Advancing Obesity Solutions Through Investments in the Built Environment: Proceedings of a Workshop

DETAILS

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ADVANCING OBESITY SOLUTIONS Through Investments in the Built Environment

PROCEEDINGS OF A WORKSHOP

Steve Olson, *Rapporteur*

Roundtable on Obesity Solutions

Food and Nutrition Board

Health and Medicine Division

The National Academies of
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This Proceedings of a Workshop was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies of Sciences, Engineering, and Medicine in making each published proceedings as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the charge. The review comments and draft manuscript remain confidential to protect the integrity of the process.

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Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the content of the proceedings, nor did they see the final draft before its release. The review of this proceedings was overseen by **MARY T. STORY,** Duke University. She was responsible for making certain that an independent examination of this proceedings was carried out in accordance with standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the rapporteur and the National Academies.

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Introduction

The built environment—the physical world made up of the homes, buildings, streets, and infrastructure within which people live, work, and play—underwent changes during the 20th and 21st centuries that contributed to a sharp decline in physical activity and affected access to healthy foods. Those developments contributed in turn to the weight gain observed among Americans in recent decades (IOM, 2012; Sallis and Glanz, 2009; TRB and IOM, 2005). Many believe, therefore, that policies and practices that affect the built environment could affect obesity rates in the United States and improve the health of Americans (IOM, 2012).

A workshop titled Advancing Obesity Solutions Through Investments in the Built Environment[1] was held on September 12, 2017, to improve understanding of the roles played by the built environment in the prevention and treatment of obesity and to identify promising strategies in multiple sectors that can be scaled up to create more healthful and equitable environments. The workshop was convened by the Roundtable on Obesity Solutions, which is part of the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine.

Bill Purcell, currently with Farmer Purcell White & Lassiter, PLLC, and former mayor of Nashville, Tennessee, introduced the workshop and

[1] The planning committee's role was limited to planning the workshop, and this Proceedings of a Workshop was prepared by the workshop rapporteur with staff assistance as a factual summary of what occurred at the workshop. Statements, recommendations, and opinions expressed are those of individual presenters and participants, and are not necessarily endorsed or verified by the National Academies of Sciences, Engineering, and Medicine, and they should not be construed as reflecting any group consensus.

BOX 1-1
About the Roundtable on Obesity Solutions
(Presented by Bill Purcell)

The Roundtable on Obesity Solutions was established by the National Academies of Sciences, Engineering, and Medicine in 2014 to engage leaders from multiple sectors to solve the obesity crisis.

The roundtable has focused on the current state of obesity solutions and how to drive progress. Through meetings, public workshops, publications, and four innovation collaboratives, the roundtable serves as a trusted venue for inspiring and developing multisector collaborations and policy initiatives to prevent and treat obesity and its adverse consequences throughout the entire life span and eliminate obesity-related health disparities, as well as highlighting promising solutions to overcome challenges in implementation and scalability.

BOX 1-2
Workshop Statement of Task

An ad hoc committee will plan and conduct a 1-day public workshop that will examine how investments in the built environment and transportation contribute to the prevention and treatment of obesity and will explore how to advance their impact and add to the overall health and well-being of communities. The workshop will feature invited presentations and discussions that will address relevant topics that affect opportunities and the abilities of community members to achieve and maintain healthy weight, as well as the challenges communities face. These topics may include issues related to the built environment and transportation, including access to food, beverage, physical activity, and other supportive services in urban, suburban, and rural communities. The workshop will also address disparities and relevant issues in marginalized communities, as well as potential adverse consequences that have been shown to occur when efforts are made to implement change and how they can be avoided.

presented background on the roundtable. Box 1-1 summarizes Purcell's description of the roundtable, and Box 1-2 provides the full statement of task for the workshop. As stated in the workshop agenda (see Appendix A), the workshop's objectives were to

> introduce attendees to evidence-based principles of designing built environments to support health and reduce the risk of obesity; describe

examples of successful multisector strategies (policies, programs, projects, and public investments) that are creating health-promoting built environments; discuss approaches for ensuring that built environment strategies improve health equity and environmental justice; discuss strategies by which promising, effective, and equitable built environment strategies to improve health can be scaled up and institutionalized; and discuss who can be involved and what are the next steps.

OVERVIEW OF THE BUILT ENVIRONMENT

Highlights from the Presentation of James Sallis

- The way cities and towns are structured has changed dramatically in the last century, and the multiple impacts of those changes on human health are becoming more clear.
- Understanding the impacts of the built environment on obesity calls for the development of new methods, models, and collaborations.
- Although there is growing evidence that the built environment affects health, public health officials are not involved in decision making regarding the built environment, although recent efforts have highlighted the linkages between public health and urban planning.

In his introductory remarks, James Sallis, distinguished professor of family medicine and public health, University of California, San Diego, provided a broad overview of how the built environment can affect weight. Throughout most of human history, he noted, the structure of cities was based on the assumption that people would walk wherever they wanted to go. Even in the first part of the 20th century, he observed, people walked on the streets despite having to dodge obstacles such as horses, streetcars, and other pedestrians. Then, he said, motor vehicles took over the streets, and "everything changed." "This may be one of the biggest experiments in human history," he added, "and we are now starting to evaluate the outcomes on health."

Other changes in the built environment have also had potential effects on physical activity and weight, Sallis observed. He cited zoning laws that separated residential, commercial, and industrial uses and increased the distances between homes, jobs, and commerce, which in turn affected walking. Many towns and cities became spread out along roads, he explained, making them "no longer scenic or functional because [people had to] drive

just about everywhere." He pointed out that these same roadways became cluttered with large, eye-catching signs and billboards that often advertised unhealthy foods. The result, he argued, has been a built environment that discourages physical activity and encourages unhealthy eating.

Sallis then noted that the impact of these changes on obesity is a question that was rarely even asked before the 21st century. Investigating the relationships between the environment and obesity called for developing new collaborations, models, and methods, he observed; "it was not just applying the same old ideas and methods to a new question." He and his colleagues documented the increase in research on policy and environmental impacts on nutrition and physical activity by looking at research abstracts presented at conferences of the Society of Behavioral Medicine (SBM), an interdisciplinary organization of clinicians, educators, and researchers that investigate the links among behavior, biology, and the environment. Sallis and colleagues found that in 2000, only 5 percent of nutrition or physical activity research abstracts presented at SBM conferences contained environmental or policy content (Sallis et al., 2013). By 2010, that percentage had increased to 17 percent (Sallis et al., 2013). Sallis attributed this increase partly to the establishment of Active Living Research and Healthy Eating Research, two national research programs funded by the Robert Wood Johnson Foundation to stimulate research on the environments, policies, and practices that support physical activity and healthy eating, respectively.

Sallis observed that despite growing evidence of environmental influences on health, health care providers and public health officials are not the ones making decisions about parks or transportation. He argued that changing the built environment requires new partnerships among multiple sectors, including retail food, city planning, urban design, real estate, transportation, architecture, parks and recreation, criminology, economics, law, advocacy, and public health. Many examples of such partnerships exist, he noted, and are described in a number of resources, including a special September 2016 issue of *The Lancet* devoted to urban design, transport, and health (*The Lancet*, 2016); *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities* (HHS, 2015); and a report of the Community Preventive Services Task Force on combining transportation system interventions with land use and environmental design (Heath et al., 2006). "We need to be thinking about linking our agenda with other agendas to create strength," Sallis asserted.

Sallis closed by suggesting that increasing awareness of the links among the built environment, physical activity, and obesity has led to many positive developments. But, he said, "we are still building places that we have evidence are going to cause ill health. Many people, if not the majority of people, in the United States are living in places that create ongoing seri-

ous barriers to healthy eating and active living. There is much more to be done."

ORGANIZATION OF THIS PROCEEDINGS

This summary of the workshop proceedings largely follows the workshop agenda (see Appendix A). Chapter 2 summarizes the first session of the workshop, which provided an overview of the relationships among the built environment, obesity, and health. Chapter 3 contains three case studies from leaders who are changing the built environment at the local, regional, and state levels. Chapter 4 addresses a challenge in using the built environment to advance obesity solutions: making healthy environments equitably available. Finally, Chapter 5 summarizes the last session of the workshop, which featured an open-ended discussion of potential opportunities for action to improve the health of Americans through modifications to the built environment. The acronyms and abbreviations used throughout this proceedings are listed in Appendix B, and biographies of the speakers and facilitators can be found in Appendix C.

