



## Bringing Public Health into Urban Revitalization: Workshop in Brief

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## Bringing Public Health into Urban Revitalization— Workshop in Brief

On November 10, 2014, the Roundtable on Environmental Health Sciences, Research, and Medicine held a 1-day workshop titled “Bringing Public Health into Urban Revitalization.” The purpose of the workshop was to explore public health issues related to the redesign of major U.S. cities, focusing on recent examples from Detroit, Michigan; New York City; and Washington, DC. Workshop speakers showed how rebuilding efforts provide an opportunity to reimagine the built environment, increase a sense of community, increase the role of public health departments and health systems, and increase the use of green technologies (applications designed to use fewer resources while supporting human health and the environment). The workshop was divided into the following areas, which included presentations from invited speakers followed by discussion among the speakers and individual audience members:

- Overview
- Using green technologies in Washington, DC
- Rebuilding efforts in Detroit
- Transforming New York City
- Crosscutting issues that face all urban environments
- Closing remarks

This brief summary of the workshop highlights the dialogue that emerged from the individual speakers’ presentations and discussion sessions that followed, and it should not be seen as conclusions or recommendations from the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants and are not necessarily endorsed or verified by the Institute of Medicine (IOM) or the Roundtable, and they should not be construed as reflecting any group consensus. A full summary of the workshop that provides more detail of the presentations and discussion that ensued will be available in early 2016.

### OVERVIEW

Lynn Goldman, Dean of the Milken Institute School of Public Health at George Washington University, opened the workshop by noting that for many decades our cities were undergoing population loss but in recent years both younger and older people have become interested in living in cities again. There is currently much focus on urban living and urban environments, which provides an opportunity to create healthier urban communities. The three cities highlighted during the workshop—Washington DC; Detroit; and New York—all went through rebuilding efforts that were done quite differently. She noted that the workshop presenters were asked to outline the unique approaches and ideas that were used, creative energy that was stimulated, and the many opportunities that were present for public health in the context of urban revitalization.

## USING GREEN TECHNOLOGIES IN WASHINGTON, DC

Gregory Kats, President of Capital E,<sup>1</sup> noted that the transformation and innovation taking place in our cities is enormously important to the quality of day-to-day life as well as long-term quality of the global environment. He spoke about green buildings (designed to use fewer resources and support the health of inhabitants) and the costs and benefits of these designs. In his research, the benefit–cost ratio of green buildings is about 2.5 to 1, just based on utility bills.<sup>2</sup> There are health benefits as well, which are complicated to measure, because there are limited data on these benefits specifically attributed to green building design.<sup>3</sup> However, a variety of peer-reviewed international studies have shown that elements of green building design may benefit health and productivity (e.g., reduced asthma symptoms and reduced colds and flu, and associated effects on absenteeism and student and worker performance).<sup>4</sup> While the health effects are rather small (3 to 10 percent improvements), health still drives very large dollars per square foot of space because the cost of a person is so large relative to the cost of building utilities. When you add in the health and productivity benefits, the benefit–cost ratio for building green is substantially higher than when considering energy and water benefits alone.<sup>2</sup> In the economic downturn there was a question of whether green buildings would thrive or be phased out, but the growth of green buildings has been very dramatic and in less than a decade has gone from an outlier to the design standard.

In Washington, DC, work is being done to understand the costs and benefits for green roofs and cool roofs.<sup>5</sup> Kats explained that the benefits of cool roofs are direct (from reflecting and efficiently emitting heat from sunlight) and indirect (from cooling the ambient air around a building). Green roofs retain water and release it gradually, allowing a green medium to grow on top of the building. In comparing the costs and benefits of both roofs, there is a significant cost for the green roof compared to the cool roof (about \$20 per square foot compared to just under \$1 per square foot, respectively). But when the benefits are mapped, of which storm water management is a large driver, the square foot benefit of the green roof is about \$61 compared to \$5 for the cool roof. The health benefits (including benefits associated with reduced ozone and fine particulate matter exposure and heat-related mortality) alone accounted for about \$3 per square foot of the total benefit for both roofs. So looking at the cost of the cool roof (\$1 per square foot) and just the health benefits (\$3 per square foot) leads one to say this should be the standard design policy from a city official perspective.<sup>6</sup>

