims to repair major problems such as water damage and mold. Maintaining homes to a green and healthy housing standard could prevent major problems from developing by reducing or eliminating exposure to weather elements, which could result in fewer or lower cost damage claims. They could reduce these costs by providing incentives to conduct routine green and healthy home inspections and resolving any issues that are identified.
- **Partner with Mortgage Lenders**—Allow preferential interest rates for home improvements that lead to compliance with a green and healthy housing standard. This would allow the mortgagor to pay the costs of meeting the standard over time, instead of out of pocket. This would have the added benefit of acting as a foreclosure prevention tool by reducing the overall cost of operating and maintaining the home, thereby reducing the risk that the mortgagor would default on the mortgagee.

Each of the approaches described above has a different level of feasibility and potential efficacy. However, the Panel believes that for a green and healthy homes approach to be truly effective in concept and implementation, all avenues for funding and sustaining its operations must be weighted and considered.

**Recommendation 7 - The Panel recommends that a long-term funding strategy be developed to ensure that healthy, safe, and energy efficient home and community efforts continue once American Reinvestment and Recovery Act funding expires.**

## SECTION IV

### Levers to Spur Action

Dialogue participants identified several levers to spur action, or mechanisms by which a comprehensive, green and healthy homes approach could be employed or expanded. These levers include activities and approaches to encourage, facilitate, or compel individuals, organizations, and communities to improve housing conditions. Using a tailored combination of coordination, regulation, inspection and enforcement, education and awareness, and performance goals as levers, is likely the best way for communities to achieve their goals. Of the ideas that were presented in the Dialogue, the Panel believes those listed below to be the most promising. The Panel recognizes this field is dynamic, and promising ideas will continue to emerge as the green and healthy homes community of practice continues to collaborate and add new partners.

#### Community Coordination at the Local Level

Local community coordination can catalyze action by facilitating and improving communication and action across the community, so that needs and opportunities can be promoted and more quickly and effectively addressed. This function can be executed by either an individual or an organization, which will need to be provided with the necessary training, resources, and support. One Dialogue participant suggested the possibility of using community foundations in this role, as they could:

*“help to bring disparate parties together because they don't have an agenda that favors one party or other. They are neutral territory, like Switzerland. That's important to City and County governments that may want to work together but have political concerns that keep them from doing so.”<sup>42</sup>*

Other community organizations could also play this role by leveraging their community presence and trusted relationships.

This community coordination takes over where government coordination and integration ends. At its best, community coordination can facilitate the application and grant award process, making it easier for the client to navigate multiple programs with different applications, requirements, and timelines. Identifying the available programs can sometimes be too high a hurdle for families to overcome. Finding local leaders who can coordinate activities at the community level is critical for success. Having a resource on the ground who can guide

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<sup>42</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

individuals and families through these complexities makes them more effective, accessible and cost efficient, ensuring that programs meet their goals. Such a function will require funding, training, ongoing support, and an ability to communicate regularly with other community coordinators to share lessons learned.

**Recommendation 8 - The Panel recommends that community coordination at the local level be included as a key component of the green and healthy homes and communities approach.**

### **Community Coordination at the National Level**

Community coordination also needs to take place at the national level. The Dialogue served as an opportunity for the green and healthy homes community to build cohesion among individuals who work in geographically dispersed locations and in many different sectors, including government, non-profit, philanthropic, and private- sector organizations actively involved in the green and healthy homes community of practice. Now that these individuals have convened, there is an opportunity to re-engage them, coordinate their actions, and gain continued benefit from their knowledge and expertise. Regardless of the re-engagement approach chosen, the Panel recommends that the National Coalition consider establishing a permanent online community, with whom it can regularly engage for the betterment of the community of practice and the people it serves.

**Recommendation 9 - The Panel recommends that the National Coalition to End Childhood Lead Poisoning, in collaboration with other partners, establish a permanent, national online community in which Dialogue participants and other stakeholders can interact and continue to inform future health, safety, and energy efficient home activities.**

### **Regulations**

Without a clear articulation of a basic housing standard, individuals and communities do not know what actions they must take to ensure their homes and communities are green and healthy. Establishment of a national green and healthy homes model housing standard would establish a regulatory and/or administrative benchmark to which all constituents could be held. As discussed in Section II, the federal government sets standards for federally-funded properties; however, these need to be updated to fully reflect the current state of knowledge and practice regarding green and healthy homes and communities.

A national green and healthy housing standard, however, would create a regulatory benchmark for other levels of government, as well. Although state, tribal, and local governments do not

have to adopt a federal standard, many use federal requirements to inform their own standards. At the same time, organizations such as the National Coalition can play a critical facilitative role at the state and federal levels to help capture a diversity of opinion and develop consensus around the core requirements for a federal green and healthy housing standard. Additionally, once a federal standard is in place, continued advocacy and support will be needed to generate the political will necessary to fully resource and support the modification of standards at other levels of government, as well as the enforcement of the new federal standard, as discussed below.

### **Inspection and Enforcement**

Simply having a standard and regulations is not sufficient. Many Dialogue participants discussed the need for adequate inspection resources and the enforcement of standards and regulations – even for those that are already in place. Private homeowners, curious about the conditions of their home, can seek the services of a private company to do an assessment of their home’s condition; tenants in public or rental housing do not have the same ability. They need an enforceable public mechanism by which they can safely register a complaint, get an inspection, and have action taken to resolve any problems.

One of the most robust discussions in the Dialogue centered on requiring a “healthy-home” inspection at the point of sale, transfer of property, or change in purpose of property from owner-occupant to rental (or vice versa). Dialogue participants felt strongly that this could have a major impact in raising awareness of the issue, resolving housing problems, and establishing more viable markets for remediation. They also noted that rental units should be subject to a routine schedule of inspections, with disclosure of findings to the residents of the building.

**Recommendation 10 - The Panel recommends that federal, state, tribal, and local governments adopt a requirement—where applicable by law—that homes undergo health, safety and energy efficiency inspection prior to sale, transfer, or change in purpose, and that results of the inspection be disclosed to the resident and/or buyer.**

### **Education and Awareness**

A recurring theme of the Dialogue was the lack of public awareness about the health, safety, and energy-efficiency problems often found in older homes. Residents and owners are often unaware of preventive actions that can and should be undertaken.

Fortunately, there are many simple, low-cost steps individuals and families can take to make their homes healthier, safer, and more energy-efficient. According to the 2009 American

Housing Survey, there are 9 million homes in the United States without a smoke detector.<sup>43</sup> Basic models can be purchased for less than \$25 and are easily installed; many local fire departments distribute and install them for free. One Dialogue participant cited another inexpensive energy fix, noting that “*replacing a \$9.00 fluid master can have a dramatic effect and save hundreds of dollars on a water bill.*”<sup>44</sup> Other remediation activities, such as lead or mold abatement, are more complex and require professional intervention.

These types of activities should be covered in comprehensive green and healthy home interventions. The public needs to be made aware of the impacts of these problems, how they may be able to address or prevent some on their own, and how they may be able to receive assistance to resolve the more complex or costly problems. Public outreach can empower families and individuals to make informed decisions about where they live and what investments to make in their home.

**Based on their experience and the outcomes of the Dialogue,** the Panel suggests that the following elements be included in such education and awareness efforts:

- ***Deliver consistent messages from multiple sources.*** In order to raise the general level of public awareness about green and healthy home issues and have the messages “stick”, they must be delivered repeatedly and through multiple channels. Different delivery methods or different messengers are likely to resonate differently, depending upon the intended audience; however, it is critical that the basic messages be consistent. This will require coordination by government, non-governmental organizations, and communities. Bringing all of these efforts together can, as one Dialogue participant stated, “*create common language*”<sup>45</sup> that can be applied across sectors and across disciplines.

Multiple Dialogue participants noted the importance of developing a nationally-recognized brand that would bring consistency to the message. As one Dialogue participant stated, “*branding is a huge part of this process and will help make us more recognizable as well as reputable.*”<sup>46</sup> A comprehensive green and healthy housing standard, when adopted, will serve as a credible foundation to augment this branding effort.

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<sup>43</sup> U.S. Department of Commerce, Bureau of the Census, <http://www.census.gov/hhes/www/housing/ahs/ahs.html>, accessed December 29, 2010.

<sup>44</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

There are already several efforts underway to brand various distinct activities that could be brought together under a green and healthy homes umbrella. Dialogue participants mentioned Energy Star, LEED, Home Energy Scores, and Indoor airPLUS Construction Specifications as examples of relevant branding efforts. While each is valuable, they do not cover the full spectrum of factors that make a home green and healthy. The Panel believes that a new brand that builds upon the foundation of these narrower efforts would advance a green and healthy education and awareness effort.

- ***Tailor messages and delivery mechanisms.*** Several Dialogue participants referenced culture, language, and literacy as potential barriers to effective education and awareness building efforts. The message, the messenger, and the delivery channel all have an impact.

*“Literacy and comprehension barriers are often a challenge when sharing information with families,”* according to one Dialogue participant. *“During home visits I have an opportunity to ask the clients what they understand about the information to help direct the focus of my in-home education. Many individuals need the material presented and repeated in various ways in order to retain information.”*<sup>47</sup>

Other participants highlighted the importance of having some efforts targeted to children, noting that if we can get the attention of children *“they will then teach their parents the importance of living green and healthy.”*<sup>48</sup> Even if they do not have access to a computer at home, children and teens may still have access to computers at school, after-school and community programs, and social media and online games may be an effective way to reach this critical audience.

- ***Make use of traditional media.*** Even as evolving technology changes how we communicate, traditional media remains an effective way to reach some segments of the intended audience. By creating and placing public service ads, generating earned media, or utilizing low-cost local publications and programming, traditional media outlets can often be free or relatively low in cost. As one Dialogue participant put it, *“we should be thinking more about what kinds of media people are turning to and developing those.”* The participant went on to highlight the role of traditional media in the Latino community, saying, *“in an absence of Spanish TV channels in the regular TV across the*

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<sup>47</sup>The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomedialogue.org>.

<sup>48</sup>Ibid.



*US (you need to subscribe to cable TV to get Spanish channels), the Latino community, in general, now receives most of its news and entertainment through Spanish radio.”<sup>49</sup>*

- ***Make use of new media.*** There is room for both traditional and new media approaches in comprehensive outreach efforts. Which approach is most effective will be influenced by the preferences and practices of the target audience. While more complex social media engagements may require a higher level of investment than is possible by lower-income communities, Dialogue participants pointed to free or low-cost options that may actually be more effective in some communities. As one participant stated:

*“I have been surprised by the number of clients (many of extremely low income) who prefer to communicate with me about appointments or their situation via text message due to limited minutes on their phones. A large number of my clients and/or their children are also connected to information via Facebook and Twitter.”<sup>50</sup>*

This communication approach lends itself to easy-to-deliver messages and reminders that can help people maintain their homes as green and healthy after home remediation is completed. Several Dialogue participants mentioned the value of text message reminders and one suggested the development of an application to automatically send messages so that *“once a week there can be a reminder such as ‘wet mop the floors once a week to reduce allergens’ or ‘check fire alarm batteries once a quarter’”<sup>51</sup>*

- ***Use traditional and social marketing approaches in public awareness campaigns.*** Social marketing is the application of marketing and education to achieve a specific behavioral goal for a social good.<sup>52</sup> Traditional education efforts can help make people aware of issues and how to get help to resolve them; social marketing targets a change in an individual’s behavior. According to one Dialogue participant, *“behavioral changes are necessary for families to truly see the benefits of a green and healthy home...People must understand the meaning and how to incorporate it into their lifestyle.”<sup>53</sup>* Dialogue participants pointed to the need for social marketing efforts to change behaviors such as smoking, the use of highly caustic household chemicals, wasteful use of water and energy, changing filters, and replacing batteries in smoke detectors. Once again,

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<sup>49</sup>The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

<sup>50</sup>Ibid.

<sup>51</sup>Ibid.

<sup>52</sup> Andreasen, Alan R. *Social Marketing: Its Definition and Domain*. Journal of Public Policy & Marketing: Vol. 13, No. 1 (Spring, 1994), pp. 108

<sup>53</sup> The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.



Dialogue participants pointed to the need for some of these efforts to be targeted to children, noting, for example, that *“if we want such initiatives to be sustainable we need to start working with the children and the young.”*<sup>54</sup> Another Dialogue participant mentioned the benefit of engaging communities as a whole and taking a neighborhood approach to behavioral change as *“people may be more receptive to change their habits if they see that their neighbors or friends have had positive results. Also, identifying trusted individuals in the neighborhood who can help lead the efforts and engage the neighbors is key.”*<sup>55</sup>

**Recommendation 11 - The goal of the green and healthy community of practice should be to reach beyond just low- to moderate-income families. Therefore, the Panel recommends that the Department of Housing and Urban Development, foundations, and other interested parties, fund the development and implementation of a multi-faceted public awareness and education effort for healthy, safe, and energy efficient homes and communities that includes tailored materials for diverse constituencies.**

### **Establishment of Performance Goals**

Establishing timelines and targets for achieving a green and healthy housing standard is an important motivator that promotes transparency and accountability. It also helps decision makers determine the resources needed to meet those goals. Realistic timelines and targets cannot be set until a standard is in place and an assessment of the resources needed to meet the standard can be conducted. The Panel urges federal, state, tribal, and local governments cooperate to complete these activities within the next two years.