2

The Built Environment, Obesity, and Health

Highlights from the Presentations of Individual Speakers

- Urban planning and design decisions influence health and well-being through a variety of direct and indirect pathways, and each of these pathways points to interventions that can affect health outcomes. (Rodrigo Reis)
- Creating healthy urban environments will require coordination among many sectors and systems. (Rodrigo Reis)
- Indicators such as legislation and policies, government investments in transportation, urban and transportation planning and design, transportation outcomes, and risk exposure outcomes can be used to monitor cities' progress in improving the built environment. (Rodrigo Reis)
- Transportation and land use can positively mediate the built environment's impact on health through factors such as higher connectivity of streets, reduction in traffic, ease of bicycling, and access to mass transit. (Daniel A. Rodríguez)
- Policies and economic factors can affect what foods are available and how much they cost through their influence on the food environment in stores, restaurants, worksites, and schools. (Karen Glanz)
- Interventions to change the food environment have shown mixed results in improving eating behavior or body mass index (BMI). (Karen Glanz)

The first session of the workshop, which was moderated by Parris Glendening, president of Smart Growth America's Leadership Institute and the Governors' Institute on Community Design and governor of Maryland from 1995 to 2003, provided an overview of the relationship among the built environment, obesity, and health. In his opening remarks, he framed the session by describing the current built environment as a contributor to poor health outcomes, stating,

> It simply does not make any sense that a 2,000-pound machine that we call an automobile drives 2 miles in order to get 1 quart of milk. Yet that is not only the way many people live, that is what we continue to build in significant parts of the country. . . . People are still getting sick, limiting their quality of life, and dying because of decisions that continue to be made about the built environment.

This topic was explored further by the session's presenters. The first presenter outlined a broad framework that links urban planning and policy decisions to human health and well-being, and the next two presenters looked more closely at the roles of transportation, land use, and the food environment in the health of individuals and communities.

A FRAMEWORK FOR INTERVENTIONS

The 21st century poses many challenges to human health, including chronic disease, depression, road traffic injuries, air pollution, chronic noise, social isolation, fear of crime, and health inequities, observed Rodrigo Reis, professor of public health, Washington University, St. Louis, Missouri. All of these health challenges can be connected to urban planning, city design, and social policies, he asserted. He added that this connection between health and the built environment is garnering increased attention worldwide, noting further that six of the goals and 14 of the targets in the United Nations Sustainable Development Goals are connected to urban planning or design (United Nations, 2015).

Built environments are interconnected with human lives, Reis continued. To illustrate this point, he used the example of how urban planning can mediate the impact of natural disasters. During such a tragedy, he explained, a lack of proper urban planning can make life worse for people on the ground, and the consequences can be especially severe for people with limited resources. He noted that this workshop was being held shortly after Hurricanes Harvey and Irma had devastated parts of the Caribbean islands and the U.S. mainland, observing that "the human tragedies we are seeing now are reminding us how important it is to know where and how to make society a better place for everybody."

Reis was co-author of a paper in the September 23, 2016, special issue of *The Lancet* on urban design, transport, and health (Giles-Corti et al., 2016). That paper lays out a comprehensive framework of direct and indirect pathways through which urban planning and design decisions influence health and well-being (see Figure 2-1). The authors also describe eight strategies that urban policy makers can use to improve the health of city dwellers. The urban and transport planning and design interventions in the framework are organized around eight constructs within regional planning (destination accessibility, distribution of employment, and demand management) and local urban design (design, density, distance to transit, diversity, and desirability).

Reis pointed out that this framework goes well beyond the health sector, calling for integration of policies around transport, employment and economic development, social and health services, education, land use and urban design, housing, public open space and recreation, and public safety. "We are advocating for those different sectors to coordinate their actions around planning and designing cities," he said. He argued that although different sectors have different priorities, they can still work together on priorities they share, including health outcomes. Coordinated action, he explained, is key. "If we coordinate actions across those different sectors, we are more likely to make improvements in regional planning and local design," he explained. "We are talking about a more comprehensive approach to improve cities for everybody."

The interventions suggested by the framework cannot be implemented without proper governance, Reis insisted. He elaborated by explaining that good governance has several components: it is accountable, transparent, responsive, equitable, inclusive, effective, efficient, participatory, consensus oriented, and law-abiding. He observed that in places such as the United States, where the governance structure is well established, interventions can be easier to implement. "It is essential to talk about proper governance, because somebody needs to pay for changes," he said. "Somebody needs to invest time, money, and political will." He added that public demand is the major driver for changes in public transportation, and transportation demand is influenced by attitudes and preferences, social and cultural norms, and mobility needs. Therefore, he argued, if transportation is to change, people may need to advocate for access to high-quality public transportation, cycling, walking, and reduced use of private cars.

Reis continued by explaining that the framework (see Figure 2-1) identifies eight risk exposures—traffic, air pollution, noise, social isolation, personal safety, physical inactivity, prolonged sitting, and unhealthy diet—related to urban and transport planning and design decisions, which it divides into environmental, social, and behavioral categories. The interventions included in the framework are meant to reduce each of these risks.

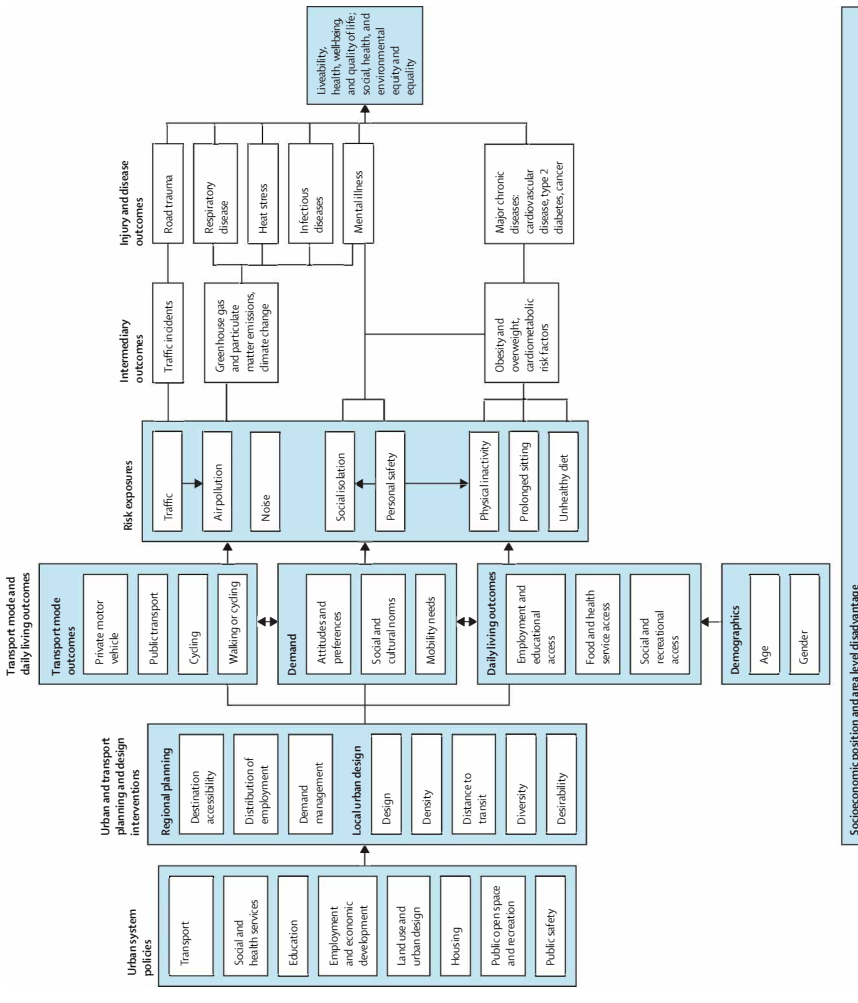

FIGURE 2-1 Direct and indirect pathways by which urban and transport planning and design decisions influence health and well-being.
SOURCES: Presented by Rodrigo Reis, September 12, 2017. Reprinted from *The Lancet*, Vol. 388, Billie Giles-Corti, Anne Vernez-Moudon, Rodrigo Reis, Gavin Turrell, Andrew L. Dannenberg, Hannah Badland, Sarah Foster, Melanie Lowe, James F. Sallis, Mark Stevenson, Neville Owen, City planning and population health: A global challenge, 2912–2924, Copyright (2016), with permission from Elsevier.

Changing these risk exposures can have multiple effects, Reis observed. He gave the example of increasing active transportation (walking, cycling, and public transportation), which can have a direct health benefit for the people who partake, but can also reduce air pollution, noise, and social isolation and is likely to have other beneficial economic and social effects. Over time, he asserted, the switch to active transport could lead to lower prevalence of obesity and other metabolic risk factors. In this way, he added, interventions can address multiple risk factors and encourage multiple positive outcomes.

Reis went on to explain that the framework provides a set of indicators that can be used to monitor cities' progress in implementing policies, interventions, and outcomes that enhance health and reduce noncommunicable diseases. These indicators include legislation and policies, government investments in transportation, urban and transportation planning and design practices, transportation outcomes, and risk exposure outcomes (Giles-Corti et al., 2016). According to Reis, cities can use these indicators to guide their investments and to monitor the progress and cost-effectiveness of those investments. Many cities, he observed, have done well in tracking risk exposure indicators (such as obesity and physical activity), but have struggled to track urban planning–related indicators. "We need a more integrated approach to monitor progress," he asserted. "It is not only about monitoring health-related outcomes progress but also about a city's progress across the whole spectrum of outcomes."