Brendan Shane, Chief of the Office of Policy and Sustainability at the DC Department of Environmental Health, discussed the Sustainable DC Plan, an ambitious set of goals to make the District the healthiest, greenest, and most livable city in the United States over the next 20 years.<sup>7</sup> The framework is organized around four challenges: (1) jobs and the economy, (2) health and wellness, (3) equity and diversity, and (4) climate and the environment. Shane noted that 80 percent of the 143 actions are under way even though some of the solutions are very long term. Looking at health and wellness, there are chronic health problems in the District and chronic inequalities associated with them. The two primary indicators that the plan focuses on are obesity (which is extremely high in southeast DC) and asthma (which is more spread across the city). The first goal is to inspire healthy, active lifestyles for all residents, and the associated indicator is to cut the citywide obesity rate by 50 percent by 2032. The second goal is to create safe environments

<sup>1</sup> Capital E is a national clean energy and green design advisory firm that also partners with national organizations to document the cost-effectiveness of new green policy initiatives. More information is available at <http://cap-e.com> (accessed October 16, 2015).

<sup>2</sup> Kats, G., J. Braman, and M. James. 2010. *Greening our built world: Costs, benefits, and strategies*. Washington, DC: Island Press.

<sup>3</sup> In this context, green building design refers to construction certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system or another similar rating system.

<sup>4</sup> Kats, G., J. Braman, and M. James. 2010. *Greening our built world: Costs, benefits, and strategies*. Washington, DC: Island Press.

<sup>5</sup> Green roofs (sometimes referred to as vegetated roofs) are covered with soil (ranging in depth from 2–3 inches to 6 inches or deeper) and a variety of plants to reduce storm water runoff and promote cleaner air. Cool roofs use a material that increases light reflection, reduces heat absorption, and cools the building interior.

<sup>6</sup> Kats, G., and K. Glassbrook. 2015. *Washington, DC, smart roof cost-benefit report*. [http://cap-e.com/wp-content/uploads/2015/04/DC\\_SmartRoofReport\\_2015-04-16.pdf](http://cap-e.com/wp-content/uploads/2015/04/DC_SmartRoofReport_2015-04-16.pdf) (accessed June 22, 2015).

<sup>7</sup> The Sustainable DC Plan is available at [http://www.sustainabledc.org/wp-content/uploads/2012/10/SDC-Final-Plan\\_0.pdf](http://www.sustainabledc.org/wp-content/uploads/2012/10/SDC-Final-Plan_0.pdf) (accessed October 16, 2015).

that are conducive to healthy living, and the associated indicator is requiring all new housing projects in the District to meet “Healthy by Design” standards, with a priority focus in low-income and underserved neighborhoods.

Within the Sustainable DC Plan there are also big picture goals for climate, Shane stated, one of which is to advance physical adaptation and human preparedness to increase the District’s resilience to future climate change. An associated target is focused on structures, requiring that all new buildings and infrastructure projects undergo climate impact analysis. A Climate Resiliency and Adaptation Plan is under way with a three-part study that will: (1) analyze climate effects, (2) assess risks and vulnerabilities, and (3) identify and prioritize solutions. A preliminary analysis of the effect of expanding cool roof systems throughout the city showed that a 10 percent increase in urban surface reflectivity could reduce the number of deaths during heat events by an average of 6 percent.<sup>8</sup> However, the majority of the benefit is actually seen in Prince Georges County in Maryland because of wind patterns, so this is a problem that cannot be solved alone, and Virginia needs to become more reflective to see greater impacts in the District.

During the discussion session Faiyez Bhojani, Chief Medical Officer of Global Manufacturing and Chemicals at Royal Dutch Shell, noted that the company is focusing on value in investment rather than return on investment for its health initiatives. He asked the presenters to comment on how the company can best use some of the quantifications that were provided. Shane explained that the Washington, DC, government is a small actor when it comes to controlling the city’s carbon emissions, which account for 6 percent of the total emissions compared to 94 percent in private control. In terms of quantification, the DC Chamber of Commerce wants to focus on the business case to challenge companies to choose sustainable options for economic reasons or other benefits and create large-scale movement in the market. He noted that more research is needed in this area to build a strong business case and make connections with the private sector to disseminate the data and information.