**Recommendation 12 - The Panel recommends that by 2013, federal, state, local, and tribal governments—where permitted under the law—set short- and long-term targets and timelines to make all homes and communities in the United States healthy, safe and energy efficient.**

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<sup>54</sup>The National Dialogue on Green and Healthy Homes: Content. <http://www.greenandhealthyhomesdialogue.org>.

<sup>55</sup>Ibid.

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# APPENDICES

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## **APPENDIX A**

### **Planning and Execution of the Dialogue**

The National Dialogue on Green and Healthy Homes (Dialogue) yielded actionable ideas and comments which the National Coalition to End Childhood Lead Poisoning, the Green and Healthy Homes Initiative, the Department of Housing and Urban Development, and others in this community can use to move forward. In addition to the substantive findings discussed earlier in this report, the Dialogue also generated valuable lessons about the process of online stakeholder consultation.

When planning an online dialogue, the Academy, in conjunction with its client, begins three phases of work which run concurrently: 1) developing the content for the dialogue site; 2) designing and building the technology platform for the engagement; and 3) formulating and executing the outreach strategy that will bring participants to the dialogue when it launches. For the National Dialogue on Green and Healthy Homes, the Academy worked with the National Coalition to End Childhood Lead Poisoning (the parent organization to the GHHI), its partners, and a Steering Committee of subject matter experts to understand and refine the goals and objectives for the Dialogue, and translate them into meaningful content for the website. The Academy and the National Coalition also worked together to develop a technology platform capable of engaging participants and soliciting actionable feedback, as well as a strategy to communicate the value of the Dialogue to a broad population of stakeholders.

### **Content Development**

In mid-September, the Academy met with the National Coalition and its GHHI partners to brainstorm the critical issues around which the National Coalition was seeking stakeholder input. The Academy worked with the GHHI partners for several weeks to synthesize these issues into one broad-based question that would compel participants to share barriers to and innovative strategies for the GHHI's mission. The project team deliberately chose to focus the Dialogue around a single overarching question because of the breadth of the issues under discussion. A general question allowed participants to provide input reflective of their interest and expertise, rather than force them to craft comments around unfamiliar issues. After multiple discussions,

Academy staff, the National Coalition and the project Steering Committee honed one overarching question:

**How can we integrate efforts and overcome barriers to make homes healthy, safe, and energy efficient?**

To address narrower aspects of the topics the National Coalition and its partners wanted to cover, the project team crafted eight questions—in addition to the overarching question—focused on specific barriers and innovative strategies. Called jumping-off questions, they rotated on the Dialogue homepage and changed each time the browser was refreshed. They were as follows:

- What barriers or challenges keep our communities from having housing that is healthy, safe, and energy efficient?
- What innovative strategies should we use to better integrate, coordinate, and leverage the resources and funding available for housing interventions?
- How can we encourage and facilitate cross-training for remediation and assessment professionals?
- What tools, resources, or processes should we use to improve the execution of a comprehensive housing intervention?
- What practice(s) has had the most impact in increasing the number of healthy, safe and energy efficient homes in your community?
- How can the private sector be an effective partner in helping to make homes healthy, safe and energy efficient?
- How can we measure the impact of comprehensive housing interventions on the health and well-being of recipients?
- How can government facilitate the use of innovative strategies?

In addition to crafting discussion questions for the Dialogue, the Academy also worked with the National Coalition and its partners to create additional site content that enhanced the user experience, informed participants, and aided the final Dialogue analysis.

The Academy collaborated with the National Coalition to:

- Create homepage text that provided background information on the Dialogue and expressed the importance of participating.
- Write an “About the Dialogue” page that explained the Dialogue’s purpose.
- Design an “About the Issues” page to provide participants with resources for further understanding of green and healthy homes issues. This page also contained a link to other partners working on this issue.
- Partner with the Department of Housing and Urban Development on writing and producing a short video message from Secretary Shaun Donovan articulating the importance of the Green and Healthy Home Initiative and the Dialogue in particular.
- Identify demographic questions that participants were required to answer when they registered an account to provide the Academy with background information on the Dialogue community.

Spending time on the content development was a worthwhile investment. Participant feedback was on-topic and actionable, ranging from individual barriers participants had experienced to innovative strategies that had demonstrated success overcoming shared challenges. However, there were two areas where content development can be improved.

### ***Homepage text***

In the first week the Dialogue was live, traffic and participation on the site were not as high as anticipated. One possible reason for this was the length and focus of the homepage text. While this text effectively communicated the value of the exercise, it failed to present visitors with a clear “ask,” which may have resulted in confusion about what they were being asked to do and how they should engage. The length of the original text may have also obscured the ideas listed on the front page. To address this, exactly one week after the Dialogue went live, the Academy redrafted the homepage by reducing the text on the page and refocusing the verbiage to compel site visitors to participate. The Academy added featured topics (e.g. education) to the homepage to increase interest and formulate additional conversation around issues that had arisen in the Dialogue. The featured topic was changed each day, allowing several different issues to be highlighted as the Dialogue progressed. These changes may have improved visitation to the site, as activity increased slightly after they were put in place.

### ***Jumping-off questions***

In past Dialogues,<sup>56</sup> the Academy used open-ended discussion questions to solicit either a broad range of feedback from a diverse community, or more specific feedback from a homogenous community. For this Dialogue, the National Coalition wanted to solicit specific barriers and solutions from a relatively broad, diverse, nascent community. To accommodate this goal, the Academy used a broad overarching question to engage the diverse stakeholder community, then used jumping off questions to solicit more specific feedback from community subgroups. Still, some of the feedback received did not focus on specific barriers and solutions. One possible reason for this is that the prominence of the overarching question may have led participants to ignore the more specific jumping off questions. An approach to test in future dialogues would be to craft one overarching question that appeals to a diverse community of stakeholders, and clearly communicates the type of feedback being solicited; for example, “*What are the existing barriers to making homes healthy, safe and energy efficient and what solutions exist to overcome them?*” Throughout the planning and execution process, the Academy worked with its partners in the Dialogue to develop and tweak content that engaged the green and healthy homes community and compelled its members to produce actionable, on-topic feedback.

## Technology Overview

To host the Dialogue, the Academy chose a web-based discussion platform developed by an e-democracy technology and consulting firm, Delib; the Dialogue was hosted at [www.GreenandHealthyHomesDialogue.org](http://www.GreenandHealthyHomesDialogue.org) and remains archived there in its entirety. Delib’s technology platform allowed participants to submit and tag “Ideas”, comment on the “Ideas” of others, and vote the best submissions to the top. Users who wished to participate were required to register an account, which involved creating a custom username and providing an email address. Users who registered were also asked to provide their sector (e.g., federal government, nonprofit, homeowner) and area of interest (e.g., public health, energy efficiency, home rehabilitation).<sup>57</sup> These questions were asked to develop a demographic profile of the Dialogue participants; responses were not visible to other Dialogue participants, and all demographic data collected was aggregated.

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<sup>56</sup> Past Academy Dialogues include the National Dialogue on Health IT & Privacy, the Recovery Dialogue on IT Solutions and the National Dialogue on the Quadrennial Homeland Security Review. More information about these initiatives can be found at <http://www.napawash.org/continuing-programs/national-dialogues/>

<sup>57</sup> Sector choices included: Federal Government, State Government, Local Government, Tribal Government, Non-profit National, Non-profit Local, Philanthropy National, Philanthropy Local, Private Sector, Construction/Contractor, Homeowner/Landlord, and Tennant. Areas of Interest choices included: Environmental Health, Public Health, Energy Efficiency, Housing Rehabilitation, Community Development, Government Innovation, Neighborhood Stabilization, Weatherization, Housing Policy, Children/Youth, Education, Workforce, Safety, Older Adults, and Other.



In preparation for the Dialogue launch, Delib worked with the Academy to enhance the user experience by modifying the platform and its functionality. These modifications included:

- **Rotating Jumping-Off Questions**—To help encourage discussion on specific topics, a feature was added to the homepage that would display a series of rotating questions each time the page was refreshed. Displaying these rotating questions allowed the discussion to occur in a single forum (i.e., not in segregated discussions) while still addressing multiple topics and offering visitors multiple prompts on which to offer their thoughts.
- **Welcome Video**—The front page of the Dialogue website featured a short video from Secretary of Housing and Urban Development Shaun Donovan in which he welcomed visitors to the Dialogue and encouraged stakeholders to participate. The Academy has found this method to be an effective way to communicate the value of participation.
- **“About the Issues” Page**—To ensure that participants had a clear understanding of the GHHI and its issues, an “About the Issues” page, including background information on the topics being discussed, was added to the Dialogue site. The Academy and the National Coalition developed background material to post on this page which participants could read to increase their understanding of the issues and prepare them to provide actionable feedback.
- **Customized Look and Feel**—Delib customized the Dialogue site’s theme in order to create a look for the site that dovetailed with the GHHI website, [www.GreenandHealthyHomes.org](http://www.GreenandHealthyHomes.org). The similar color palates and fonts were used so that the Dialogue site and the GHHI web motif were the same.

## Conducting Outreach

During the six weeks prior to the launch of the Dialogue, the Academy worked closely with the National Coalition to design and execute a comprehensive outreach strategy that would include individuals working in government, non-profits, foundations, and the private sector at the local, state, and national levels. As part of this approach, the Academy and the National Coalition engaged the other GHHI partners as well as outside members of the green and healthy homes community to build their support and enlist their resources in reaching a widely-spread, diverse stakeholder audience.

To ensure that the Dialogue would include participants who could provide substantive feedback, early in the planning process the Academy and the National Coalition identified a number of key groups that they wanted to engage. These groups included:

- Participants in the GHHI's 15 pilot programs;
- Green and healthy home program funders, such as HUD, DOE, local governments and the Council on Foundations;
- Green and healthy homes advocates, such as the American Public Health Association, the Emerald Cities Collaborative, the National Center for Healthy Housing, etc.;
- Home assessment and remediation providers;
- Property owners and residents of low- to moderate-income homes;
- Those knowledgeable and interested in green and healthy homes issues; and
- Others who could provide examples of promising practices and suggestions for potential policy and program direction.

To ensure these communities were included, the Academy's outreach plan mapped out a multi-layered approach for reaching these groups. Strategies included:

- Hosting in-person meetings between the Academy, the GHHI, and leaders in the green and healthy homes community to build support for the Dialogue and ask them to participate and reach out to their networks through emails, website posts and word-of-mouth;
- Inviting representatives from agencies and nonprofits involved in the GHHI to serve as dialogue catalysts and Steering Committee members to gain their support on the project;
- Sending outreach emails both before and during the Dialogue to registered users and other GHHI partner contacts; and
- Spreading the word through Facebook and Twitter to reach those interested in green and healthy homes issues, but outside the existing GHHI network.

At the heart of the Academy's outreach plan was a rigorous email campaign designed to reach each constituency involved in the green and healthy homes movement. Between October 14 and

November 23, 2010, the Academy sent almost 50,000 outreach emails to over 7,000 stakeholders, which included registered users, and GHHI and Academy contacts. To achieve this, the Academy used an online e-mail distribution service that eliminated duplicative email addresses and allowed the Academy to track the number of individuals who opened and forwarded emails, and clicked on links to the Dialogue. As illustrated in the Traffic and Participation section below, peaks in site traffic tended to coincide with the release of an outreach email, suggesting that these direct outreach efforts contributed to site traffic.

As outreach continued to unfold, the Academy experimented with different email strategies to increase Dialogue activity. One strategy was to highlight a specific topic being discussed in the Dialogue and add a hyperlink to that discussion thread in the outreach email. The purpose of this strategy was to call out topics of interest to participants concerned with certain key issues. Although some recipients used these links to join the discussion on the featured issue, most continued to access the Dialogue through the larger, more prominently displayed link for the Dialogue homepage.

Another email strategy was to send targeted emails focused on specific issues to groups whose primary area(s) of interest had already been identified. For example, on November 12, 2010, the Academy sent tailored emails to contacts involved or interested in issues related to health & children, weatherization, and housing. Reviewing the analytics, the Academy noticed that these recipients were more likely to open the emails and click on a link than other recipients who received email communication on the same day; this approach generated a modest, but not significant, increase in site traffic.

In conjunction with an extensive email campaign, the Academy also used social networking tools, such as Facebook and Twitter, to reach out to constituencies outside the green and healthy homes networks. As recorded shortly after the Dialogue closed, the “GHHDialogue” Twitter account had 279 followers<sup>58</sup> and the Facebook page received 90 “likes.”<sup>59</sup> These followers and “likers” represent a community of supporters who have expressed interest in green and healthy homes issues. As the National Coalition continues to use Web 2.0 tools, they should reengage and leverage these supporters.

One interesting point to note is that even though the Dialogue’s Twitter account accumulated more supporters, Facebook was more successful at directing people to the site. By the time the Dialogue closed, only 23 visits had originated from Twitter, while Facebook delivered 61 visits.

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<sup>58</sup> Data as of December 7, 2010. The account remains online at <http://twitter.com/#!/ghhdialogue>.

<sup>59</sup> Data as of December 7, 2010. The account remains online at <http://www.facebook.com/pages/GHH-Dialogue/162979850395283>.

In future Dialogues, the Academy may consider focusing more time on outreach via Facebook and measure to see if participation increases.