Reis then cited another paper in the same issue of *The Lancet*, looking at how density, diversity of land use, distance from public transportation, and transportation patterns affect health-related outcomes in six different cities (Stevenson et al., 2016). The authors of that paper estimated the health burden due to land use and transport mode choices and found major differences among Boston, Copenhagen, Delhi, London, Melbourne, and São Paulo, in part, said Reis, because of "poor management or poor planning strategies." The researchers then modeled the effects of increasing the diversity and density of land use by 30 percent each, reducing the distance to public transportation by 30 percent, and shifting the modes of transport by 10 percent so that people would bike and walk more. "This is a scenario that isn't so difficult to imagine," Reis observed. The result of the model, he explained, was substantial improvements in health in terms of cardiovascular disease, type 2 diabetes, and respiratory diseases. However, he added, this model did not account for infrastructure changes, so road trauma increased with more people walking or biking. Thus, he argued, "We have to invest in infrastructure. Let's repair cities for people to be able to choose to walk or bike or use public transportation."

Reis asserted that the framework shown in Figure 2-1 provides a solid way forward, but a major remaining question is how to engage people

in all sectors to make healthful changes in the built environment. He is in the process of surveying planners, designers, traffic engineers, public health professionals, and parks and recreation professionals across the United States about their priority actions for creating livable cities and communities. The early results, he reported, suggest the need to shift the message toward a comprehensive approach to engage practitioners from many sectors in developing healthy communities. He added that although practitioners from different sectors assigned different levels of importance to health, respondents from all sectors talked about community, economic development, and support for social systems. A message focused entirely on health "is not working," he said. "Maybe to engage different sectors we have to message a little differently. . . . If people can't live a decent life, if they can't have access to a thriving community and city, how can they overcome the barriers they need to make healthy choices?" He suggested that emphasizing the co-benefits of changes to the built environment, which are identified by Sallis and colleagues (2015) in an extensive literature review, can be a useful way to engage nonhealth sectors. For example, he added, rather than talking about the health benefits of parks, community leaders can emphasize social benefits such as an enhanced environment and safety, and when talking about transportation systems or denser cities, they can describe the benefits in terms of environmental stability, social benefits, safety, and economic benefits. He closed by saying, "Let's think about how we can message the work around urban planning, city design, and health, [taking] a more comprehensive and effective approach."

TRANSPORTATION AND LAND USE

Daniel A. Rodríguez, chancellor's professor in the Department of City and Regional Planning, University of California, Berkeley, used as the starting point for his presentation Reis's observation that transportation and land use are two of the mediators of the built environment's effect on health. Therefore, he asserted, research on these mediators is important to understanding the evidence regarding interventions.

To illustrate the importance of these environmental exposures, Rodríguez reviewed some of the research on the health impacts of transportation elements such as street connectivity, traffic, bicycling infrastructure, and access to mass transit. He began by observing that higher connectivity in street grids leads to shorter distances from one place to another and greater safety from traffic, which can encourage people to walk or bike rather than drive. He cited the example of the RESIDE project in Perth, Australia, which studied more than 1,800 participants in 73 neighborhoods from 2003 to 2012 and found that street connectivity was associated with more walking (Knuiman et al., 2014). In a follow-up to that study, however,

Veerman and colleagues (2016) found that in low-density cities, installing sidewalks in existing neighborhoods as a single intervention is unlikely to improve health in a cost-effective way. According to Rodríguez, this result "makes a lot of sense." He explained that sidewalks, in conjunction with destinations to visit and higher population density, are likely to be more cost-effective than isolated sidewalk interventions. "The peek-a-boo sidewalks that we see in suburban U.S.—now you see them, now you don't, they have dead ends—that doesn't help us very much," he asserted. "We want sidewalks that give us connectivity and lead to places and connect us with places."

Rodríguez continued by reporting that with regard to traffic, Jerrett and colleagues (2010) found, after correcting for a wide variety of confounders, that high traffic around the home was associated with higher obesity in children. The effect varied by the child's proximity to traffic: children whose homes were closest (within 150 meters) to high-traffic areas had higher body mass indexes (BMIs) at age 18 relative to those whose homes were farthest (500 meters). The difference in BMI was fairly small—about a 5 percent difference at age 18—but, Rodriguez emphasized, this difference has substantial implications for a large population. He added that "the traffic was really acting as a surrogate for pollution, or maybe as a big barrier . . . for getting places."

Rodríguez continued by noting that increasing rates of biking is one way to increase physical activity, but enthusiasm for biking varies from person to person. He cited a popular heuristic that divides commuters into four categories based on their attitudes toward cycling: strong and fearless (fewer than 1 percent), enthused and confident (about 7 percent), interested but concerned (60 percent), and uninterested (33 percent) (Geller, 2009). He also referred to a study of commuting and health in Cambridge, Massachusetts, that followed 809 adults over 3 years. He reported that after adjusting for a variety of individual-level characteristics and other physical activity, the researchers found that those who commuted by bicycle for 1 year had reduced their BMI by an average of 1.14 points at the end of the year (Mytton et al., 2016). He added that when new bicycle lanes were built in Salt Lake City as part of the city's Complete Streets investments, longer cycling trips, as tracked by accelerometers and GPS loggers, were associated with lower BMI and more calories burned (Brown et al., 2016).

Finally, turning to mass transit, Rodríguez cited an analysis of National Household Travel Survey data in which it was found that people who walked to and from transit did so for a median of 21 minutes each day (Freeland et al., 2013). He reported that "50 percent of all transit commuters got 100 minutes a week of physical activity walking solely for getting to and from transit," adding that "if this is not a public health intervention, I don't know what is." He further cited a pair of studies examining the

effect of new light rail transit systems in two cities, which found that new transit users reduced their BMI over time. In Salt Lake City, residents who started using the city's new light rail became more active and decreased their BMI by 0.29. In contrast, people who previously were using the bus and then no longer did so increased their BMI over time, became more sedentary, and engaged in less physical activity (Brown et al., 2015). In Charlotte, North Carolina, new light rail commuters reduced their odds of becoming overweight or obese over time by 81 percent (MacDonald et al., 2010). Similarly, Rodríguez reported, at the county level, vehicle miles traveled were associated with higher obesity in California (Lopez-Zetina et al., 2006). "All the evidence in this case is fairly convincing and pointing in the same direction," he asserted.

The second element of the built environment Rodríguez discussed was land use, with a focus on the mixing of land uses—such as intermingling residential, retail, and office space in the same neighborhood—and greater density of people, places, and things. He cited a recent review of 92 studies, which found that the lack of mixed land uses and urban sprawl are associated with overweight or obesity more consistently relative to other physical environmental factors (Mackenbach et al., 2014). He also noted that mixing land uses and mixing increasing residential density were two strategies recommended by the Community Preventive Services Task Force for increasing physical activity (Community Preventive Services Task Force, 2016b) and argued that it is the combination of these two elements that works. He added that increasing density can increase the efficacy and cost-effectiveness of certain built environment interventions.

Transportation and land use are part of a "package," Rodríguez continued, and "it is all of these things mixed together that seem to matter more." He cited walkability as an example of how land use and transportation can be packaged together, explaining that measures of walkability use density, land use mix, connectivity, safety, and overall location to estimate the feasibility of walking to reach many destinations. He reported that emerging cross-sectional evidence shows that environmental factors, when combined, are related to less overweight and obesity around the world. To illustrate this point, he cited a study of more than 14,000 adults in 17 cities across 12 countries demonstrating that a combination of two factors—safety from traffic and crime and close proximity to local destinations—was strongly correlated with lower BMI (De Bourdeaudhuij et al., 2015).

Rodríguez then described another study of 730 families in Seattle and San Diego, which found that characteristics of children's neighborhoods were associated with their weight status, even after controlling for sociodemographic variables and their parents' weight status (Saelens et al., 2012). Children living in neighborhoods with favorable measures of both physical

activity and neighborhood environments were less likely to have overweight and obesity than their peers in neighborhoods with unfavorable measures.

Rodríguez went on to report that the Multi-Ethnic Study of Atherosclerosis also found a relationship between characteristics of the built environment and the health of residents (Hirsch et al., 2014a). More than 5,000 participants with no diagnosed cardiovascular disease across six cities in the United States were enrolled in the year 2000. BMI and waist circumference were measured at baseline and at four subsequent follow-ups. Rodríguez reported that a higher development intensity, defined as a combination of density, land use, destinations, street patterns, and mass transit, was associated with a less pronounced increase in BMI and a decrease in waist circumference after adjusting for age, gender, race and ethnicity, education, income, employment, marital status, car ownership, health status, cancer, alcohol use, smoking, and time in transport (Hirsch et al., 2014a). He then cited a follow-up study in which the researchers found that individuals who moved to more walkable neighborhoods ended up walking for transportation, on average, 16 more minutes per week relative to those in less walkable neighborhoods (Hirsch et al., 2014b). These participants also had 11 percent greater odds of meeting the recommendations of the Every Body Walk! Campaign (which calls for 150 minutes per week of walking) and lowering their average BMI (Hirsch et al., 2014b).