## REBUILDING EFFORTS IN DETROIT

Dan Kinkead, Director of Projects at the Detroit Future City Implementation Office, explained that he would describe the planning effort that led to the Detroit Future City Strategic Framework and the implementation efforts that are moving the project forward.<sup>9</sup> He noted that approximately one-third of the land in Detroit is vacant and half of the land in the city is home to all of Detroit’s population. Despite all this vacant land, Detroit ranks lowest in the country for available park space per resident, and the city struggles with high obesity and heart disease rates. The Detroit Future City project is a 50-year land use vision for the city that includes strong civic engagement and five main planning segments: (1) economic growth, (2) land use, (3) city systems, (4) neighborhoods, and (5) land and building assets. The project uses a new land use strategy with more green neighborhoods that have concentrated development to promote walkability and employment for more strategic renewal. The project also focuses on a comprehensive citywide water infrastructure system to prevent sewer overflow discharges into the Detroit River and an open space network to create parks, carbon forests, and innovative ecological land assets.

Kinkead noted that the implementation plan is bound in partnerships that provide catalytic action for activating the Detroit Future City Strategic Framework. Implementation priorities include: (1) creating an open space network to reuse vacant land, (2) renewing systems strategically and innovatively, (3) improving quality of life, (4) employing more Detroiters, and (5) strengthening civic capacity. He provided additional detail on projects that fall within these priority areas. For instance, the Carbon Buffering Pilot Program is focused on planting trees on the public land adjacent to highways to block particulate matter and begin improving air quality. The Dendro-Remediation Pilot Program also plants trees but does so to reduce soil toxicity on former industrial and commercial sites and to create a land-holding pattern for the market. The Springwells Deconstruction Pilot is using innovative predemolition residential deconstruction techniques to mitigate contaminate output from the 40,000 to 60,000 structures that need to come down throughout the city. Another project is looking at dust management techniques to limit exposures to both contractors and the community when demolition and restoration efforts are taking place.

Loretta Davis, President and CEO of the Institute for Population Health, started by talking about a “health in all policies” approach in policy making, which recognizes that many policy decisions affect the social determinants of health and ensures that all policies made outside the health sector have either a positive or neutral effect on the respec-

<sup>8</sup> Kalkstein, L. S., D. Sailor, K. Shickman, S. Sheridan, and J. Vanos. 2013. *Assessing the health impacts of urban heat island reduction strategies in the District of Columbia*. <http://www.coolrooftoolkit.org/wp-content/uploads/2013/10/DC-Heat-Mortality-Study-for-DDOE-FINAL.pdf> (accessed June 21, 2015).

<sup>9</sup> More information about Detroit Future City is available at <http://detroitfuturecity.com> (accessed October 16, 2015).

tive determinants of health. She noted that it is important to conduct health impact assessments prior to considering new policies in order to inform people of how to achieve the best health results. The role of local health departments is critical in this type of approach since they are well positioned to recommend specific interventions.

Davis next talked about Michigan Power to Thrive, an alignment of two powerful disciplines—community organizing and public health—in a mutual effort to create health equity and social justice in Michigan. From a statewide perspective, Michigan Power to Thrive has public health professionals, religious institutions, schools, and businesses coming together behind a health in all policies approach for Detroit’s future. Not all of the cities across Michigan are dealing with the same challenges, so eight main network sites are organized around different issues, including housing, immigration, infant mortality, minimum wage, school closings, and transportation. Some tensions have been discovered in trying to work together across disciplines. For example, the public health people better understand the community organizer world, but the community organizers need more help to understand public health. There are also tensions with deep structural change where the dominant narratives focus on worries about gentrification,<sup>10</sup> equity, and fair treatment for all. Davis stated that public health professionals should work to create deep relationships with those who understand, and build power to create health equity and vibrant communities that are not just free from disease but that also promote health.