### **The Summit**

To help encourage greater traffic and participation, toward the end of the Dialogue, the Academy pioneered a new innovation in its Dialogue methodology, the online Dialogue Summit. This exercise consisted of a dedicated two-hour period in which participants were encouraged to visit the Dialogue and participate in a high volume exchange of ideas and comments. Sometimes referred to as a “jam” or “jam session” in the web community, the Summit was an effort to obtain a high level of participation in a short amount of time. The National Coalition took an active role in outreach for the Summit, directly contacting several of their partners and stakeholders and asking them to participate.

The Summit was extremely successful at increasing traffic, activity and participation on the site. During the Summit:

- 11 ideas were submitted (11 percent of the total number received in the Dialogue)
- 68 comments were offered (19 percent of the total number of comments received during the Dialogue)
- The Dialogue also saw a peak in site traffic as indicated by visitors’ higher rate of pageviews, and greater time spent on the site:
  - 13.4 pageviews per visit compared to the Dialogue average of 7.83 pageviews per visit;
  - 15 minutes and 10 seconds of time on site per person compared to the Dialogue average: 8 minutes and 20 seconds, and
  - A 27.74 percent bounce rate<sup>60</sup> compared to a Dialogue average of 33.78 percent.

The summit also produced the highest number of visits, visitors, pageviews and server hits of any day for which measurements were recorded. Due to the high volume of traffic, activity and

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<sup>60</sup> ”Bounce Rate is a measure indicating the “percentage of single-page visits or visits in which the person left [the] site from the entrance (landing) page. “What does Bounce Rate mean?” Google Analytics. <<http://www.google.com/support/analytics/bin/answer.py?hl=en&answer=81986>> November 19, 2008.

participation generated, the Academy will integrate the summit element into its Dialogue methodology.

### **Analysis of Dialogue Feedback**

The Dialogue platform included several analytic tools that allowed the Academy to cross-reference and sort ideas and comments submitted by participants in response to the Dialogue questions. While the ideas with the highest ratings and most comments “float to the top,” the Academy looked beyond these when analyzing the substance of the discussion. Participants were able to “tag” ideas with topic names and/or phrases, which offered a valuable way to track similar ideas. The Academy used these tools to identify the recurring themes and ideas that generated the most Dialogue discussion.

### **Lessons Learned**

To decide upon an online, collaborative Dialogue approach is a response to a problem, not of technology, but of management—specifically, the problem of assembling a diverse community of interested stakeholders, soliciting large volumes of focused feedback around a topic, and gathering that feedback in a way that is digestible and actionable. The lessons learned, described here, will help the Academy, the National Coalition, and others increase their capacity for building stakeholder engagements around Web-2.0 tools. These lessons are:

- **Keep Content Clear and Concise**

As discussed in the “Content Development” section, the initial text on the Dialogue homepage described the GHHI mission and Dialogue purpose in detail. It was far longer than the text of previous Dialogues and lacked an explicit prompt for visitors to participate. In the future, it should be ensured that all content within a Dialogue is purposeful, clear in its intent, and as concise as possible to maximize participation and feedback.

- **Contact Lists do not Equal Participants**

When the Academy first began conducting Dialogues, the success of the outreach effort was largely dependent on the number of contacts collected and the energy with which they were engaged. Most of these initial dialogues were with communities that were well established and fairly homogenous; however, as the Academy works with a greater number of diverse, nascent communities, this calculation changes. The ability of outreach efforts to drive participation in diverse communities not only depends on the number of contacts or the aggressiveness of outreach, but also on the specific characteristics of the stakeholder community or communities, their access to and comfort level with technology, and their understanding of the issues being discussed. For this Dialogue, the Academy collected a list of more than 7,000 contacts who were targeted for

outreach, yet only 1,175 (16 percent) unique visitors visited the site and only 320 (4 percent) of them registered an account to participate, suggesting that the volume of contacts does not directly correlate with the number of Dialogue participants when working in communities with a diversity of constituents.

- **Schedule a Dedicated Time for High Intensity Engagement**

The Academy spent much of the Dialogue seeking new ways to increase site activity. By far the most successful was the Summit, a two-hour period of high intensity engagement that occurred on the Dialogue on November 18<sup>th</sup>, in which many participants arrived on the site and interacted in real time. One indicator of the Summit's success was the fact that almost every Dialogue statistic measured reached its peak on that day. Given the success with which it was used in this Dialogue, the Academy will integrate this element into its methodology for online engagement.

## APPENDIX B

### Measuring Dialogue Traffic and Participation

One key goal of this Dialogue was to bring together a large number of participants from diverse sectors who do not usually gather. Several metrics were tracked during the Dialogue to provide an indication of the composition and quantity of participation. Three broad categories of data were captured:

- **Traffic and activity metrics** measure the amount of overall traffic and activity on the site. The Academy used a free Google Analytics tool to capture these metrics, which included total number of visits, unique visitors and pageviews. Also captured were measures of visitor engagement, such as average amount of time spent on site, average number of pages viewed per visit, the geographic origin of visits and the “bounce rate.”<sup>61</sup>
- **Participation metrics** measure active involvement in the Dialogue. Participation metrics collected for this dialogue include registered users,<sup>62</sup> ideas, comments, ratings, and tags.
- **Demographic information** illustrates the demographic make-up of the participant community. This information was collected directly from participants as they registered for the Dialogue.

#### Site Traffic and Activity

The most basic measures of Dialogue engagement document the site’s traffic and level of activity. While these measures do not reveal who participated in the Dialogue in terms of contributing content, they do provide information about the relative success of outreach efforts (e.g. were people driven to visit the site?), and the site’s ability to engage its intended audience on a sustained basis.

Normally, the Academy examines Google Analytics data covering the full duration of the Dialogue to determine patterns of engagement; however, due to a glitch with the Dialogue site, the Academy was unable to collect Google Analytics data from November 4<sup>th</sup> to 7<sup>th</sup>. To overcome this challenge, this report will examine Google Analytics data from the other fifteen days that the Dialogue was open, November 8<sup>th</sup> to 22<sup>nd</sup>, and examine server data provided by Delib to analyze Dialogue activity on the first four days.

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<sup>61</sup>“What does Bounce Rate mean?” Google Analytics.

<<http://www.google.com/support/analytics/bin/answer.py?hl=en&answer=81986>> November 19, 2008.

<sup>62</sup>A registered user is any individual who creates an account on the dialogue site; registration is necessary in order to submit, rate, or comment on any ideas on the site.

Over the fifteen days for which the Academy was able to collect data from Google Analytics:

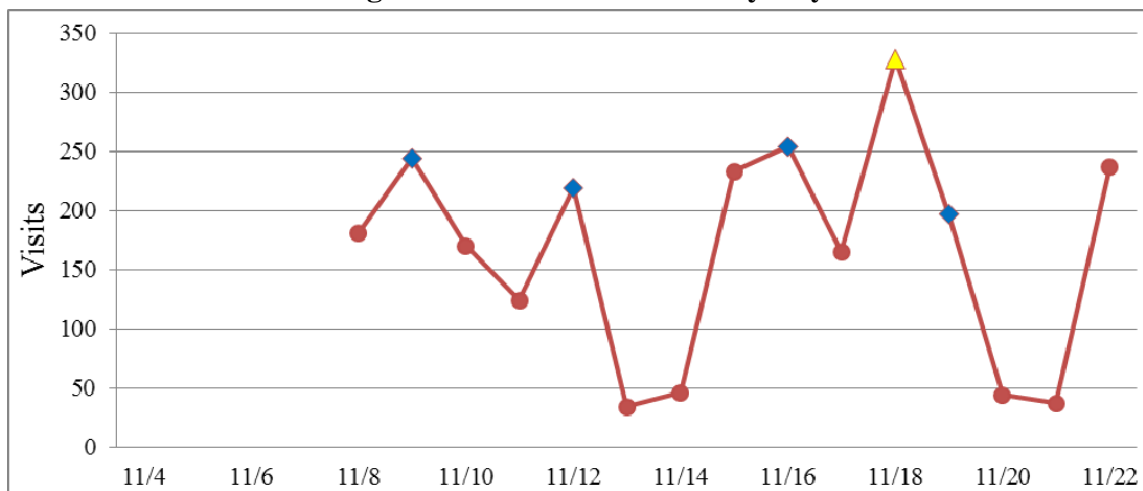
- The Dialogue site received 2,513 visits from 1,175 unique visitors who spent an average of 8 minutes and 20 seconds on the site (Figures B-1 and B2).
- There were 19,677 pageviews (Figure B-3), with the average visitor looking at about eight pages per visit.
- During the fifteen days that Google Analytics was running, the site generated 26,656 server requests (each of which represents an individual taking some action that generates a request to the site's central database). Over the four days for which Google Analytics data is unavailable, the site generated 7,369 server requests; bringing the total for the Dialogue to 34,025 (Figures B-4 and B-5).
- 1,117 U.S. visitors came to the Dialogue from 48 states and territories, and 352 cities and towns (Figure B-7 and B-8).
- The site had a “bounce rate,” of 33.78 percent (this includes single page visits or visits in which a visitor leaves the site directly from the landing page).

### ***Traffic over Time***

Generally, Dialogue traffic and activity follow a consistent pattern while the Dialogue is live: a surge on the first few days; moderate but steady traffic and activity after the first few days, increases in traffic and activity when outreach emails are sent; and drops in traffic and activity on weekends. For the fifteen days that Google Analytics was active, the National Dialogue on Green and Healthy Homes largely followed this pattern.

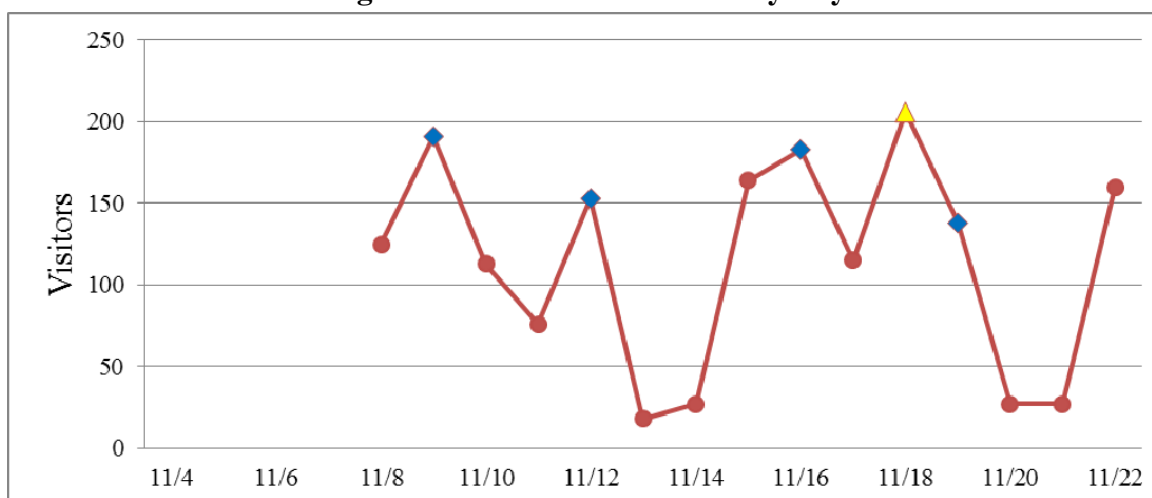
As shown in Figure B-1, visits to the site peaked on days when outreach emails were sent, while weekends saw drop-offs in site traffic. Both of these patterns are consistent with past Academy Dialogues. The greatest number of daily visits occurred on November 18<sup>th</sup>, the same day as the Summit.



**Figure B-1. Visits to the Site by Day**

Blue markers denote days when Academy staff sent outreach emails to registered users or other contacts. The yellow marker denotes the day of the Summit. The four low points represent days during the weekend.

As seen in Figure B-2, the number of unique visitors to the site varied between 18 and 206, with the greatest number on the day of the Summit. This pattern closely aligns with the trend of site visits seen in Figure B-1. However, the surge in visitors on the day of the Summit is far less pronounced than the surge in site visits.

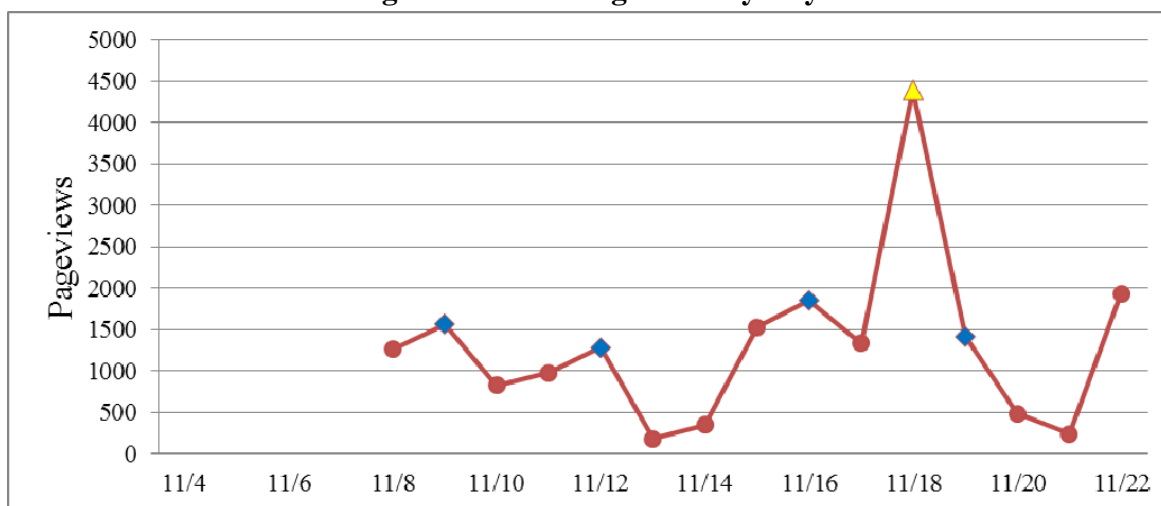
**Figure B-2. Visitors to the Site by Day**

Blue markers denote days when Academy staff sent outreach emails to registered users or other contacts. The yellow marker denotes the day of the Summit. The four low points represent days during the weekend.