Finally, Rodríguez turned to a study of people living in cities in southern Ontario, Canada, which found that the most walkable neighborhoods had lower rates of obesity than less walkable neighborhoods (Creatore et al., 2016). Moreover, over time, the adjusted prevalence of obesity among adults remained about the same in the most walkable neighborhoods, while the prevalence increased in neighborhoods categorized as less walkable. According to Rodríguez, "this summarizes really well the impacts of walkability on overweight and BMI."

Moving on to challenges and opportunities, Rodríguez observed that more than half of the U.S. population—or more than 170 million people—currently lives in suburban environments. "This is the magnitude of the task ahead of us," he added. At the same time, he argued, almost every city in the United States has the potential to improve its built environment. Planners, he suggested, are at the heart of the issue, both as a contributing cause and also as a remedy. He closed by saying, "The point here is to stitch a fabric of change that involves all these sectors and all this emerging evidence so that we can do something about this challenge."

FOOD AND NUTRITION ENVIRONMENTS

"It is not big news that environments affect behavior," observed Karen Glanz, George A. Weiss University professor and director of the Prevention

Research Center at the University of Pennsylvania. But, she continued, environments are complicated, especially with respect to food. The factors that influence what people eat, she observed, range from individual attitudes and genetics to macro-level conditions, such as societal and cultural norms, food and agricultural policies, and food and beverage marketing, and many mediating influences as well (Story et al., 2008) (see Figure 2-2). She explained that the societal-level factors interact with individual factors such as genes,

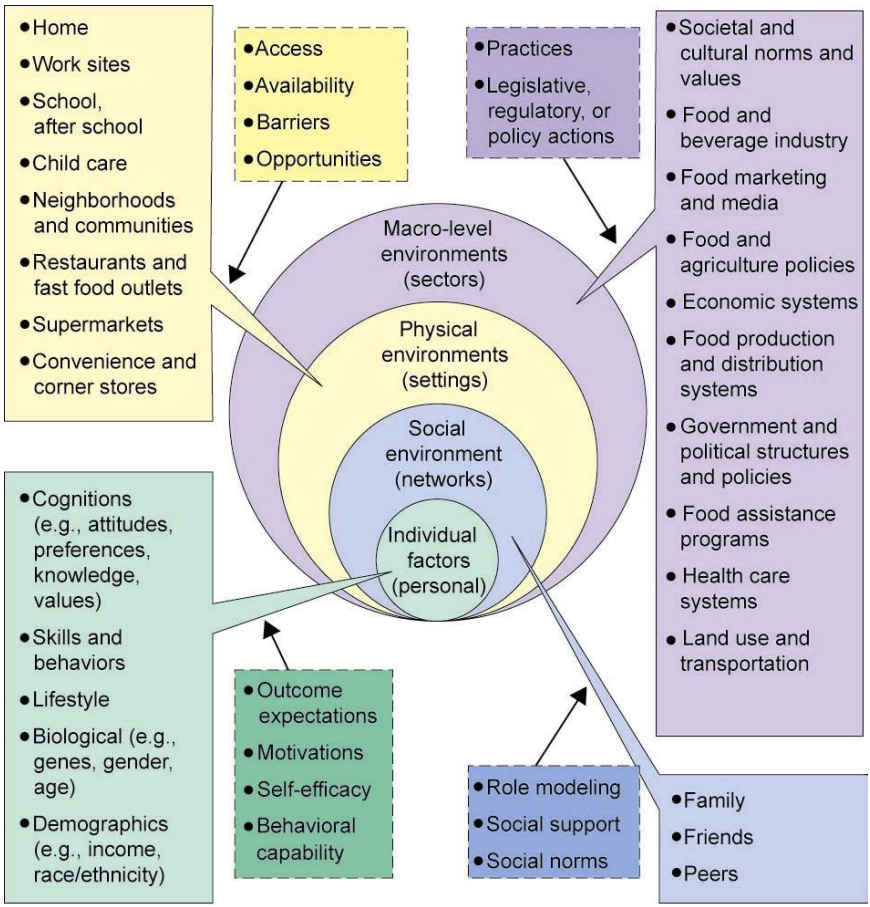

FIGURE 2-2 An ecological framework depicting the multiple influences on what people eat.
SOURCES: Presented by Karen Glanz, September 12, 2017; Story et al. (2008). Reproduced with permission of *Annual Review of Public Health*, Vol. 29 © by Annual Review.

biology, and psychology to produce behaviors, and these behaviors in turn influence health outcomes. One of the factors she has investigated is the food environment, which she defined as all of the places where people can find food (such as grocery and corner stores, restaurants, worksites, and schools), together with the policies (such as those concerning school food and catering) and economic factors (such as taxes, food assistances policies, and price supports) that influence what foods are available. The challenge, she stated, is to determine how much the environment contributes to what people eat and how that affects their health in this context.

Glanz continued by outlining several major differences between food environments and environments that affect physical activity. Food is a commodity, she elaborated, and food products are big business. She added that food is highly regulated for purposes of safety, taxation, and hygiene, and that organizational environments play a large role, particularly with respect to children. Food is also a complex substance, she observed, encompassing a variety of types and nutrients. She noted that while policies can play a role in shaping the food environment, environments often evolve without policies. To illustrate this point, she gave the example of the food retail sector: policies do not necessarily dictate where foods are located in stores or how much they cost, but they can have an effect on placement and prices. Therefore, she said, policies can act to improve or worsen health.

Glanz looked specifically at research into how stores, restaurants, and schools affect food intake, BMI, and obesity. Much of this research is descriptive and correlational, she explained. For example, she said, early findings on the retail food environment suggested that supermarkets produce healthier outcomes relative to fast food restaurants, which contribute to obesity, but more recent research has explored some of the ambiguities of these findings. She cited a systematic review by Cobb and colleagues (2015) of 71 studies representing 65 cohorts, which found that associations between fast food outlets and obesity are mostly null, that supermarket availability is often associated with adult obesity or null findings, that small stores are associated with child obesity in 50 percent of studies, that fast food availability is associated with child obesity (although many studies have found the association to be null), and that the overall quality of the studies was low. "The data are mixed," said Glanz. "They are not all leaning toward supermarkets are good, fast food restaurants bad."

Still, Glanz continued, research has shown an association between neighborhood of residence and a person's weight status. She pointed to research showing that on the island of Manhattan, adult obesity rates are four times higher in east Harlem than in the Upper East Side (Black and Macinko, 2010). "That doesn't segregate out food environments," she observed, "but it shows us high environmental impact." She noted that another study, conducted by Saelens and colleagues (2012), found a strong

association specifically between higher BMIs and neighborhoods with low levels of access to physical activity locations and nutritious foods.

According to Glanz, research on food environments also points to disparities in the types of foods available in different neighborhoods. She referred to a review of 49 studies by Beaulac and colleagues (2009), which found evidence that neighborhoods with a high proportion of low-income or minority residents had fewer supermarkets but more convenience stores relative to more advantaged areas. "These findings have occurred over and over again," she observed.

Glanz identified as a major research question of interest whether putting a new supermarket in a food desert improves diet and reduces obesity. She pointed to two recent studies that found that new supermarkets produced increased perceptions of access to healthy food but no changes in consumption of healthy food or BMI (Cummins et al., 2014; Dubowitz et al., 2015). "You can also get much cheaper Krispy Kremes at the supermarket," she observed. In fact, she noted, one recent study found that residents in food deserts buy most of their junk food at supermarkets (Vaughan et al., 2017). "We need to look beyond just the presence of supermarkets . . . [and] begin to look at the consumer environment, what is inside the store," she argued. She added that a growing body of evidence suggests that interventions within supermarkets and food retail stores can be effective at increasing purchases of healthy foods (Adam and Jensen, 2016). For example, she and her colleagues have looked at how changing the placement of food in stores can increase sales of healthier items. When water is placed at the top of a display case rather than being hidden on the bottom shelf, for instance, it is purchased more often (Foster et al., 2014); the same is true for skim and low-fat milk and some frozen entrees. However, Glanz reported, placement and promotion strategies did not affect sales of other items, including cereal, sugar-sweetened beverages, diet beverages, and whole milk.