Kimberlydawn Wisdom, Senior Vice President of Community Health and Equity and Chief Wellness Officer at the Henry Ford Health System, noted that health is more than just clinical care delivery systems. She said health professionals need to take health into the community. The vision statement for the Henry Ford Health System is “transforming lives and communities through health and wellness—one person at a time,” and the health system is operationalizing health in all policies efforts in Detroit. She provided an example of a 300-acre redevelopment site in the midtown area of Detroit that provided an opportunity to deconstruct and mitigate environmental hazards. The vision for this land is to blend the redevelopment seamlessly into the community to create a vibrant, walkable place where people want to stay. The development plans include a cancer center of excellence and also mixed-income housing to provide employees with the ability to reside close to their work site. There is a major effort to develop complete streets with sidewalks, bikeways, and other spaces for physical activity to occur.

Wisdom talked about changes being made to the main part of the Henry Ford Health System campus. Dedicated bike lanes have been installed around the main hospital, new lighting and tree planting efforts are taking place, and work is under way to build a pedestrian walkway over a major freeway that runs between sites. The health system is engaging the community to bring art and entertainment to the campus. For example, local students have repainted overpasses and community members have come together to create a mosaic mural. The main hospital now serves as a community center for people to come play cards, eat and enjoy the food, and even have weddings.

Chris Leinberger, Real Estate Department Chair at the George Washington University School of Business, noted during the discussion session that he was thrilled to hear Wisdom using real estate terms such as complete streets, place making,<sup>11</sup> walkability, and bikability. He stated that only a handful of hospitals embrace their communities even though they are anchored there, and it is great to see change happening in Detroit. Leinberger shared survey results from work done at George Washington University, where Detroit ranked 22nd out of the 30 largest metro areas in the country as far as walkable urbanism. When using the same survey instrument to look at future rankings Detroit moves to 8th, and it has the second highest market capture of walkable urban development in the country. It has basically stopped sprawling, he said. From a hypothetical point of view, it appears that 12 out of the 30 metro areas will follow and stop sprawling in the next real estate cycle. This will mean that 80 to 90 percent of all development in these areas will go to less than 10 percent of their existing land mass. He noted that this raises issues of what to do with the other 90 percent of the metropolitan land, questions of gentrification, and how to use social equity measures and policies.

<sup>10</sup> Gentrification refers to the increase of middle- and upper-income residents moving into lower- or working-class neighborhoods, often accompanied by an increase in amenities and retail that serve the newer residents. Gentrification can result in driving low-income residents out of their community, but it can help return middle-class families to disinvested areas.

<sup>11</sup> In this context, place making refers to a community-based approach to the planning, design, and management of public spaces that promotes health and wellness.

## TRANSFORMING NEW YORK CITY

Nupur Chaudhury, Project Manager at Rebuild by Design, focused her presentation on the community approach to postdisaster rebuilding by providing examples from the Rebuild by Design competition that was initiated in response to Hurricane Sandy.<sup>12</sup> The Hurricane Sandy Taskforce and U.S. Department of Housing and Urban Development (HUD) funded the competition and provided money to help implement the winning projects. After 148 teams applied, 10 teams were selected to work over the course of 1 year with communities on the ground in the Sandy-affected regions to determine the problems and solutions in those areas. The teams were required to look at architecture, landscape, urban design, and at the whole region and to show that the communities actually endorsed the interventions. Each team invested a substantial amount of time working in the communities to get a face-to-face understanding of the struggle post-Sandy. They also created comprehensive coalitions of stakeholders that were place-based within each of the communities and hosted nontraditional events for community collaborations (such as a slam bake or bike tour with discussion at the end).

Chaudhury provided further detail of three different team proposals. The first looked at lower Manhattan and how to build a surrounding wall that could be a piece of infrastructure that responded to each neighboring community. In one area the wall is community public space, in another it is a bike path, and in another it is a park. The proposal took into account what each community wanted as well as creating a comprehensive disaster prevention strategy for that area. The second proposal focused on New Meadowlands, New Jersey, and how to provide flood protection and transform the back of different towns that face the Meadowlands wetlands area into assets. The team developed a berm (or, sand barrier) that could also be used for economic development, new housing, and a regional park. The third proposal looked at Hunts Point, a key food supply area for New York City, New Jersey, and parts of Connecticut. The team thought about how to protect the region from future storms (with integrated flood protection and a maritime supply chain), how to use the local community in the construction efforts (by purchasing materials created in the South Bronx area and employing local community members), and how to create more open space and cleaner air (improved management of freight routes). Six of the 10 teams had winning proposals with \$920 million in federal disaster funds available for implementation.