Figure B-3 shows the number of page views that occurred on the site each day. Visualizing this metric is useful because unlike the number of visits and visitors, it illustrates actual site activity. As figure B-3 shows, page views followed a similar pattern to visits and visitors, producing a

peaks on days when emails were sent, and dips on the weekends. In contrast to how it affected the number of visitors, the Summit led to a huge surge in page views, more than double the number of any other day recorded.

**Figure B-3. Site Pageviews by Day**



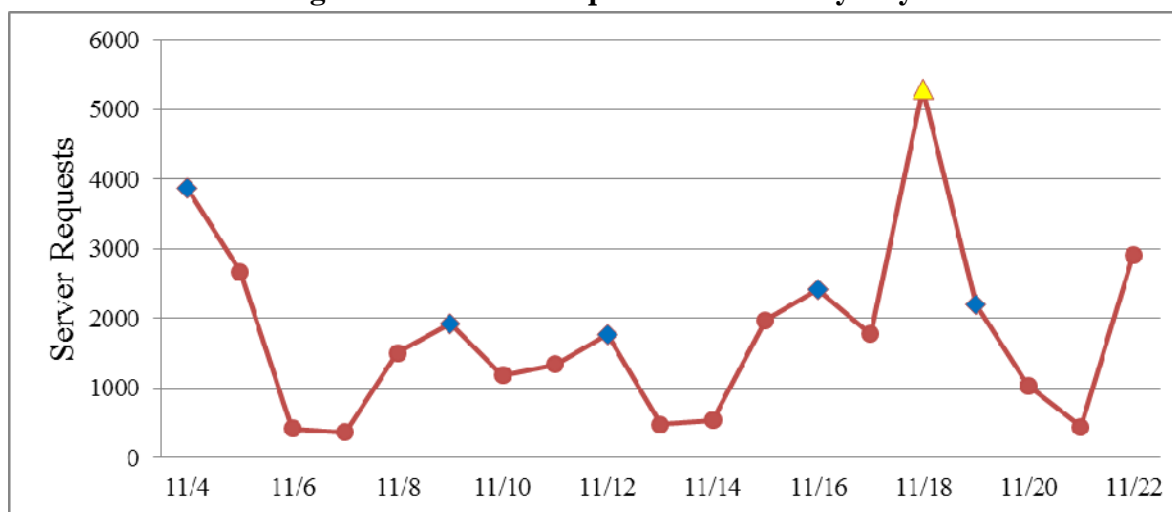
Blue markers denote days when Academy staff sent outreach emails to registered users or other contacts. The yellow marker denotes the day of the Summit. The four low points represent days during the weekend.

In many ways, this Dialogue followed the typical traffic and activity pattern for Academy Dialogues; however, there were a few exceptions that are explored below:

- While evidence suggests the Dialogue experienced a surge in activity in the first few days, because Google Analytics was not operating at the time, the Academy can report there was a surge in traffic, but cannot report on the number of visits or visitors from this period.
- On November 18<sup>th</sup>, the site experienced a significant surge in traffic and an even greater increase in activity. This was the day that the Academy hosted the Summit on the Dialogue, an activity that had not been attempted in previous engagements.
- On the final day of the Dialogue, site activity rose higher than any other day recorded except the day of the Summit. Although this could have been the result of the email that was sent the Friday before, according to the Campaign Monitor data, it is unlikely because there were four times as many people who opened the email on Friday than on Monday, the last day of the Dialogue. A more likely explanation is that the rise in activity was due to a heightened sense of urgency among stakeholders because the Dialogue was due to close. This also may have been influenced by additional outreach from the National Coalition and its GHHI partners.

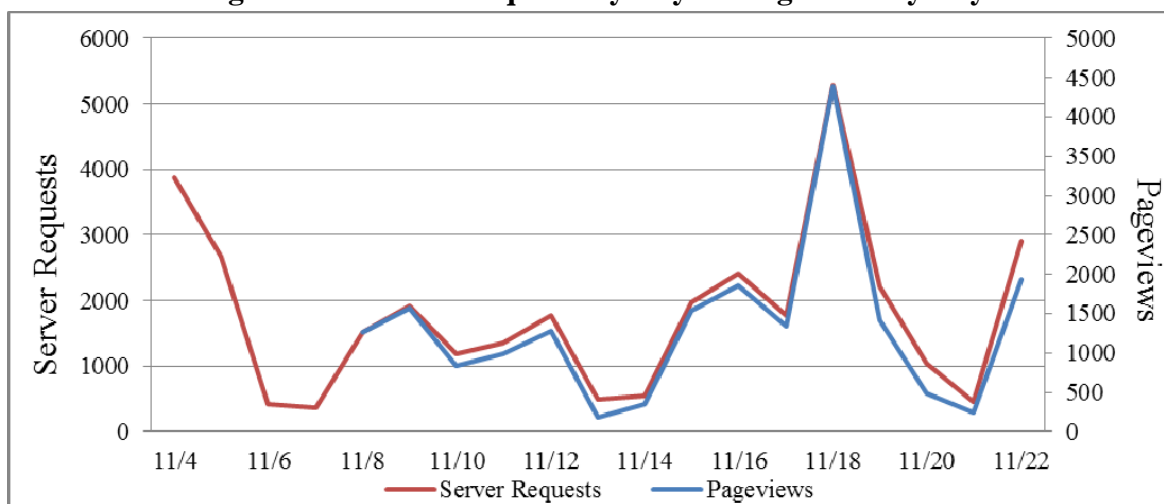
Traffic analytics were not captured for the first four days of the Dialogue, therefore metrics such as the number of visits, visitors, and page views during that period are not available. However, these metrics can be estimated roughly using server requests from those days when traffic analytics were unavailable. Figure B-4 shows the number of server requests that occurred on the Dialogue site each day. As the graph illustrates, the first two days of the Dialogue generated a significant number of server requests, which offers an indicator of the activity on the site prior to the activation of Google Analytics.

**Figure B-4. Server Requests to the Site by Day**



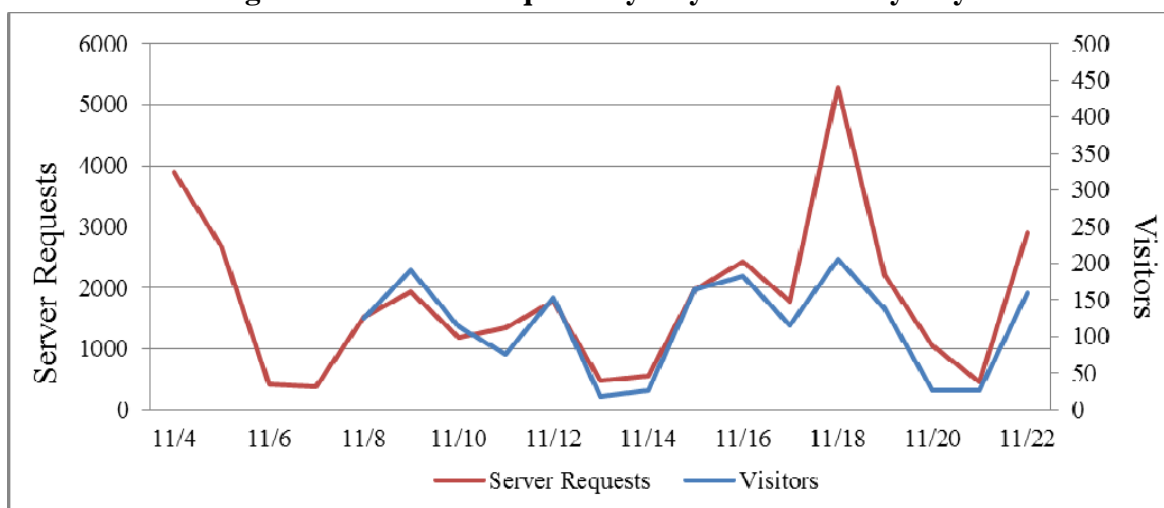
Blue markers denote days when Academy staff sent outreach emails to registered users or other contacts. The yellow marker denotes the day of the Summit. The six low points represent days during the weekend.

As seen in Figure B-5, patterns in pageviews tend to follow the same trend from day to day as server requests, though on a different scale. This is not surprising, given the two metrics' close relation: a pageview is measured each time an individual page is viewed in a visitor's browser, and each page must be requested from the server to be viewed.

**Figure B-5. Server Requests by Day vs. Pageviews by Day**

As the graph shows, server requests and page views appear to be correlative, providing a reference point between the data collected from the Delib servers and the data reported by Google Analytics during the last fifteen days that the Dialogue was live. Given the close correlation between these two metrics, the high volume of server requests at the beginning of the Dialogue suggests that the number of page views during the first four days was relatively high and confirms significant activity occurred on the site prior to the activation of the Google Analytics.

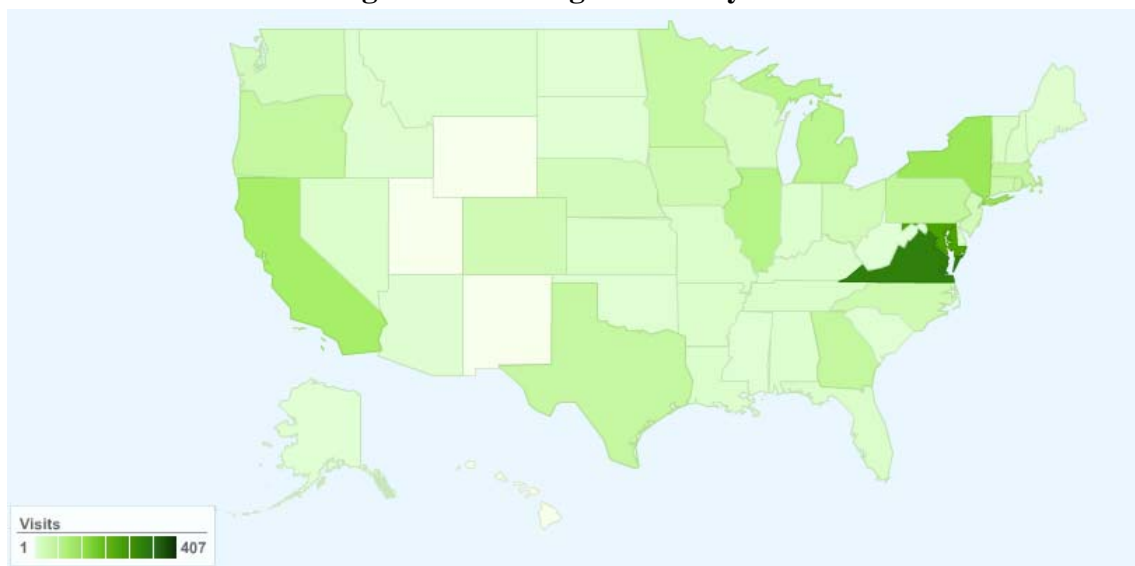
Unfortunately, this correlation does not exist when comparing server requests to other measures of traffic, such as visits and visitors. Therefore, it can only be suggested that the number of pages viewed in the first few days of the Dialogue were high; whether site visits and visitors followed a similar pattern in those days cannot be known. Figure B-6 shows the comparison of server requests to visitors.

**Figure B-6. Server Requests by Day vs. Visitors by Day**

As the graph illustrates, there is a weaker relationship between server requests and the number of visitors than the relationship between server requests and page views. Although both metrics tend to rise and fall on the same dates, the amount with which they rise and fall is not as closely aligned. Even directional changes are not always consistent; note that on November 11<sup>th</sup>, server requests increased while number of visitors decreased. Although the comparison limits the ability to make conclusions on site traffic, the directional trend and high volume of server requests on the first day suggest that a relatively large number of visitors came to the site shortly after it went live.

### ***Traffic by Location***

In addition to reporting the number of participants and their level of activity on the site, Google Analytics also reported visitors' geographical location. Altogether, more than 1,100 visitors came from 48 states and territories, and 352 cities and towns. While visitors came from a wide variety of states and cities, it is clear that the majority of participants came from a few key areas, including the Baltimore-DC area; the Northeast; and other major urban centers. Figures B-7 and B-8 provide a graphical representation of visitors' locations.

**Figure B-7. Dialogue Visits by State**

Darker Shades of green indicate a higher volume of traffic from that state.

**Figure B-8. Visits by City**

Larger markers and darker shades of orange indicate a higher volume of traffic from that city.

The volume of participation from the Baltimore–Washington, DC area was expected, since many of the issues addressed in the Dialogue are affected by Federal programs, which are managed by people in and around Washington, DC. In addition, the National Coalition, which sponsored this initiative, has worked in the Baltimore area for many years. This allowed them to activate an existing community of supporters to engage in the Dialogue.