Glanz went on to note that interventions to increase healthy food access in small food stores—convenience stores, bodegas, and the like—have increased in recent years. She observed that evaluations of these interventions have shown mixed results. She cited a review by Gittelsohn and colleagues (2012) of 16 such trials, which found that availability and sales of healthy foods increased, and consumer knowledge improved. However, she noted, the trials had design and measurement limitations and showed limited impact on shopping behavior, and none of the trials showed an impact on obesity. In an evaluation of a large-scale urban corner store intervention, a component of the Communities Putting Prevention to Work initiative, Cavanaugh and colleagues (2014) found that to a modest degree, the environments in intervention stores were healthier, with greater availability of low-fat milk and fresh fruit. On the other hand, she reported, a companion study of the same stores by Lawman and colleagues (2015) that involved

bag checks and analysis of receipts found no differences in calories or nutrient content 1 year after the intervention was implemented. Likewise, a randomized controlled trial of a healthy corner store initiative found no changes in energy content per purchase and no differences in BMI z-score or obesity prevalence among urban, low-income youth (Lent et al., 2014). In summary, Glanz said, "the evidence is challenging assumptions about what we can achieve through corner store interventions."

With respect to restaurant interventions, Glanz focused on policies that require calorie counts to be added to restaurant menus, which have been implemented in several cities, counties, and states. She pointed to a recent review of 16 studies that found reduced energy intake of orders in 4 of the studies and no significant effects in the other 12 (VanEpps et al., 2016). Glanz added that while the restaurant industry has been responsive to calorie labeling in menus, current regulations are local, and implementation of federal regulations included in the Patient Protection and Affordable Care Act has been postponed. If restaurants "start reformulating their foods or making portion sizes smaller," she suggested, "that may be the big win, potentially."

Turning to school food environments, Glanz observed that the 2010 Healthy, Hunger-Free Kids Act has produced major changes. She cited a study of 12 urban low-income schools, in which Schwartz and colleagues (2015) found that students took more fruit and threw away less of their fruits and vegetables after changes to the National School Lunch Program were implemented in their cafeterias. Likewise, a review conducted by the Community Preventive Services Task Force (2016a) on interventions to support healthier foods and beverages in schools found positive evidence for meal interventions, fruit and vegetable snack interventions, and multicomponent interventions. However, Glanz added, policies for healthier snacks and interventions for water access do not yet have positive evidence. "That doesn't mean they don't work," she said. "It simply means that we don't have enough studies that have found a positive effect."

Finally, Glanz focused on multicomponent interventions, which she described as "programs that are community-wide, engaging the community, changing multiple environments and doing things to build skills and educate." She cited a recent systemic review and meta-analysis of these community-wide programs, which looked at eight trials targeting children and adolescents, most of which were not randomized (Wolfenden et al., 2014). Seven of the eight trials showed a significant effect in reducing BMI, although the mean reduction in BMI z-scores was only 0.09. Glanz pointed out that this research was limited by difficulties in assessing changes in food environments and by selection bias. She added that the changes in health outcomes after these multicomponent interventions were implemented were modest, and it is not clear how to scale them up or make them sustainable.

Summarizing her observations, Glanz said that "inside the retail food environments, there is potential. If the food industry responds to awareness and the need to disclose information, that is a good thing. In schools, we are seeing a lot of positive changes if we can keep them going." However, she warned, environmental strategies are not always effective, and there could be several reasons for this. The research may be limited by design, measures, or execution, she elaborated, and strategies may be limited by implementation or by an intervention's dose, intensity, or duration. Or, she said, "it could be that we are using the wrong assumptions. You get back to those associations—supermarkets are good; fast food restaurants are bad. Maybe that is not the only place we should be looking."

Glanz concluded by observing that changes in the food environment are inevitably linked to other issues, including food justice and social justice. "I think we can all agree that everyone should have a right to healthy, affordable food, that consumers have a right to know what is in their food when they eat out, [that] nobody wants kids to be hungry in schools," she asserted. However, she cautioned that new policies can have both positive and negative consequences. For example, she explained, the Philadelphia soda tax is meant to support universal preschool education, but there is emerging evidence of the tax resulting in job losses and net tax losses to the city over time. "There are a lot of unanswered questions," she said. "How much environmental change is needed? How long will it take to improve behavior and health? Who [what population] changes after the interventions are implemented, and do these changes reduce health inequity?" She closed by asserting that answering such questions requires applying and examining short-term results from a long-term perspective.

3

Examples from Communities and Cities

Highlights from the Presentations of Individual Speakers

- The value, or return on investment, of healthy communities needs to be better developed and communicated, and long-term change will require more than one strategy. (Michelle Nance)
- The people closest to the problems understand them best. Empowering residents and local leaders through inclusive planning can make them advocates for change. (Michelle Nance)
- Transportation and land use are the results of policy, and policies can be amended. (Leslie Meehan)
- The transportation and health sectors have many opportunities to work together to improve community health, but advancing obesity solutions will require the involvement of many sectors. (Leslie Meehan)
- Smaller communities are ideally sized for walking and biking, but they need capacity building and technical assistance to create safer, more accessible, and more inviting places for people to walk, bike, or take public transportation. (Cathy Costakis)

Bill Purcell, currently with Farmer Purcell White & Lassiter, PLLC, began by noting that during his 8 years as mayor of Nashville, the city went from spending $1 million per year on sidewalk capital investments to spending $20 million per year. In his opening remarks for the second session

of the workshop, he recalled that change was not simple or straightforward; recessions intervened, and developers complained about the cost of the sidewalk program. Nevertheless, he said the initiative has endured. In fact, he reported, the new mayor of Nashville, Megan Barry, has said the city should be spending $30 million per year on sidewalks and should double the number of sidewalks citywide. The city is also creating 147 miles of bikeways and 50 miles of paved greenways. "That is what this session is about—real things happening in real time that really make a difference over the long term," said Purcell. During the session, three panelists discussed their own experiences in North Carolina, Tennessee, and Montana, respectively.

HEALTHY COMMUNITIES IN NORTH CAROLINA

Michelle Nance, planning director for the Centralina Council of Governments (CCOG), began by noting that the Charlotte region of North Carolina is among the fastest-growing in the United States. From 1990 to 2014, the city of Charlotte added 380,000 residents, bringing its population to about 800,000, and the city is projected to add an additional 400,000 residents by 2040. At the same time, the region around Charlotte, with 2.4 million people, is expected to add 1.8 million more residents by 2050. Nance added that the region also includes distinct communities with just a few hundred people. "What that means for us," she said, is that "we have to talk in terms of the values of the particular community that we are in."

Nance described a planning process initiated in 2012 in the Charlotte region, called "Connect Our Future," to establish a shared vision for the region's growth. She reported that the process involved more than 8,400 people in a values-based discussion. Local leaders led and had ownership of the process, she noted, which included the public, private, and not-for-profit sectors. "[Local] leadership was in front the whole time," she said. "We were responding not only to their needs but to the values of the people that they represent."

Nance explained that the resulting plan included 10 growth priorities and a preferred growth map developed from scenarios of how the region wanted to grow, which highlighted multiple centers connected by regional transit. The growth plan also included more than 75 tools that local governments could use according to their own pace and appetite for change.

Nance noted that when attention turned to implementation of the growth plan's priorities, it became apparent that the Centers for Disease Control and Prevention's (CDC's) Healthy Communities Program could be the umbrella used to serve the region.[1] Participating in the Healthy

[1] More information about the program is available at https://www.cdc.gov/nccdphp/dch/programs/healthycommunitiesprogram/index.htm (accessed January 11, 2018).

Communities Program, she elaborated, brought together transportation and city planners, parks and recreation officials, elected officials, city and county managers, and public health professionals. She added that their discussions encompassed transportation choices, strong downtowns, jobs and the economy, and community engagement. "It was a way to set the foundation," she said. "We knew that we were stronger together and that having people in the same room learning the language of the other sectors was important."

Nance went on to explain that based on what was learned from participation in the Healthy Communities Program and with a Plan4Health grant (a project of the American Planning Association [APA] in partnership with the American Public Health Association [APHA], supported by the CDC), three tools from the long-range planning process—walkability audits, park access audits, and shared- and open-use policies—were chosen for implementation and applied to West Charlotte. This community faces particular challenges, she observed, including lower household incomes; lower high school graduation rates; higher unemployment rates; higher violent crime rates; and a greater prevalence of heart disease, stroke, and diabetes relative to elsewhere in Mecklenburg County, where Charlotte is located. The big issue, according to Nance, was that life expectancy was 5 years below that in the rest of the county. "I never thought that type of indicator would show up in Mecklenburg County," she said, "but it did."

However, Nance continued, these were in-town communities with "good bones." They had higher street connectivity, sidewalks, and access to transit and outdoor recreation, she elaborated, but these assets were going unused. She and her team set out to understand why. They held community meetings to understand the barriers and opportunities for physical activity within the community. Nance explained that because of previous experiences with outsiders coming into the community to do research without making any improvements, neighborhood leaders had an instinct to protect their neighborhoods. "They were very sensitive to it," she said, "so we had to be sensitive to that, too." By keeping things simple and asking about opportunities for and barriers to physical activity, she and her team were able to "get a bird's eye view into what is going on."