During the discussion session Chaudhury responded to a number of questions on funding, timing, cocreation, and health awareness. The funding for the winning proposals came from HUD; funding for the proposal creation process came from the Rockefeller Foundation, Surdna Foundation, and JPB Foundation; and funding for the implementation phase came from the Rockefeller Foundation. She elaborated on the timeframe, noting that many of these projects will take a generation to build so having community endorsement was especially important to make sure the residents stay motivated and invested in the plan itself. The cocreation effort was also important to allow the community and the designers and architects to work together and learn from each other to create a transformative plan and now work together on the implementation phase. Chaudhury noted that when public health professionals talk about the social determinants of health without using formal public health terminology and talk explicitly and plainly about food, jobs, housing, and urban infrastructure, they are able to engage more with the community.

## CROSSCUTTING ISSUES THAT FACE ALL URBAN ENVIRONMENTS

Matthew Trowbridge, Senior Research Fellow at the U.S. Green Building Council and Associate Professor in the Department of Emergency Medicine at the University of Virginia School of Medicine, noted that with this session it is important to focus on scaling up and creating infrastructure for innovation. He noted that the Active Design Guidelines,<sup>13</sup> which bring together perspectives from designers and public health practitioners, are quite important for new opportunities because they are actionable and provide real tools for market. People are starting to experience very different built environments that are highly designed, such as High Line Park in New York City, which is more than a utilitarian park and really compels a person to walk the entire space to view the unique aspects. All across the United States, people on the ground are turning these design ideas into reality. For example, in Nashville, Tennessee, a new health center incorporated active design to essentially create an indoor track across the top of the lobby that facilitates walking meetings.

<sup>12</sup> More information on Rebuild by Design is available at <http://www.rebuildbydesign.org> (accessed October 16, 2015).

<sup>13</sup> City of New York. 2010. *Active design guidelines: Promoting physical activity and health in design*. New York: City of New York.



Trowbridge explained that for scaling up to be possible it is important to make healthy places investable, and this includes providing measures for the market. While the green building industry has been addressing health-related issues, there has not been a formal public health framework within the Leadership in Energy and Environmental Design (LEED) program, the green-building certification program developed by the U.S. Green Building Council. To acquire LEED certification, buildings must achieve a variety of credits, or points, the sum of which determines the level of LEED certification. Inclusion of a structured public health framework within LEED credit categories could serve as a potentially powerful partnership for increasing use of health-related credits. It will be important to narrow the terminology used by LEED to describe health-related issues because the current language uses a wide range of words to describe health, many of which are not used in the public health field. Trowbridge has also worked on possible performance criteria for health and wellness metrics that may bridge the needs of the real estate industry with those of the public health world. His recent article in *Health Affairs* outlines the need for actionable, community-relevant, practical, and valuable metrics to evaluate the performance of real estate projects from a population health perspective and allow a developer to employ the metrics on an appropriate scale.<sup>14</sup>

Nicolas Freudenberg, Distinguished Professor of Public Health and Social/Personality Psychology at Hunter College of the City University of New York, joined the workshop by phone and discussed his work in community development with a particular focus on health equity. First, he asked how public health professionals can ensure that community development initiatives designed to improve health can contribute to shrinking, rather than widening, inequalities in health. One possible solution is to make sure all sectors of communities, including those who are sometimes disenfranchised, are involved in the planning and decision-making process to maximize the potential for improvements to benefit everybody, not just the better off. Second, he asked what role health professionals can play between market forces and community environments in order to improve health. The classic solution for market failures such as information asymmetries, externalities, and inefficiencies is government intervention. In several sectors—education, food, housing, and transportation—the public sector and market sector coexist, sometimes in partnership and sometimes in competition. It is important for city governments and community development projects to look at leveraging the public sector to correct market failures and create healthier environments, particularly for vulnerable populations. Third, he asked how public health professionals can better integrate job creation, workforce development, and job training into community development initiatives. One method is by increasing the number of community health workers, which creates new jobs within poor communities and benefits the community by improving health. The green jobs sector and food sector may also provide opportunities to create entry-level jobs and pathways to better-paying permanent positions.