Other areas that provided a relatively large number of visits included many of the cities and states in which either the National Coalition or its Federal partners operate healthy homes programs. This included all twelve cities that participate in the GHHI pilot programs to assess and remediate low- to moderate-income homes. One Steering Committee member noted when seeing the “Visits by City” map, that the areas of high participation density especially along the eastern seaboard mirror the locations of HUD grant recipients. These communities contain the people who are the most invested in the green and healthy homes movement; therefore, it not surprising that they were well represented.

### **Dialogue Participation**

While traffic metrics are important in quantifying the reach of the Dialogue, metrics relating specifically to participation help us understand the extent to which visitors were compelled to take part.

Over the course of two and a half weeks, the Dialogue generated:

- 320 registered users.
- 100 unique ideas, which prompted 363 comments, 290 ratings and 165 tags.

An important goal for any online deliberation is to persuade a high proportion of those who visit the site to participate. This is referred to colloquially as converting “browsers to buyers,” and the rate at which visitors register to participate is called the conversion rate. The Academy calculates this conversion rate by comparing the number of registered users to the total number of unique visitors. Because Google Analytics was inactive for part of the time the Dialogue was live, the conversation rate described below may underestimate the actual rate. Of the 320 participants who registered an account on the Dialogue, 196 did so after the site was able to capture analytics. During this same period, 1,175 unique visitors visited the site, giving the Dialogue a 17 percent conversion rate; one out of every six people who visited the site registered to participate. This conversion rate is higher than most previous Academy Dialogues, indicating that the content and format of the Dialogue were more compelling for visitors, and that barriers to entry on the site were relatively low. Furthermore, because 39 percent of users registered before the site began collecting analytics, it is possible that the conversion rate for the entire duration of the Dialogue may have been even higher.

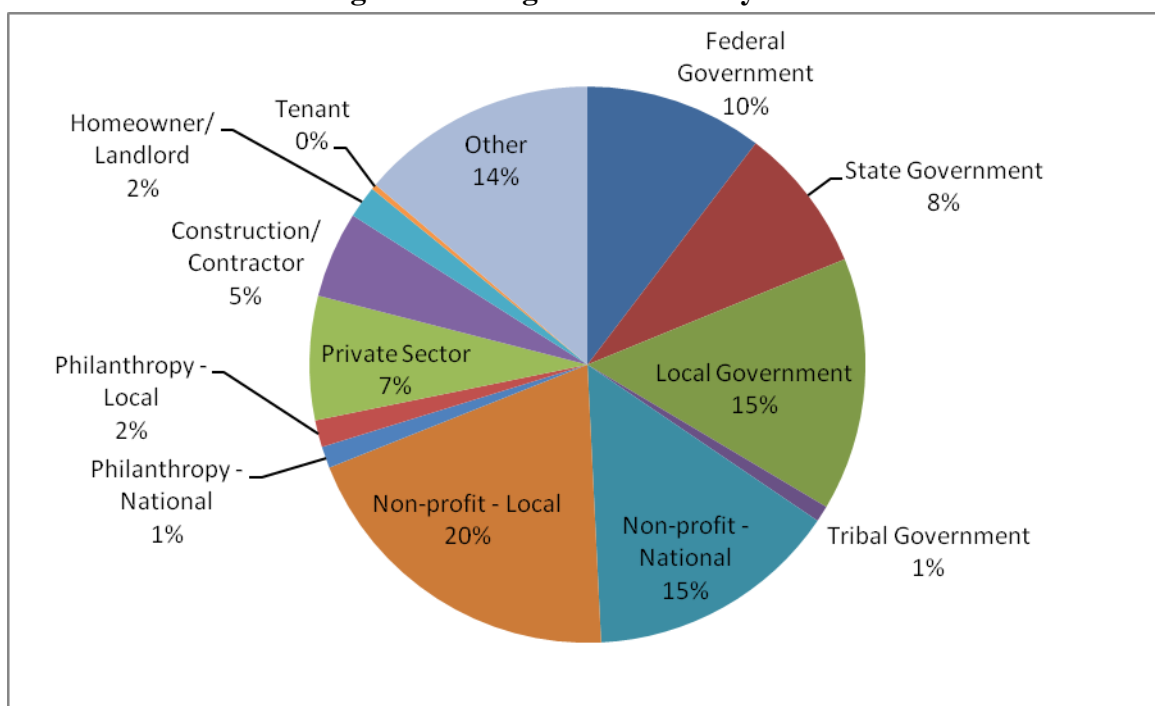
## **Participant Demographics**

During the two and a half weeks it was live, 320 green and healthy homes stakeholders registered to participate in the Dialogue. To participate, visitors were required to register for an account by providing an email address, creating a username and password, and selecting their sector (nonprofit, government, construction, etc.) and up to two interests (public, health, environmental health, energy efficiency, etc.) from a pair of dropdown menus. The purpose of gathering this information was to gain an understanding of participants' backgrounds beyond what could be inferred from their ideas and comments. The Academy collected this information for the sole purpose of analysis in the aggregate, and users' responses to these questions were not visible to any other users on the site.

The Dialogue was a collection of ideas provided by those who participated on how the green and healthy homes mission can be enhanced. Because this was a voluntary activity, it was subject to a self-selection bias and therefore participants in the Dialogue are not a representative sample of the green and healthy homes community. The demographic data that was collected was self-reported, and its accuracy has not been verified.

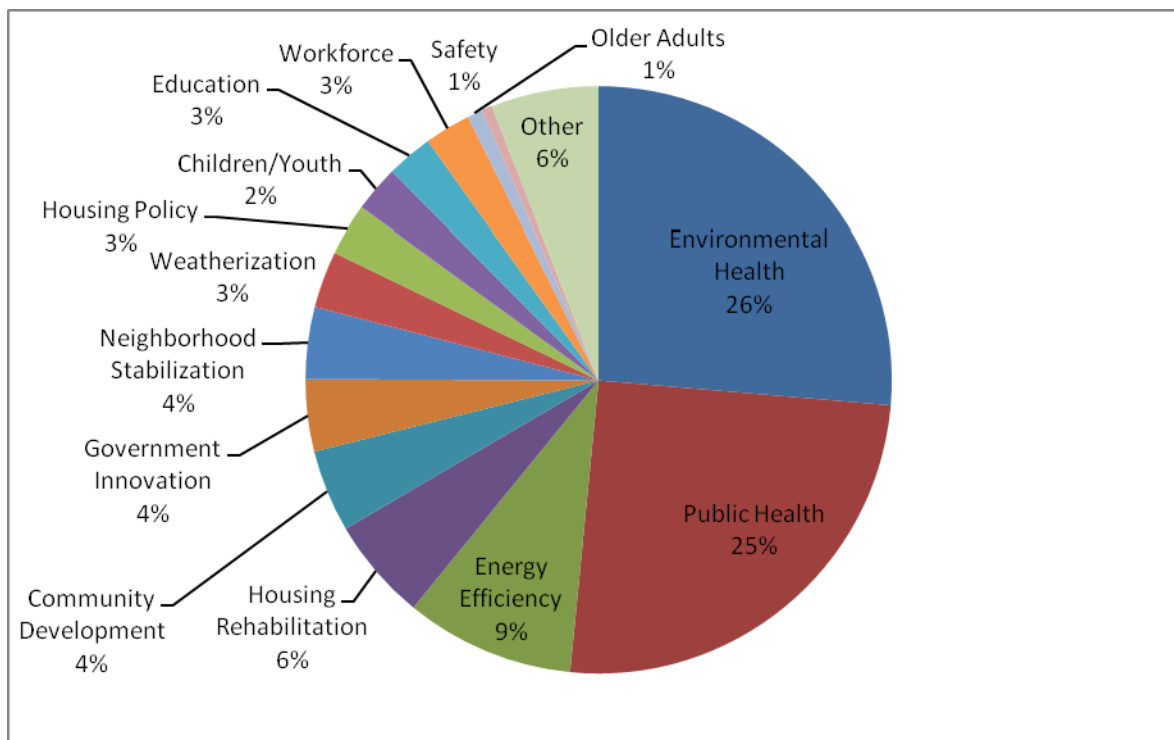
The figures that follow show the demographic breakdown according to information supplied by Dialogue participants. Figure B-9 illustrates the sector with which participants identified.



**Figure B-9. Registered Users by Sector**

While government and non-profit organizations provided the majority of Dialogue participants, and the private sector and construction communities had moderate representation, relatively few participants identified themselves as either “tenant” or “homeowner/landlord.” This is not surprising since, prior to the Dialogue, the government and non-profit sectors were the most engaged around green and healthy homes issues and had existing networks that could be leveraged for outreach. However, the strong representation by the government and non-profit sectors must be considered when reviewing Dialogue feedback and the conclusions in this report. While the perspective of the government agencies and nonprofit organizations who work in this field is valuable, the responses’ pattern may suggest that additional engagement is needed to reach the other providers and beneficiaries of green and healthy homes services.

Figure B-10 shows the primary Dialogue-related interests that participants identified when registering.

**Figure B-10. Registered Users by Interest**

As the graph shows, when asked about their primary interest in green and healthy homes issues, the majority of participants selected either environmental or public health, with other topics garnering a relatively equitable distribution. The strong interest in health-related issues may be due to the high level of involvement government agencies and nonprofits supporting the green and healthy homes movement have in this field. Although these health-related issues were of interest to significant portion of Dialogue participants, the relatively equitable distribution of responses suggests that the Dialogue was successful at engaging participants interested in a variety of issues.

## APPENDIX C

### **Identified Barriers and Innovative Strategies: A Problem and Solution Resource**

Many of the ideas and comments that participants submitted during the National Dialogue on Green and Healthy Homes contained innovative solutions as well as barriers, which participants have experienced in the course of their work. This section attempts to categorize the most noteworthy barriers and innovative solutions into one of the eight thematic areas that were highlighted in the Dialogue's jumping off questions. Each theme features a brief account of the challenges that participants raised in the Dialogue and is followed by a list of examples that other communities have taken to address similar issues.<sup>63</sup>

Some of the approaches organized below have already been implemented by communities or other organizations. Other ideas are under development. They have been included in this appendix to ensure a comprehensive list of the solutions is documented.<sup>64</sup>

**NOTE: When reviewing this information please note that neither the Academy nor the Panel researched or validated these submissions for accuracy or effectiveness. They are shared here for informational purposes only.**

The eight themes are:

1. Housing Remediation in Low- to Moderate-Income Homes
2. Funding for Housing Interventions
3. Inspector Training
4. Comprehensive Tools and Programs
5. Private Sector Partnerships
6. Government Facilitation
7. Standards
8. Public Awareness and Education

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<sup>63</sup> The reference numbers indicate the idea and comment within that idea. For example, 1.17 would mean idea 1, comment 17. The complete list of ideas and comments is available at <http://www.napawash.org/wp-content/uploads/2011/03/Complete-list-of-ideas-and-comments-from-GHH-National-Dialogue.pdf>.

<sup>64</sup> The content in this document was edited from information in the Dialogue. It contains links to websites that compliment innovative strategies presented by Dialogue participants.

**Theme 1: Housing Remediation in Low- to Moderate-Income Homes**

Making low- to moderate-income homes healthy, safe, and energy efficient through green and healthy home remediation is easier said than done. Dialogue participants identified many instances where housing remediation efforts faced managerial, budgetary, pest, and resource challenges, including everything from health and safety interventions that did not address energy efficiency<sup>65</sup> to home foreclosure due to health and safety concerns.<sup>66</sup> Participants believed that these presented significant barriers to attaining healthy housing in low- and moderate-income communities.

***Innovative Strategies***

Dialogue participants presented the following ideas and resources that could help build a case for green and healthy home remediation:

- Mandate indoor air quality and energy efficiency inspections. This assures a safe home for the buyer and protects the asset for the lender.<sup>67</sup>
- Conduct a risk assessment for lead at a home's point of sale, to help protect families from lead poisoning.<sup>68</sup>
- Identify the key housing deficiencies that are likely to produce the most severe and widespread adverse health outcomes within a community as a first step then use integrated housing and health surveys to target and direct remediation resources to where they will have the most impact.<sup>69</sup>
- The Sustainable Resources Center conducts an in-home environmental survey in partnership with a state's health department for every program area including: education, lead hazard control or weatherization.  
[http://www.src-mn.org/SRC\\_HOME\\_Absolute.htm](http://www.src-mn.org/SRC_HOME_Absolute.htm).<sup>70</sup>
- The Green Initiatives Foundation is planning to create a Children's Wellness House where families can stay for free while their home is being renovated. A pilot is currently under way in Wichita, KS and there are plans to expand the program across the country.  
[http://greeninitiativesfoundation.org/?page\\_id=80](http://greeninitiativesfoundation.org/?page_id=80).<sup>71</sup>

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<sup>65</sup> See 6.6.

<sup>66</sup> See 24.4.

<sup>67</sup> See 27.3.

<sup>68</sup> See 27.7.

<sup>69</sup> See 68.0.

<sup>70</sup> See 68.4.

<sup>71</sup> See 69.0.