Nance explained that walkability audits offered a way to understand the barriers to physical activity within the neighborhoods. She and her team developed a tool that could be used with community members, and, based on input from the community meetings, chose seven street segments to audit.[2] "We wanted to look at areas where people really should be walking," she said, to understand why it was not happening.

[2]The audit tool is available at http://plan4health.us/wp-content/uploads/2015/11/Toolkit-North-Carolina-Sample-Walk-Audit-Worksheet.pdf (accessed February 5, 2018).

Nance reported that the results of the audits showed that even in neighborhoods with higher street connectivity and good sidewalks, there were many barriers to walking, including blocked sidewalks, street-crossing distances that were too long, and behavioral issues such as cars parked on the sidewalk. She explained that these findings were then shared with "folks who could really get something done": the city's land use planners, transportation officials, and public works administrators.

One lesson Nance and her team learned was that walking audits build trust. "People really like to get out and walk with you," she elaborated, "[and] they know you're concerned, that you're there to help, and the biggest part is really just listening." She emphasized that the people closest to the problems understand them best. "Don't make the mistake of leaving them out," she continued. She added that the experience was also empowering for residents, who "were not only part of talking about the barriers, but they were talking through what some of the solutions may be." In the process, she observed, community leaders learned the process for change, the city officials to contact, and the terminology to which city officials would respond. Inclusive planning can strengthen communities and increase feelings of trust and connection, she asserted, which is especially important in underserved communities, adding that residents and local leaders can be empowered to be their own advocates for change.

Some of the outcomes of this process were expected, said Nance, but others were surprising. For example, she and her team were surprised to find that sidewalks leading to new transit stops were problematic. They also found that the streets were dark and considered unsafe by residents. "Whether that is perceived or real doesn't really matter," she noted. She and her team conducted a streetlight inventory with help from the community. According to Nance, the success of the walking audits fed into Open Streets 704, an annual event during which the streets connecting west and uptown Charlotte are closed to cars to allow pedestrians and cyclists to move freely. She observed that one outcome of the event has been showing residents that the cultural and recreational amenities downtown are "are really not as far as they thought they were, because they were able to use the open streets to get there on foot or on bike."

Nance then turned to the second tool chosen for implementation in West Charlotte, park access audits, which, she reported, produced similarly valuable information and lessons. Park access, she explained, is more than being able to get to a park. "It's also, once you are there, are the facilities good for people of all ages and all abilities?" she explained. Nance and her team set out to create a simple park access audit that could be used to assess physical access to a park (by car, bike, or foot), safety (including lighting and the presence of emergency phones, illicit activity, and dangerous

animals), and park facilities (including their condition and level of use).[3] The audit also included space for residents' notes, observations, and recommendations. "Sometimes you will find things in the notes that are really interesting," Nance observed. For example, the audits revealed an issue with swarming insects at one park. In another instance, the audits showed that residents walked through parks instead of on the street because it was safer.

Nance also credits the audits for revealing that park access is best measured by distance from a park entrance. "There were a lot of neighborhoods that were close to the park," she observed, "but if the entrance is on the other side it doesn't matter." She cautioned that access is more than compliance with the Americans with Disabilities Act; it includes proximity to the park entrance, safe routes to walk or bike to the entrance, good lighting and emergency call boxes, and a variety of in-park activities for residents of differing ages and abilities.

Nance described that the third strategy CCOG used to increase physical activity was encouraging and supporting shared- and open-use policies. These policies, she explained, allow recreational facilities owned by schools to be used by community members during nonschool hours. Shared use generally involves contracts with recreation groups that want to use a sports field, for example, while open use is when the park or playground is open to the community. "Shared and open use of school grounds, playgrounds, and fields really creates more places to be active," Nance argued. In 2015, she added, North Carolina passed a law that reduced the liability for school boards and school board members if someone should get hurt using a school facility outside of school hours. However, she noted, communities were still tending not to use these resources as much as they could.

Nance went on to explain that to expand shared and open use in the region, CCOG convened a task force that included representatives from the public works and schools departments to consider the administrative barriers to such uses. CCOG also conducted an inventory of all of the elementary schools in the project area and shared the results with the task force. "They will be using that [information] to develop solutions as we move forward," Nance added. She shared several key lessons learned from this process. First, begin at a local school with a supportive principal: "Don't start at the top, at the largest school board in the state; go to a local community." Next, she suggested that signage is important to both welcome users and establish rules for use. Fnally, she noted that private-sector funding for open use can make it more palatable to schools. "If you can get [the private sector] involved in thinking about how they can improve the

[3]The park access audit tool is available at http://plan4health.us/wp-content/uploads/2015/11/Toolkit-North-Carolina-Park-Access-Audit-Tool.pdf (accessed February 5, 2018).

play space, and offering resources, it really speaks volumes to the school board," she said.

Nance asserted that these and other interventions in Charlotte and the surrounding region have created meaningful change. "It has made a difference in how our organizations approach their work and how communities have access to their city leadership," she said. For example, she described how walk audits are now conducted around transit stops and senior centers, and walk audit trainings have been provided to local government planners, engineers, managers, and elected officials across the state. A major change she has seen is in the timing of health impact assessments for expansions of the city's light rail system. "We are thinking about [the health impact] up front," she noted. "That is a really big change." In addition, the North Carolina chapter of the APA has created a statewide, multisectoral task force to look at vibrant communities, and awards have been established for healthy communities within the state. Nance urged more collaboration of this type. "We need to work together as transportation and land use planners to think about how we can move these things forward," she said.

Nance closed by arguing that the value proposition for creating healthy communities needs to be better developed and communicated. "We need to do a good job at linking healthy communities to economic development, to place making," she explained. She also stated that long-term change will not occur with a single strategy: "You have to use multiple strategies. You are looking at decades of policies and programs that have gotten us to this point. It's going to take a lot to move us forward."

REGIONAL TRANSPORTATION PLANNING IN TENNESSEE

Leslie Meehan, director of the Office of Primary Prevention in the Commissioner's Office of the Tennessee Department of Health, began with a quotation from David Mowat of the Canadian Partnership Against Cancer that, she said, speaks to her daily charge: "Most chronic diseases and conditions are a normal response by normal people to an abnormal environment." Obesity is influenced by multiple factors, she pointed out, which means that solutions to the problem of obesity can address multiple contributors. Her job, she explained, is to think about how to reduce the negative impacts of environments that can promote chronic diseases, including obesity. "Our charge as transportation planners," she elaborated, "is to think about investing in our communities and our economies, our quality of life and health, and not just thinking about the mobility of vehicles." Land use, she explained, is the product of public policies—or the lack thereof. Referring to a crowded streetscape (see Figure 3-1), she observed, "Everything from where utility poles are to how the signs are located, to

FIGURE 3-1 An example of a street that does not promote active transportation or healthy eating.
SOURCES: Gary Layda, photographer. In Gaston, G. F., 2016. Shaping the Healthy Community: The Nashville Plan. Nashville Civic Design Center, Vanderbilt University Press.

the uses of the land—all of those things are influenced by policy, and that policy can certainly be amended."

As Americans started driving more, Meehan continued, the adult and childhood obesity rate increased (see Figure 3-2). She explained that this apparent correlation drove the Nashville Area Metropolitan Planning Organization (MPO) to think about the impact of transportation on health. She defined MPOs as federally designated regional transportation planning authorities found in all urban regions of the country with 50,000 or more people that work with local governments to determine regional transportation priorities and allocate resources. Except in large metropolitan areas, she added, most sidewalks and bike lanes are funded by federal rather than local dollars, and many of these funds are funneled through MPOs. She noted that MPOs can also change policy, project prioritization, and project funding: "They have the ability to set the policy, and they have the purse, they have the funding, so they are very important organizations to know."