Hazel Edwards, Director of the Master of City and Regional Planning Program and Associate Professor at Catholic University of America, discussed how mobility, land use, food access, affordable housing, and community engagement are important crosscutting issues for both public health professionals and architects. Specific interventions to improve mobility include widening sidewalks, developing bike lanes, planting trees that provide shade, and adding pedestrian lighting. Land use improvements should focus on bringing the community together through mixed use spaces that can be used for flea markets, farmers markets, playgrounds, plazas, and open neighborhood space. Community gardens and urban agriculture are helping to address food access issues while engaging parents and children. Affordable housing projects may need to get more creative and rely on flexibility in zoning to transform primarily commercial areas into vibrant arts districts or new types of development. Community engagement relies on connecting with a variety of community members and also partnering with many organizations that exist in the area. Open dialogue should take place early and often and include representatives from city agencies such as planning, transportation, economic development, housing, and health and human services.

During the discussion Sarah Hammerschmidt, Associate at the Urban Land Institute, noted that the institute is partnering with the Center for Active Design to provide a set of 21 strategies with documented health improvements that can be implemented into development projects from the building scale to the community scale. Freudenberg elaborated on ways to rethink how Supplemental Nutrition Assistance Program (SNAP) funds can be spent to create healthier, affordable food options. Community-driven marketing campaigns are being developed to encourage people—particularly those in public housing where high rates of diet-related disease exist—to patronize local stores with healthier options as a way of growing these businesses and increasing demand. Freudenberg also commented on how training is being provided to community health workers and the viability of these jobs. He noted that there is action at

<sup>14</sup>Trowbridge, M. J., S. Gauche Pickell, C. R. Pyke, and D. P. Jutte. 2014. Building healthy communities: Establishing health and wellness metrics for use within the real estate industry. *Health Affairs* 33(11):1923-1929.

the state level to certify community health workers and make them eligible for different kinds of reimbursement from insurance companies, and it is possible that they could take on new roles in chronic disease management and prevention. Canice Nolan, Senior Coordinator for Global Health at the European Commission, noted the need for a network of people willing to work together to stimulate the market to incentivize for creating smarter cities and develop common standards so people are not always reinventing the wheel or repeating old mistakes.

### **CLOSING REMARKS**

Frank Loy closed the workshop with a few comments. He stated that the workshop discussions emphasized health as more than providing medical services, and to improve health people need to promote the environment in a sustainable and equitable way. For public health professionals to make progress it is important to involve private enterprise and the community. The most effective way to demonstrate that the private sector should get involved in health issues is to demonstrate it is profitable, and the information provided on the return on health-related investments was a very powerful argument, he said. With respect to the community, an equitable society or the desire for fairness needs to be present to improve the health of the various populations. He noted the idea of using health facilities (like a hospital) for community activities was quite novel and a great way to make that institution less formidable and integrate it with the local community. Loy stated that in the discussion of Rebuild by Design it was interesting to see how foundation money enabled architects, designers, health professionals, and others to organize themselves so they could maximize and optimize the use of federal or government funding.◆◆



## Roundtable on Environmental Health Sciences, Research, and Medicine

### Frank Loy (Chair)

U.S. Representative to the 66th Session of the General Assembly of the United Nations

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Milken Institute School of Public Health, George Washington University

### Henry A. Anderson

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### James K. Bartram

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**DISCLAIMER:** This workshop in brief has been prepared by **Erin Rusch** as a factual summary of what occurred at the meeting. The statements made are those of the authors or individual meeting participants and do not necessarily represent the views of all meeting participants, the planning committee, or the National Academies.

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\*IOM planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published Workshop in Brief rests with the institution.

**REVIEWERS:** To ensure that it meets institutional standards for quality and objectivity, this workshop in brief was reviewed by **Faiyaz Bhojani**, Royal Dutch Shell, and **Nsedu Obot Witherspoon**, Children's Environmental Health Network. **Chelsea A. Frakes** served as the review coordinator.

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For additional information regarding the meeting, visit <http://iom.nationalacademies.org/Activities/Activities/Environment/EnvironmentalHealthRT/2014-NOV-10.aspx>.

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