- Several strategies cited in the GHHI Report and Case Study “Identified Barriers and Opportunities to Make Housing Green and Healthy Through Weatherization.” <http://www.greenandhealthyhomes.org/content/data-and-results/>.<sup>72</sup>
- Emerging products, building practices, and success stories are shared on the Build San Antonio Green website. <http://www.buildsagreen.org/>.<sup>73</sup>

## Theme 2: Funding for Housing Interventions

Budgetary and funding issues often impede project execution. Dialogue participants offered multiple examples of programs where insufficient funding had adverse effects:

- A Steering Committee member said that “much of the funding for housing interventions currently comes from HUD or DOE, but many other programs could be affected.”<sup>74</sup> In addition, some of the costs are incurred in reacting to problems that arise as opposed to proactively addressing the issue before it becomes a problem. Some of these costs are then absorbed by the health care sector after the harm has already been done.
- Another participant commented that the HUD PowerSaver pilot program draft proposal repeats one of the biggest problems: the money in this program can only be used to address healthy homes issues specifically related to energy efficiency.<sup>75</sup>
- In the State of Washington, tribes face funding issues because they are not receiving monies from the stimulus package for weatherization.<sup>76</sup>
- Finally, one participant recognized the risk of combining too many interventions that would inevitably present initiatives that are too expensive to implement on a wide scale. This participant asked the question: “*How do we create GHHI as a package of interventions that are demonstrably cost-effective so that we can eventually tap into existing funding sources that are now trying to contain the damage on the back end?*”<sup>77</sup>

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<sup>72</sup> See 33.0.

<sup>73</sup> See 61.0.

<sup>74</sup> See 36.7.

<sup>75</sup> See 72.3, <http://www.thefederalregister.com/d.p/2010-11-10-2010-28015>.

<sup>76</sup> See 3.1.

<sup>77</sup> See 36.5.

***Innovative Strategies***

Dialogue participants grappled with the silo approach to funding and prominent solutions were not identified. However, idea number 84 suggested that industries should be presented with an economic incentive for lowering energy consumption. This, along with current GHHI interventions, will synergistically help change behavior:

- California is trying to levy a property assessment for clean energy (PACE) funding to make home energy efficiency improvements more affordable for existing homes owners. This type of funding could also partially help to address lead remediation through window and door replacements.<sup>78</sup>

**Theme 3: Inspector Training**

Inspection professionals lack a uniform training standard, that includes a set of principles and tools from which they work.<sup>79</sup> In Denver, for instance, housing inspections are compliance driven. There are four inspectors, and the community is not comfortable with the process these inspectors utilize.<sup>80</sup> While training programs themselves face difficulties, participants offered many solutions, identified below.

***Innovative Strategies***

Participants offered information on multiple training programs, including:

- The National Association of Moisture Management:
  - Certifications for home inspectors, mold inspectors, and mold remediators to teach them how to locate and diagnose moisture issues before they become a future mold problem.  
<http://www.na4mm.org/>.<sup>81</sup>  
[http://www.theinspectiongroup.com/assets/downloads/M4\\_promo.PDF](http://www.theinspectiongroup.com/assets/downloads/M4_promo.PDF).<sup>82</sup>
- The National Environmental Health Association:
  - Healthy Homes Specialist certification program can help standardize training requirements.  
<http://www.neha.org/credential/HHS/index.htm>.<sup>83</sup>

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<sup>78</sup> See 30.2.

<sup>79</sup> See 99.0, 40.6, 27.11.

<sup>80</sup> See 1.11.

<sup>81</sup> See 9.2.

<sup>82</sup> See 48.4.

<sup>83</sup> See 20.2.

- The International Facility Management Association:
  - A hopeful parallel toward “cross training” in residential situations.  
[http://www.ifma.org/learning/fm\\_credentials/cfm\\_index.cfm](http://www.ifma.org/learning/fm_credentials/cfm_index.cfm).<sup>84</sup>
- The Apeiron Institute for Sustainable Living
  - Providing Rhode Island’s most comprehensive residential inspector training titled “Whole Home Health and Energy Efficiency.” The training is 4 months long, and provides nine state and/or nationally recognized certifications (including BPI and Lead Inspector Technician). The program takes a comprehensive approach providing teaching and learning in 3 concentrated areas: Residential Efficiency (BPI Auditor), Health (OSHA 40, Lead Inspector) and \*Greenness/ Sustainability (In-house Apeiron Certification).  
<http://www.apeiron.org>.<sup>85</sup>
- The National Center for Healthy Housing:
  - Healthy homes training.  
[http://www.nchh.org/\[...\]/National-Healthy-Homes-Training-Center.aspx](http://www.nchh.org/[...]/National-Healthy-Homes-Training-Center.aspx).<sup>86</sup>
- The Master Homes Environmentalist Program:
  - Trains volunteers to design, deliver and evaluate homes for health.  
[http://www.alaw.org/air\\_quality/master\\_home\\_environmentalist](http://www.alaw.org/air_quality/master_home_environmentalist).<sup>87</sup>

#### **Theme 4: Comprehensive Tools and Programs**

One of the “jumping-off” questions asked for tools, resources, or processes the GHHI could use to improve the execution of a comprehensive housing intervention. In a number of ideas, users presented programs and strategies to address this question.

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<sup>84</sup> See 40.2.

<sup>85</sup> See 40.6.

<sup>86</sup> See 40.8.

<sup>87</sup> See 67.2.

### *Innovative Strategies*

Participants offered the following examples of comprehensive housing intervention programs:

- Minneapolis has a Truth in Sale of Housing (TISH) requirement that requires an inspection prior to a home being placed on the market.  
<http://www.ci.minneapolis.mn.us/ccs/docs/TISH%20Evaluator%20License%20Requirements%202009.pdf>.<sup>88</sup>
- In New York City the Lead Poisoning Prevention Program at the Department of Health and Mental Hygiene has taken steps toward becoming a comprehensive Healthy Homes program. Every inspection for lead paint hazards in the apartments of young children also includes indentifying mold, pest infestation, missing child window guards, and missing smoke and CO2 alarms. When owners fail to make lead paint hazard repairs, the NYC Department of Housing Preservation and Development sends its Emergency Repair Program to do the work and bills the owner.<sup>89</sup>
- The United Kingdom uses a home rating risk assessment approach called the Housing Health and Safety Rating System (HHSRS); the aim is to provide a system (not a standard) to enable risk factors from hazards to health and safety to be removed or minimized. The HHSRS provides an analysis of how hazardous a property is and provides evidence and statistical information to assist inspectors in making their evaluations. The inspection process is a risk based assessment that considers the effect of any hazards in the property on occupant health.<sup>90</sup>
- The Coalition to End Childhood Lead Poisoning has a Community Health Educator and Community Health Student Nurse accompany the Environmental Assessment Team on initial and follow-up visits to assure that families are engaged in the intervention process - but also to ensure families are linked to critical health, mental health and social services.<sup>91</sup>
- New technology can help people stay focused on maintaining Green and Healthy Homes. For example, an automated text message system will remind people when they need to change furnace filters, carbon monoxide batteries, or check their gutters. It could also alert clients to upcoming training courses.<sup>92</sup>

### **Theme 5: Private Sector Partnerships**

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<sup>88</sup> See 27.10.

<sup>89</sup> See 32.0.

<sup>90</sup> See 35.3.

<sup>91</sup> See 67.3.

<sup>92</sup> See 95.0.



Collaborating with the private sector can create effective partnerships to create green and healthy homes. Seven ideas and practices are listed below, including thoughts from the GHHI.

### *Innovative Strategies*

Participants described the following cases as examples of successful private sector partnerships:

- Rebuilding Together, a national nonprofit with over 200 affiliates, has been successfully utilizing volunteer labor to make owner-occupied homes safe and healthy for over 20 years. Volunteer labor leverages both public and private funding. Additionally, the engagement of volunteers from the corporate community helps to raise awareness of the issues that low-income communities face.  
<http://www.rebuildingtogether.org>.<sup>93</sup>
- The justice reinvestment movement can provide a precedent for a GHHI approach to policy makers, politicians, insurance companies, and even banks. Lead by the Council of State Governments' Justice Center, the Center "works closely with state policymakers to advance fiscally-sound, data driven criminal justice (public health) policies to break the cycle of recidivism (repeat visits to the hospital/doctor), avert prison (health care) expenditures and make communities (homes and communities) safer."  
<http://www.justicereinvestment.org/about>.<sup>94</sup>
- Historically Black Colleges and Universities (HBCUs) should be linked with Healthy Homes Training Centers, energy auditor and intervention training programs, to expand the job market for HBCU students into the green sector. HBCUs provide critical access to community-based health programs and could help lead the design of the integrated training for workers through Occupational Health programs.<sup>95</sup>
- The Western NY Apollo Alliance has been working with Daemen College and University at Buffalo students for more than 4 years. The Home Energy Conservation Kits project has engaged students, contractors, faculty, non-profits, community action, environmental action and economic justice activists in doing baseline weatherization projects in lower income neighborhoods.  
<http://apolloalliance.org/new-apollo-program/signature-stories-new-apollo-program/western-new-york-apollo-alliance-brings-weatherization-to-buffalo%E2%80%99s-low-income-residents/>.<sup>96</sup>
- The City of Dubuque is working with HUD on establishing a healthy homes program, with federal grant funding as well as local philanthropy through the community foundation and private sector participation. By creating a learning network, it brings

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<sup>93</sup> See 2.4.

<sup>94</sup> See 79.6.

<sup>95</sup> See 80.1, 80.2.

<sup>96</sup> See 87.0.

local government and various community partners, including business, to the table to work on community education around healthy homes, marketing and coordination for delivery of services. Delivery of services will also be done by community partners/business in conjunction with the city's Health and Housing & Community Development departments.

<http://www.hud.gov/offices/lead/hhi/index.cfm>.<sup>97</sup>

- In Providence, RI the Providence Economic Development Partnership has established a certification program called the Hazardous Waste Operations and Emergency Response (HAZWOPER) credential. This initiative targets low skilled individuals and those returning from prison and provides paid on the job training, during which the participants are out in the community working to educate homeowners about weatherization, and performing basic weatherization work.  
<http://www.everycompanycounts.com/services/financing/ProvidenceEconomicDevelopmentPartnership>.<sup>98</sup>
- NAMM developed a “Healthy Home Evaluation” where lenders would protect their investment by requiring that this evaluation be conducted before the sale is completed and then include the cost in the mortgage. NAMM has discussed this with the Mortgage Bankers Association in Washington D.C., opened dialogue with the National Association of Insurance Commissioners, and reached out to the National Coalition of Insurance Legislators.<sup>99</sup>
- Emerald Cities Collaborative (ECC) works with stakeholders in ten cities to develop and implement comprehensive strategies for energy efficiency retrofits. ECC works with many different types of groups - affordable housing, community based training, businesses, unions, city governments. In many of these cities, the ECC held meetings with many partners who have not worked together before. Having a regular space to meet, compare notes, and plan has been useful for many of these local partners.<sup>100</sup>

## Theme 6: Government Facilitation

The integral role the government plays in the green and healthy homes movement was also a theme throughout the Dialogue. Participants, through their experiences, found that coordination, streamlining, funding allocation<sup>101</sup>, timelines and requirements were all areas that government needed to evaluate and change. For example, the most common complaint among participants

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<sup>97</sup> See 98.0.

<sup>98</sup> See 65.3.

<sup>99</sup> See 17.6.

<sup>100</sup> See 11.1, <http://www.emeraldcities.org/>.

<sup>101</sup> See 24.6: <http://www.iaqscience.lbl.gov/dampness-summary.html>. Also, see 41.3 for examples of Denver's barriers with working with HUD Lead Hazard Control funds to revise their weatherization policies to reduce childhood lead poisoning.

was the siloed funding streams. Often funds cannot be co-mingled making it difficult to develop integrated assessments and intervention processes.<sup>102</sup>

### *Innovative Strategies*

The following were offered as examples of ways to leverage government funds in an effective manner:

- The GHHI made recommendations for realistic weatherization program timelines based on their study of the GHHI sites.  
<http://www.leadsafe.org/elements/uploads/files/fileManager/FinalGHHIWeatherizationeport-ExecutiveSummary.pdf>.<sup>103</sup>
- In Buffalo, NY there have been many successful HUD LEAP/LHC grants (Erie County DOH and a privately held company, Environmental Education Associates). The Community Foundation for Greater Buffalo (CFGB) offers neutrality to pull together entities working on solutions to lead hazard control in green and healthy homes.  
<http://www.wipeoutlead.org>.<sup>104</sup>
- In Baltimore there are Housing Choice Vouchers specifically set aside for families with children diagnosed with elevated blood lead levels who do not have other means to obtain safe housing.  
<http://www.baltimorecountymd.gov/agencies/socserv/financialassistance/dsssec8.html>.<sup>105</sup>
- The New York state Attorney General signed an agreement to transfer \$2.1M in settlement funds for the Buffalo GHHI to support a GHHI coordinator for 2 years and gap funding for repairs that support weatherization.<sup>106</sup>
- Buffalo, NY conducts in-home asthma interventions with the primary focus on trigger reduction utilizing only low cost intervention products. Buffalo has seen statistically significant improvement in the asthmatic quality of life.  
<http://www2.erie.gov/health/index.php?q=node/7>.<sup>107</sup>
- One discussion in the Dialogue listed ideal characteristics for green and healthy leaders: the ability to align a host of funding resources, build collaboration among partners and programs, identify and raise gap funding, understand and address key program and policy barriers, and work effectively with a very diverse set of stakeholders. In addition to

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<sup>102</sup> See 60.4.

<sup>103</sup> See 3.7.

<sup>104</sup> See 23.2.

<sup>105</sup> See 50.2.

<sup>106</sup> See 57.0.