Meehan continued by describing the Nashville Area MPO as encompassing about 1.3 million people in seven counties, a population that is expected to double in the next few decades. As part of its policy plan-

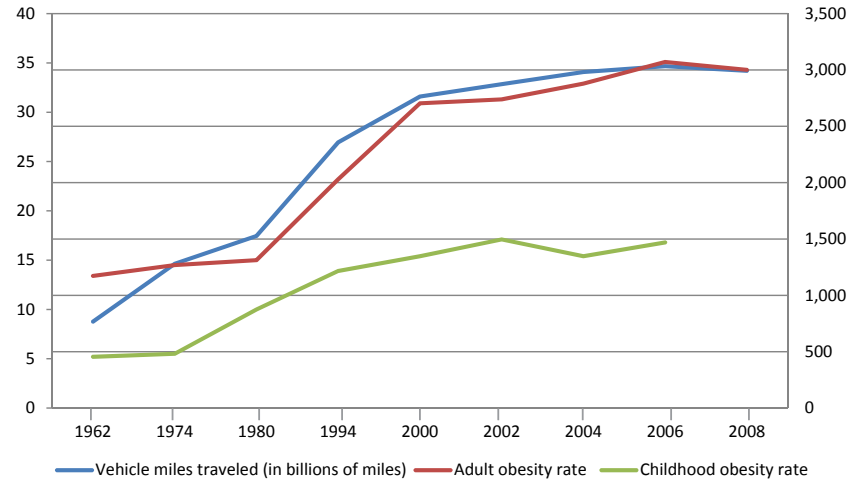

FIGURE 3-2 Vehicle miles traveled and obesity rates among children and adults in the United States, 1962–2008.
SOURCES: Presented by Leslie Meehan, September 12, 2017 (data from FHWA, 2016; Fryar et al., 2016; Ogden and Carroll, 2010).

ning process, she reported, the Nashville Area MPO conducted a random-dial telephone survey of 1,100 households, in which respondents were asked how they would spend transportation funds. "What we resoundingly heard," she said, "was that people wanted more mass transit, they wanted more walking and bicycling facilities, and they wanted to preserve existing roadways over building new roadways." According to Meehan, the survey showed that the public valued choice, the ability to be physically active as part of their daily transportation routine, and their time: "Whether you are spending time in your car or outside of a car for a trip, transportation takes a lot of time and can take away from our quality of life."

Meehan explained that "we took this public opinion and we turned it into public policy." Using the results of the survey and other sources of community input, the Nashville Area MPO developed a new regional transportation plan that guided how the organization would spend about $8 billion in transportation revenue. Meehan noted that the plan included the region's first regional vision for walking and bicycling, proposing about 1,000 miles of both walking and bicycling facilities. Census data were then used to identify areas with higher-than-average populations of low-income, minority, and senior residents, which were areas estimated to have higher-than-average rates of chronic disease. Meehan explained that investments in

sidewalks, bikeways, and public transportation were concentrated in these areas to provide both mobility solutions and opportunities for physical activity. The results, she reported, included a 57 percent increase in sidewalks, a 19 percent increase in bikeways, and a 36 percent increase in greenways over the seven-county region in 4 years. Complete Streets—streets that have context-appropriate transportation facilities such as sidewalks, bikeways, and transit—increased from an estimated 2 percent of funded transportation projects to nearly 77 percent of projects in just 10 years, representing billions of dollars in transportation investments.[4]

Meehan added that the Tennessee Department of Health has begun several new initiatives to promote health through the built environment. For example, she explained that the department recently hired seven health development coordinators, one for each of the seven regions in the state, to think about how communities grow and how access to healthy food and opportunities for physical activity are vital not only for local economies but also for the health of populations. She also described an initiative in which the department has repurposed some of its existing funding to create Access to Health and Healthy Active Built Environment grants. One such grant provided $10,000 to 89 of 95 counties to support convening, planning, programming, infrastructure development, or evaluation of the built environment. A second type of grant provides a competitive opportunity for larger amounts of funding for similar activities, with the ultimate goal of creating publicly accessible places for people to be physically active.

"One of the questions I am asked most frequently is how the worlds of transportation and health interact together," Meehan noted. There are many ways for the two sectors to collaborate, she continued, citing data collection as one such opportunity. She gave the example of the Nashville Area MPO's work with the CDC and public health experts to include six health-related questions in a household travel survey. She explained that the survey provided a wealth of information to transportation planners on individuals' transportation habits and health outcomes, and was financed through transportation funds. This information, she added, allowed the Nashville Area MPO to refine its priority areas for active transportation investment. Rather than relying on proxy census data, she elaborated, the MPO was able to use information from the travel survey to prioritize households that reported lower quality of health at the household level. These households, she observed, likely have challenges in other areas, such as jobs, housing, food, and education. "What if we joined with other agencies, not just transportation and health, to prioritize the resources of many sectors for the same populations?" she asked.

[4] More information on the program is available at https://smartgrowthamerica.org/program/national-complete-streets-coalition (accessed January 12, 2018).

Meehan identified modeling impacts of transportation decisions as another opportunity for transportation and public health practitioners to collaborate. She explained that in Nashville, the MPO worked with the CDC to develop a model for estimating the population health impacts of increasing active transportation in the region. A moderate scenario looked at an increase of 10 minutes a day in bicycling or walking and a 23-mile reduction in driving per week. Meehan reported that in the most conservative estimate, the model predicted a 3 percent decrease in diabetes and cardiovascular disease, while some scenarios showed up to 10 percent reductions in these health outcomes. At a minimum, she noted, the monetary savings would be $116 million per year in health care costs. "This work was really helpful for us to communicate to our elected officials, who were guiding these funding decisions, that their transportation choices were having an impact on public health," she said.

Meehan's final suggestion for bringing transportation and public health together was to reconsider the measures of success used by both sectors. She noted that the traditional measure of how well a roadway is working is how many cars can fit and how fast they can travel. "It's time for us to re-think those measures," she argued, suggesting that such measures as physical activity rates, sidewalks, sales and property taxes, obesity rates, and employment could yield a much more complete picture. Such measures extend beyond transportation and health, she asserted, and point to a "health in all policies" approach. She added that Tennessee is one of just a few states that has adopted such an approach—the Tennessee Livability Collaborative—in which 12 state agencies are using existing resources to work together on several initiatives that are expected to have great collective impact statewide. As an example, she described a pilot project that is working with several economically at-risk counties across the state to gauge the collective impact of having 12 state agencies focused on the same issues at the same time. In this way, she observed, state government can influence employment, livability, quality of life, and health all at the same time.

PHYSICAL ACTIVITY IN MONTANA

Montana is a large rural state with a statewide population density of only about six people per square mile, began Cathy Costakis, who works for Montana State University–Bozeman and is a senior consultant to the Montana Department of Public Health and Human Services' Nutrition and Physical Activity program. She explained that obesity has been increasing in the state, and research shows that rural communities such as those in Montana experience higher levels of chronic disease relative to other areas, which may be related to obesity (Befort et al., 2012). She added that these rural differences may be due to educational attainment and to economic

and built environment differences at the neighborhood level (Wen et al., 2017). She noted that three-quarters of adults in Montana are not reaching the recommended physical activity levels of at least 150 minutes of moderate-intensity activity and 2 days of muscle-strengthening activity each week, and 72 percent of youth are not engaging in at least 60 minutes of physical activity each day (CDC, 2015; Montana Office of Public Instruction, 2017). "We know that we are on the right track working on built environments," she said.

Costakis continued by reporting that in 2005, the state received its initial capacity-building grant from the CDC, and it has received a series of other CDC grants since then. "This is long-term work," she said. "It doesn't fit neatly within a grant cycle of 3 to 5 years and then you have these great outcomes . . . you need to build relationships. Then you need to understand the policy implications and work with multisectors . . . it takes time."

Costakis went on to report that in 2010, the state surveyed cities with populations of 1,000 or more about their local policies on active transportation. The survey revealed that 38 percent of surveyed communities had what was considered a "gold standard" sidewalk policy for new development, defined as a 5-foot sidewalk separated from the street by a boulevard planting strip (NACTO, 2017). However, Costakis noted, while 83 percent of the largest communities had such a policy, only 20 percent of the smallest communities did, and only 5 percent of all the communities had a policy for bicycles. This lack of policy, she observed, can be seen in the built environment. "There are people out there trying to walk and bicycle, but they were not included in the facility design of the community, and that is a policy issue," she asserted. "In many rural communities," she continued, "the only place to walk is on the rural road, and in many cases there is no shoulder. . . . And in Montana, a lot of those roads have 70-miles-per-hour speed limits. Do you really want your kids walking there?"

According to Costakis, an additional complication in Montana is that many schools are being closed and consolidated, which increases the distance between home and school for some children and in turn makes it difficult for them to walk or bike. Equity is also an issue, she observed. To illustrate this observation, she pointed to a low-income part of a town that had fewer sidewalks and trails relative to wealthier areas in the same community. As another example, she highlighted a "great crosswalk, but as you can see it's got no sidewalk and no curb cut. What if you have a disability? Is that a connected network for you?" She described the challenges some rural areas face, such as discrepancies in walkways near bus stops (see Figure 3-3), noting "when you get out of the bus in a city you might have a really nice pathway to go on, but if you're in a county, well, best of luck to you, and that's just not right."