<sup>107</sup> See 71.0.

focusing on funding, it is important to emphasize the need for data analyzing capacity,<sup>108</sup> knowledge of building systems and building science as a whole,<sup>109</sup> and networking capabilities.<sup>110</sup>

## **Theme 7: Standards**

One of the main challenges Dialogue participants faced was a lack of standards for house remediation and weatherization. Historically, healthy homes standards do not exist<sup>111</sup>. Using the Dialogue platform, participants were able to list standards, whether established or proposed, that would address what others had identified as barriers. It was also suggested that having a Green and Healthy Homes Standard would be a market driver<sup>112</sup> for the green and healthy homes community of practice.

### ***Innovative Strategies***

Participants listed the following examples of potential components of a green and healthy homes housing standard:

- Eugene Oregon voted in an ordinance requiring landlords to respond quickly to reported problems, subjecting them to considerable fines if they do not fix the issue quickly.<sup>113</sup>
- Maryland (and other jurisdictions) has an established a rent escrow system where a tenant may put their rent into an escrow account when the property poses a threat to the “life, health, and safety” of the resident or where the property is out of compliance with Maryland’s lead laws.  
<http://www.oag.state.md.us/Consumer/landlords.htm#escrow>.<sup>114</sup>
- Point of sale information is a great way to harness the power of the free market. Minneapolis has the Truth in Sale of Housing (TISH)<sup>115</sup> requirement that requires an inspection prior to a home being placed on the market.<sup>116</sup>
- Boston has trained their code enforcement officers to do healthy homes inspections and accept referrals from doctors to have a home inspected. The city based this on the Americans with Disabilities Act since asthmatics should have housing that is mold-

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<sup>108</sup> See 75.1.

<sup>109</sup> See 75.2.

<sup>110</sup> See 75.3, 75.4.

<sup>111</sup> See 10.5.

<sup>112</sup> See 77.3.

<sup>113</sup> See 1.6.

<sup>114</sup> See 1.7.

<sup>115</sup> See <http://www.ci.minneapolis.mn.us/ccs/tih-home.asp>.

<sup>116</sup> See 27.10.

free.<sup>117</sup> The impetus behind this program is pest control - cockroaches and mice are the biggest trigger of asthma in urban areas. Since 95% and 60% of low-income housing has mouse and cockroach allergens present, respectively, this is a problem for asthmatics, especially children. Under most existing codes (both Building and Health) properties and their surroundings must be kept free of pests and vermin, so the legal basis for this type of enforcement already exists.

- The 2010 City of Minneapolis Goals and Strategic Directions includes proposed standards for ensuring that rental properties licensed by the City of Minneapolis are healthy and reduce energy usage.  
[http://www.minneapolisrepublicans.org/budget/Master\\_Plan.pdf](http://www.minneapolisrepublicans.org/budget/Master_Plan.pdf).<sup>118</sup>
- The Safe Drinking Water Act defines “lead free” as plumbing products that contain less than 8% lead. This voluntary standard for plumbing products currently sold for drinking water use should be standardized so that each valve and faucet is examined to see if it is certified by a certifying laboratory, not a central NSF/ANSI 61 certification web site or manufacturers’ listing book.<sup>119</sup>
- The June 17th edition of the New England Journal of Medicine’s review of the Regulation of Smoking in Public Housing is important to creating a smoking standard.  
<http://www.nejm.org/doi/full/10.1056/NEJMhle1000941>.<sup>120</sup>
- HUD issued a memo in July 2009 strongly urging Public Housing Authorities (PHA) to adopt indoor no-smoking policies. Currently there are 215 PHA’s across the country that has adopted smoke free policies for some or all of their properties, and the number grows daily. The list is an excellent resource and is maintained by the Smoke-Free Environments Law Project.  
<http://www.tcsg.org/sfelp/SFHousingAuthorities.pdf>.<sup>121</sup>
- It is critical to have a national standard in place that addresses energy efficiency and safety where public dollars are being invested in energy efficiency and weatherization. One place to start is indoor air quality and the EPA just put out their guidelines for public comment on IAQ and home energy retrofits.  
<http://www.epa.gov/iaq/homes/retrofits.html>.<sup>122</sup>

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<sup>117</sup> See 1.9.

<sup>118</sup> See 1.15.

<sup>119</sup> See 1.17.

<sup>120</sup> See 21.1.

<sup>121</sup> See 21.3.

<sup>122</sup> See 60.3.

- Idea 88 listed many ideas to reduce toxins in building products:
  - Transparency: Require disclosure and labeling of hazardous materials in home building products.
  - Bans: Follow Europe's lead and ban/phase out the use of known toxic chemicals in products.
  - Testing Labs: Establish building materials toxicity testing labs to assess and prioritize hazardous building materials.
  - Public/Private Partnership: Work with private sector leaders such as GreenSpec/Pharos to identify and rate toxics (and other environmental attributes) of building products to collect and validate data<sup>123</sup>.
  - Develop Low Cost Home Toxics and Mold Meters: Work with universities and the private sector to develop home metering systems and tests for toxics and molds.
  - Ensure that Reclaimed/Recycled Products are Not Toxic.
  - The recent federal adoption of formaldehyde standards<sup>124</sup> is a good start, but only the beginning. The federal effort was successful because:
    1. California acted first,
    2. Industries in the US, knowing they had to sell in California, were concerned about losing business in other states to producers who did not meet the standards, so
    3. Both the affected industries and advocates supported federal standards. This illustrates how the states can move federal policy if federal leadership is lacking.<sup>125</sup>
- By using CDFI or Neighborhood Stabilization funds, communities could find foreclosed properties that can be brought back to a life by aligning with Green and Healthy Housing Standards and offering these properties for Housing Choice Voucher Relocation or new community development projects.<sup>126</sup>

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<sup>123</sup> See <http://www.buildinggreen.com/menus/>, <http://www.pharosproject.net/>.

<sup>124</sup> See <http://www.bdlaw.com/news-898.html>.

<sup>125</sup> See 88.2.

<sup>126</sup> See 94.1.

## Theme 8: Public Education and Awareness

Dialogue participants discussed the inconsistency of the green and healthy message being delivered to the public who has different ideas of what being green and healthy really means<sup>127</sup>. Participants consider combating misinformation the first step towards successfully achieving the green and healthy homes objectives.<sup>128</sup>

### *Innovative Strategies*

Below are ideas for broadening the scope of healthy homes awareness and education:

- Create a program for green and healthy housing education similar to [text4baby](#), which was a successful program that sent free text messages to pregnant women throughout their pregnancy to remind them about health issues and to help them throughout the first year of their baby's life.<sup>129</sup>
- The Funders Network for Smart Growth and Livable Communities provides support, outreach and education in greening best practices/models, emerging issues and challenges to position foundations to address the needs for healthier, sustainable communities<sup>130</sup>.  
<http://www.fundersnetwork.org/>
- Comment 54.1 listed ideas for marketing the green and healthy homes brand:
  - Have larger retailers like Home Depot, Lowes or others create in store displays and education on Green (Energy Efficient, Weatherized) and Healthy (Code Compliant, Safe, Lead Safe, allergen trigger reduction, prevention of trip and fall hazards).
  - Use Social Media tools - Facebook, Twitter, Google and Yahoo News and Green, Housing and Health related blogs and create and market a Green and Healthy Blog.
  - Team up with CNN Green Media Initiatives and Sanjay Gupta related shows as well as NBC Universal Green Week
  - Create a National Ad Council Campaign
  - Publish info in Health Journals

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<sup>127</sup> See 36.8.

<sup>128</sup> See 61.0.

<sup>129</sup> See 14.12.

<sup>130</sup> See 38.0.

- Get Key Health Associations to adopt and educate on the tools to a Green and Healthy Home.
- Have Federal Agencies such as DOE, HUD and HHS add Green and Healthy Home Education to NOFA application work plans.
- Connect to Media Groups that own national network of local TV and Radio Stations and get educational news on Green and Healthy into the local networks with tips for viewers and listeners.
- Consider a media push similar to the National Ad Council Campaign on Lead Poisoning Prevention: define the different segments of the population to be targeted and tailor mini media campaigns for all of them.  
<http://www.adcouncil.org/default.aspx?id=648>.<sup>131</sup>
- Use existing home visit programs for education on green and healthy homes. Buffalo does this with the Prenatal Parinatal Network that makes home visits to low income women.  
<http://www.buffaloprenatal.org/links.php>.<sup>132</sup>

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<sup>131</sup> See 54.3.

<sup>132</sup> See 56.0.



## APPENDIX D

### Lexicon of Dialogue Terminology

**Average Comments/Idea:** The ratio of the total number of comments to the total number of ideas within a dialogue.

**Average Page Views/Unique Visitor:** The ratio of the total number of page views to the total number of unique visitors to a dialogue.

**Average Ratings/Idea:** The ratio of total number of ratings to the total number of ideas within a dialogue.

**Average Time on Site/Unique Visitor:** The ratio of the total time spent to the total number of unique visitors to a dialogue.

**Bounce Rate:** The percentage of single-page visits or visits in which the person left the site from the first page.

**Comments:** Short-form, user-generated feedback attached to previously posted ideas that are intended to continue the discussion begun within an idea. Comments cannot be rated. The number of comments counted is the total number of comments posted by all users during the given date range.

**Conversion Rate:** The ratio of registered users to unique visitors expressed as a percentage. This metric indicates the number of visitors that came to the site and found it valuable enough to register and join the conversation.

**Direct Traffic:** The number of visits that came from people typing a web address (e.g., [www.greenandhealthyhomedialogue.org](http://www.greenandhealthyhomedialogue.org)) directly into their browser, rather than clicking a link from elsewhere.

**Engagement Metrics:** Measurements of how visitors interacted with the site. The National Dialogue measured: site traffic; time spent on the site; which pages attracted the most visitors; and other indicators of visitor behavior. Measuring engagement is distinct from measuring *participation* in the Dialogue, which deals more with how users contribute to the conversation.

**Ideas:** Long-form, user-generated feedback. They can be up to 10,000 characters in length and are typically responding to the overall prompt question or material. The number of ideas counted

is the total number of ideas submitted by all users over the given date range. Unique ideas can have their own tags, comments, and ratings associated with them.

***Jumping-off Questions:*** A series of questions that rotate on the Dialogue homepage to solicit feedback on specific topics from participants.

***Pageviews:*** The number of times pages are viewed over a given date range. A visitor can see multiple pages on a single visit. Each page they view in the site is counted separately.

***Participation Metrics:*** Measure how users contributed to the conversation. These include ideas and comments submitted, the number and types of tags created, the average number of votes per idea, and other indicators of visitors' participation. One key metric of participation is the *conversion rate*.

***Ratings:*** The total number of ratings submitted across all ideas in the dialogue. The platform used in this dialogue allowed each user to rate each idea once on a 5-star scale. Half-ratings cannot be assigned. Users can rate as many ideas as they want, and can revise ratings of an idea, but cannot rate any idea twice and no user can rate his/her own idea. For each idea, an average of all ratings, as well as the overall number of ratings, is reported on the site.

***Registered Users:*** Denotes the number of users who came to the site and created an account. Registration was required for most forms of participation (i.e., idea submission, comment submission, rating, tagging) on this platform.

***Server Requests:*** represents an individual taking an action that generates a request to the site's central database. This statistic can be used as a rough proxy for the volume of activity occurring on the site.

***Tags:*** One- or two-word phrases describing the themes of an idea. Tags are generally displayed in a "tag cloud," which allows users to more easily navigate user-generated activity. The Dialogue allows users to apply topic tags to their own submissions and the submissions of others.

***Unique Visitors: (or Absolute Unique Visitors):*** The number of unduplicated visitors to the site over a given timeframe. This is measured by Google Analytics using both persistent and session cookies, which track visitors by computer or workstation. For example, if one visitor comes to the site on five separate occasions but from only one computer, this would count for five visits but only one unique visitor.

**Visits:** The number of times the site was visited, including multiple visits by the same *unique visitor*.

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## APPENDIX E

## Dialogue Screenshots

Figure E-1. Initial Dialogue Homepage

HOME | ABOUT THE ISSUES | HOW TO USE THIS SITE | ABOUT THE DIALOGUE

REGISTER | LOG IN

Search Ideas Search

November 4th - November 21st, 2010

Green & Healthy Homes Initiative

National Dialogue on Green and Healthy Homes

### How can we integrate efforts and overcome barriers to make homes healthy, safe, and energy efficient?

For many years, we have seen housing-improvement efforts operate independently. Some focus on lead paint removal and others on insulating and retrofitting homes to make them more energy-efficient. The Green and Healthy Homes Initiative (GHHI) is a public-private partnership between the national Coalition to End Childhood Lead Poisoning, the federal government, national and local philanthropy, and local partners that integrates resources so that a single, more efficient and cost-effective intervention can be designed to fix all of the problems of each housing unit.

A key part of the GHHI, the National Dialogue on Green & Healthy Homes is a collaborative effort to identify best practices and develop recommendations for new housing standards to make the Nation's older housing stock healthy, safe, and energy efficient. The ideas generated in this Dialogue will inform the work of state and local governments, non-profits and foundations, and the federal Healthy Homes Work Group.

All individuals who register and provide email addresses will receive a copy of the final report for this Dialogue. Additionally, the report will be posted on the GHHI website at [www.greenandhealthyhomes.org](http://www.greenandhealthyhomes.org).

HUD Secretary Shaun Donovan

Submit an idea

See all ideas

Jump into the dialogue

Here's a question to get you started:

“What tools, resources, or processes should we use to improve the execution of a comprehensive housing intervention?”

Latest ideas Highest rated ideas Ideas with most comments

#### Help families access healthy communities

by [BSamuels](#) on November 22, 2010 at 07:55PM 5 tags so far 0 comments so far

Read & Rate

Votes so far ★★★★★ 5.0 (1 vote - averaged)


**Figure E-2. Dialogue Homepage with Featured Topic**

[HOME](#) | [ABOUT THE ISSUES](#) | [HOW TO USE THIS SITE](#) | [ABOUT THE DIALOGUE](#)


[REGISTER](#) | [LOG IN](#)

[Search](#)

November 4th - November 21st, 2010


**Green & Healthy Homes Initiative**

**National Dialogue on Green and Healthy Homes**



## How can we integrate efforts and overcome barriers to make homes healthy, safe, and energy efficient?

**You Tell Us!**

Your participation will help


- Improve current and future housing programs and policies
- Help our community overcome barriers
- Share best practices that can be put into action


**Featured Topic - Improving Home Interventions**


What **tools**, **resources**, or **processes** should we use to improve the execution of a comprehensive housing intervention?

Dialogue participants have raised some interesting points; now tell us what would make it easier for you.

Cat got your tongue? That's ok, you can still share your expertise by signing in and rating an idea. Just click on the stars to let us know if you agree or disagree with any idea.







[Latest ideas](#)
[Highest rated ideas](#)
[Ideas with most comments](#)

### Help families access healthy communities

by [BSamuels](#) on November 22, 2010 at 07:55PM 5 tags so far 0 comments so far

[Read & Rate](#) Votes so far ★★★★★ 5.0 (1 vote - averaged)

### Jump into the dialogue

Here's a question to get you started:


“What practice(s) has had the most impact in increasing the number of healthy, safe and energy efficient homes in your

Figure E-3. All Ideas Page


[HOME](#) | [ABOUT THE ISSUES](#) | [HOW TO USE THIS SITE](#) | [ABOUT THE DIALOGUE](#)

[REGISTER](#) | [LOG IN](#)


November 4th - November 21st, 2010


Green & Healthy Homes Initiative

National Dialogue on Green and Healthy Homes



## All ideas


[See all ideas](#)

[Latest ideas](#) | [Highest rated ideas](#) | [Ideas with most comments](#)

### Help families access healthy communities

by [BSamuels](#) on November 22, 2010 at 07:55PM 5 tags so far 0 comments so far

[Read & Rate](#) Votes so far ★★★★★ 5.0 (1 vote - averaged)

### Provide incentives to forge traditional and non-traditional partners

by [TKolian](#) on November 22, 2010 at 07:36PM 7 tags so far 1 comment so far

[Read & Rate](#) Votes so far ★★★★★ 5.0 (1 vote - averaged)

### healthy homes is more than government

by [mcorriga](#) on November 22, 2010 at 06:41PM 9 tags so far 3 comments so far

[Read & Rate](#) Votes so far ☆☆☆☆☆ 0.0 (0 votes - averaged)

### Educate Realitors / Healthy Homes label

by [khirsch](#) on November 22, 2010 at 06:25PM 5 tags so far 2 comments so far

[Read & Rate](#) Votes so far ☆☆☆☆☆ 0.0 (0 votes - averaged)

### Jump into the dialogue

Here's a question to get you started:

“What practice(s) has had the most impact in increasing the number of healthy, safe and energy efficient homes in your community?”


### Tags


[View all tags](#)

- barriers
- best practice
- collaboration
- comprehensive approach

**Figure E-4. Registration Page**

[HOME](#) | [ABOUT THE ISSUES](#) | [HOW TO USE THIS SITE](#) | [ABOUT THE DIALOGUE](#)
REGISTER | LOG IN

November 4th - November 21st, 2010

Green & Healthy Homes Initiative



National Dialogue on Green and Healthy Homes

## Registration Form

**Username (required)**  
Enter a username, usually something like 'jsmith'. This is the name you'll use to log in. N.B. No spaces or special characters. Usernames and passwords are case-sensitive so check that the caps lock key is not enabled.

**Email (required)**  
Enter an email address. This is necessary in case you lose or forget your password. We respect your privacy and will not give the address away to any third parties or expose it anywhere.

**Password (required)**  
Minimum 5 characters.

**Confirm password (required)**  
Re-enter the password. Make sure the passwords are identical.

**Sector (required)**  
What is your sector?

Please select

**Interests (required)**  
What are your areas of interest? (You may pick two)  
To select more than one option, hold down Ctrl (or Cmd for Mac users) while making your



## APPENDIX F

### Panel and Staff Bios

#### Panel

**J. Christopher Mihm**\*, *Chair*--Managing Director, Strategic Issues, U.S. Government Accountability Office. Former positions with U.S. General Accounting Office: Director, Strategic Issues; Assistant Director, Federal Management Issues; Evaluator.

**Gary Christopherson**\*--Sculptor and Founder, viaFuture. Former Senior Advisor to the Chief Operating Officer, Centers for Medicare and Medicaid Services, U.S. Department of Health and Human Services; Senior Advisor to the Under Secretary of Health, U.S. Department of Veterans Administration; Deputy Director, Quality Improvement Group, Centers for Medicare and Medicaid Services; Acting Assistant Secretary and Principal Deputy Assistant Secretary of Defense for Health Affairs, U.S. Department of Defense; Associate Director, Office of Presidential Personnel, The White House.

**Parris Glendening**\*--President, Smart Growth Leadership Institute; President, Governors Institute of Community Design. Former Governor, State of Maryland. Former County Executive and Council Member, Prince George's County (Maryland); Associate Professor of Government and Politics and Assistant Professor of Government and Politics, University of Maryland College Park; Member, Hyattsville (Maryland) City Council.

**Franklin S. Reeder**\*--President, The Reeder Group. Former Director, Office of Administration, The White House. Former positions with U.S. Office of Management and Budget: Deputy Associate Director for Veterans Affairs and Personnel; Assistant Director for General Management and Deputy Assistant Director; Chief, Deputy Chief, Information Policy Branch; Policy Analyst; Chief, Systems Development Branch. Former Deputy Director, House Information Systems, Committee Staff, Committee on House Administration, U.S. House of Representatives. Former positions with U.S. Department of the Treasury and U.S. Department of Defense focusing on information technology and systems.

*\*Academy Fellow*

**Staff**

**Lois Fu, *Program Area Director***—Lois Fu is a Program Area Director at the National Academy of Public Administration. She has led the Academy effort in the fiscal future arena, and served as the Program Area Director for the Academy's joint project with the National Academies of Science, the Department of Commerce Office of Inspector General Project, and a number of projects funded by foundation grants. Ms. Fu brings over 30 years of public sector and non-profit experience in program management and policy development. She has served as a senior manager in a number of Federal agencies, including the Federal Transit Administration, Transportation Security Administration, and in the U.S. representative's office at the World Bank. In addition, Ms. Fu brings a working knowledge of the Congressional decision-making process, having served as a legislative assistant to Senator John Glenn and as the staff director for the Senate Subcommittee on Aging. Ms. Fu holds a B.A. in political science and a Master's degree in Public Policy from the University of Michigan.

**Danielle M. Germain, *Project Director***—Danielle Germain is the Director of the Academy's Collaboration Project, an independent forum of leaders committed to leveraging web 2.0 and the benefits of collaborative technology to solve government's complex problems. She led the Academy's successful White House Recovery Dialogue on IT solutions; and the first of its kind national pilot project on citizen engagement sponsored by the Federal CIO Council, Office of Management and Budget and the U.S. General Services Administration, titled "A National Dialogue on Health IT and Privacy." Ms. Germain's previous roles include: Chief of Staff, U.S. General Services Administration; various management positions at the American Council for Technology/Industry Advisory Council, the Council for Excellence in Government; the Information Technology Association of America (now TechAmerica), and IBM's Office of Governmental Programs; congressional aide to the late Senator Edward M. Kennedy. Ms. Germain earned her master's degree in International Relations and International Economics from the Johns Hopkins University School of Advanced International Studies and a Bachelor of Arts degree from Mount Holyoke College.

**Stephanie Bailenson, *Senior Advisor***—Stephanie Bailenson is a Senior Advisor at The National Academy of Public Administration. Previous Academy studies include an organizational assessment of the NOAA Climate Service and a financial structures and processes comparison for the FBI. Prior to joining the Academy, she served as the Director, Office of Coastal and Aquatic Managed Areas for Florida Department of Environmental Protection; Senior Policy Advisor at NOAA; and a Professional Staff Member for the U.S. Senate Committee on Commerce, Science, and Transportation. Served as a research assistant at the University of

Hawaii, Department of Zoology and a Teaching Fellow at Harvard University, Department of Government.

**Mark D. Hertko**, *Senior Research Analyst*—Mark Hertko is a Senior Research Analyst at the National Academy of Public Administration. Past Academy projects include the Department of Commerce, National Oceanic and Atmospheric Administration; Department of Interior, National Park Service; Environmental Protection Agency’s National Center for Environmental Innovation, Office of Environmental Information, Office of Water, Office of Environmental Justice, Office of Air and Radiation; Department of Energy’s Office of Energy Efficiency and Renewable Energy; and others. Former positions include: Government Relations Researcher Intern, Defenders of Wildlife; Quality Assurance/Quality Control Inspector for Indoor Mercury Contamination, Accord Enterprises; Community Relations Coordinator Intern, Illinois Environmental Protection Agency; Environmental Educator, Illinois Ecowatch.

**Daniel R. Honker**, *Analyst*—Daniel Honker is an Analyst with the National Academy of Public Administration. Mr. Honker has played an integral role in the Academy’s Collaboration Project and in over a dozen engagements advising and assisting Federal agencies in conducting public/stakeholder consultation online. Mr. Honker’s collaboration experience includes work with the White House, Department of Housing and Urban Development, Department of Energy, and Department of Homeland Security. He has also helped advise on issues of human capital and performance management with the Department of Defense. Previous positions include: Summer Associate, Federal Strategy and Operations, Deloitte Consulting, LLP; Graduate Research Assistant, George Washington University; and Planner, City of Austin Water Utility. Mr. Honker holds an M.P.A. from the George Washington University Trachtenberg School of Public Policy and Public Administration and a B.A. in Government from the University of Texas at Austin.

**Matthew Thomas**, *Research Associate*—Matthew Thomas is a Research Associate at the National Academy of Public Administration, where he works with Academy staff to assist Federal agencies with online stakeholder engagement and collaboration. Over the past two years, Mr. Thomas has worked on projects for Department of Homeland Security, the General Services Administration and the Department of Energy. Mr. Thomas’s duties at the Academy include engaging with clients, monitoring online civic engagement, and composing after-action reports. Prior to joining the Academy, Mr. Thomas worked as an administrative staff assistant for LogiCom Project Management and the American Association of Naturopathic Physicians. Mr. Thomas holds a Bachelor of Arts degree in Political Science from Tulane University.

**Celeste Luna, Project Assistant**---Celeste Luna joined the Academy after working as a Census Outreach Fellow for the Mexican American Legal Defense and Educational Fund. She has several years experience in customer service and provided administrative support and translation services at the Harrisonburg-Rockingham Free Clinic. Celeste earned her Bachelors of Arts degree from James Madison University in August 2009, with a major in International Affairs and a minor in Spanish. She has studied in Buenos Aires, Argentina; Guanajuato, Mexico; and Valencia, Spain.

**Mary Krulia, Graduate Associate**—Mary Krulia is a Graduate Associate at the National Academy of Public Administration working primarily with the Academy’s Collaboration Project to assist government with online stakeholder engagement and collaboration initiatives. Prior to joining the Academy, Ms. Krulia worked for two years as a legal administrative assistant at Steptoe & Johnson LLP. She has also held various internships in the public and nonprofit sectors, most recently with Street Sense, where she gained nonprofit management experience at the organization that produces DC’s street newspaper and raises awareness about homelessness. Ms. Krulia graduated with a Bachelor of Arts in Political Science and Broadcasting from Otterbein College in 2007. She expects to complete a master’s degree in Communication, Culture & Technology from Georgetown University in 2011.

## APPENDIX G

### Steering Committee Members

**Tim Aldinger**, Green Initiatives Consultant, National Association of Workforce Boards

**Matt Ammon**, Deputy Director of the Office of Healthy Homes and Lead Hazard Control, U.S. Department of Housing and Urban Development

**Bill Ariano**, Director, Maryland State Weatherization Board

**Georges Benjamin**, Executive Director, American Public Health Association

**Denise Fairchild**, Executive Director, Emerald Cities

**Yianice Hernandez**, Senior Program Director, Green Communities, Enterprise Green Communities

**Jacquelyn Mason**, Public Health Analyst, Center for Disease Control

**Cara Matteliano**, Vice President, Programs, Community Foundation for Greater Buffalo

**Marty Nee**, Acting Director, Regional Management and Technical Support Division, Office of Healthy Homes and Lead Hazard Control, U.S. Department of Housing and Urban Development

**Ruth Ann Norton**, Executive Director, National Coalition to End Childhood Lead Poisoning

**Stephanie Powers**, Project Director, Public Philanthropic Partnerships, Council on Foundations

**Eric Werling**, Indoor air PLUS Coordinator, Environmental Protection Agency

**Jonathan Wilson**, Deputy Director, National Center for Healthy Housing

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