Costakis focused on two case studies in the state. She began with the

FIGURE 3-3 A sidewalk near a bus stop in the city (top), compared with a bus stop in the county (bottom).
SOURCE: Presented by Cathy Costakis on September 12, 2017.

public health department in Lewis and Clark County, in which Helena is located, which received $15,000 to work on the built environment in 2008. "We provided some technical assistance and some training, and then they ran with it," said Costakis. She described how department members engaged the community; talked with planners and public works directors; and joined the Non-Motorized Travel Advisory Council, "which they never even knew existed." They worked with partners to get people biking and walking to work and schools. They also sought to sell the local government

on the benefits of Complete Streets, Costakis noted, which led to the city adopting a Complete Streets[5] policy in 2010. With some additional funding in 2012, she elaborated, the department was able to hire a staff member to lead this work. They began meeting weekly with the city engineer to discuss new projects in the city, which led to new engineering standards for subdivisions, she explained. Moreover, she continued, the department provided funding for the city to conduct an assessment to identify gaps in the sidewalk network and assess sidewalk quality and accessibility. When it came time for the city to develop its next long-range transportation plan, the city hired a consultant with specific expertise to integrate walking and biking issues throughout the plan.

Costakis reported that this work led to a Plan4Health grant (a project of the APA in partnership with the APHA, supported by the CDC), under which the Greater Helena Area Active Living Wayfinding System was established. She explained that the system identified not only trails, parks, and libraries in the city but also places to access healthy foods, such as community gardens. Another grant, from the National Association of Chronic Disease Directors and the CDC, made it possible to include people with disabilities in the department's healthy communities work. "That . . . really helped us a lot to be more inclusive in our process," Costakis observed. She added that the department conducted focus groups with people with disabilities to better understand their needs as they navigate the community. As a result of that engagement, she explained, signs were designed with certain colors and contrasts so that people with limited vision could still read them easily. In addition, she reported, multisector teams—including representatives from the health and planning departments, an engineer, and a person with a disability—conducted walk audits, and people with disabilities were trained to lead the audits.

Smaller communities are ideally sized for walking and biking, observed Costakis, but many lack the capacity to develop the required infrastructure. She explained that to encourage policy and environmental changes that help make communities safer, more accessible, and more inviting places for people to walk, bike, and take public transportation, the state created the Building Active Communities Initiative (BACI) Action Institute. Communities applied to attend the Institute, she elaborated, sending a leadership team of at least five people from multiple sectors. "That means elected officials, public works people, downtown business people, health care people," she said. "We have had CEOs of hospitals come to this, superintendents of schools. We tell them the kinds of sectors that we think are important, but

[5] Complete Streets are streets designed and operated to enable safe use and support mobility for all users. For more information, see https://www.transportation.gov/mission/health/complete-streets (accessed March 16, 2018).

we don't dictate to them who they bring because we know they know best who the right people are." She added that the Institute pays travel expenses for the action teams "because we know that small communities just don't have the capacity to do this—taking five leaders out of the community for three days in a small community is just tough." However, she noted, the Institute covers expenses for only one car, so that the team has to drive to the Institute together—a team-building experience. At the 3-day Action Institute meeting, she explained, the teams develop action plans to take back to their communities. She reported that the Institute brings in national- and state-level speakers, holds skill-building sessions, and connects teams to resources. The teams also participate in follow-up technical assistance calls, webinars, and site visits to help them fulfill their action plans, and, she added, periodically complete brief progress reports and evaluations.

Costakis then explained that to achieve a similar goal of bringing sectors together at the state level, the National Association of Chronic Disease Directors and the CDC have also supported a national Walkability Action Institute to bring together multisector state partners interested in these issues. In Montana, she reported, these partners include representatives of the state's departments of commerce, transportation, health, fish, wildlife, and parks; Bike Walk Montana; Montana State University; and the Montana Disability and Health Program. This group, known as the Montana Walkability Collaborative, has functioned as a steering committee for the BACI Action Institute, she noted, and additional state and local BACI advisors and sponsors help support the BACI Action Institute in multiple ways. She described this as "truly a collaborative effort." She continued by observing that the BACI Action Institute brings the resources right to the participants; about 30 members of the Walkability Collaborative and other advisors actually attend the Institute and are able to provide on-site technical assistance to the 50 participants. To illustrate, she cited the example of how having the Department of Commerce attend the Institute can make the teams aware of available funding to help in developing an active transportation plan. Since the first BACI Action Institute was held in 2013, she continued, the number of policies focused on a healthy built environment across the state—such as Complete Streets or master plans with an active transportation component—increased from 6 to 21. Moreover, she reported that larger communities participating in the BACI Action Institute have expanded beyond Complete Streets policies to develop growth policies, transportation plans, and small-area plans.

The second case study Costakis described is in Park County, which has about 16,000 residents and is just north of Yellowstone National Park. She explained that a group from the county came to the BACI Action Institute in 2015. "Their audacious goal was to map the entire county for active transportation, and they did that," she said. She recounted how the group

organized an active transportation coalition that developed a plan for making the entire county a connected place for walking and biking, with small and rural communities a particular focus. She gave the example of one solution for smaller communities that are often policy averse: hold a low-cost pop-up demonstration project so the community can understand what is possible. She described one such project in which the coalition assembled a roundabout with hay bales, protected bike lanes, and temporary crosswalks at a farmers' market to make it easier to walk or bike to the market, a demonstration that led to permanent changes at the market to improve walkability and safety. In addition, she asserted, "where we place things is incredibly important." She described, for example, how a local team analyzed how many people lived within a 5-minute walk of a planned new food resource center when deciding where to build the center, which led the team to choose a new location that increased the number of people who could walk there from 14 to 124.

Costakis drew several lessons from this work in Montana. First, including multiple sectors and levels is important, she argued, from the state to the local level and from cities to small rural communities. All change is local, she asserted, and the community is the expert. "We are not top-down telling them what to do," she said; "we are just giving them some good information and having them understand the best way to go." She cited as another lesson learned that trying quicker and less costly pilot projects gets communities excited about the possibilities, adding that successes and challenges can be shared. "Many times people don't know from across the state what others are doing. . . . Basically, we need to break down siloes," she said. "We have limited dollars, so if we're not working all in the same direction it's not going to work."

Finally, Costakis described the best tool as taking a walk with the eyes of a child, the eyes of an older adult, and the eyes of a person with a disability. "It is a very powerful thing," she concluded.

DISCUSSION

A discussion period followed the presentations in this workshop session. Topics discussed included barriers to change, ways to foster collaboration, social engagement, and sustaining focus on the built environment.

Barriers to Change

Focusing on the barriers that limit collaboration, Nance pointed out that transportation planning in North and South Carolina is carried out separately from land use planning. In other places, councils of government also house the MPOs, which are responsible for both land use and transpor-

tation planning within the region. "When [the two] are done separately," Nance argued, "it's a huge barrier."

Meehan cited the importance of involving health care providers who have received clinical training in prevention work. "How do you go from health care to upstream primary prevention?" he asked. "There is a role that we all can play, no matter if we are a clinician or work as a lawyer or whatever our role is."

Costakis mentioned the fact that many rural communities are losing population and jobs. Imposing walkability standards on new development in those communities can be seen as a barrier to investment, she explained. "We have had that conversation, and it is a tough one," she added. "But they are coming around and they are learning from each other."

Fostering Collaboration

Turning to how to get sectors to work together, Nance mentioned the possibility of linking collaboration with the need of many professionals to earn credit hours for their professional certifications. She noted that bringing different groups of professionals together gives them an opportunity to learn that they are all "speaking the same language." This point was echoed by Meehan. The partners in a collaboration may define success differently, she observed, and they may or may not use such words as "equity" or "social determinants." But, she asserted, they have similar ways of prioritizing areas of need across the state. Meehan and Costakis both highlighted the importance of understanding the priorities and decision-making processes of other sectors and then identifying areas of mutual interest on which to collaborate. "That is how we build relationships and not have people thinking they're just doing something for us," said Costakis. For example, Meehan shared that Tennessee's departments of transportation, parks, and community development have begun requiring health data from organizations that are applying for grants. "This is not something that we saw several years ago," she noted.

Meehan added that specific multisectoral objectives also can foster collaboration. In response to a question about Vision Zero policies designed to reduce traffic-related fatalities to zero through built environment modifications, for example, she pointed out that implementing such policies at all levels, from state to regional to local, encourages success. "That is where we're going to see some of our wins," she argued, "when you have those policies at all levels of government."

On a related issue, the panelists commented on how best to include the private sector in collaborations. Nance pointed to the importance of getting key elected officials involved in inviting representatives of the private sector to participate. "It has to be personal," she stressed. "It can't be an email

from a planner. It has to be from the top. . . . That seems to work for us." She termed the private sector "the silver bullet that we are looking for." The private sector may be interested in such initiatives as Complete Streets to enable their employees to arrive earlier to work, fresher, and ready to go, she elaborated. Still, she acknowledged, government has as yet not determined the best way to engage the private sector in this work, despite the importance of the issue.

Meehan mentioned that Mayor Purcell was instrumental in bringing Nashville Chamber of Commerce members to a national Chamber of Commerce event a few years ago to think about the local chamber's involvement in health care. She noted that their participation in this event spurred studies in the region looking at access to health care, and the chamber is now actively involved in the issue as a partner. "They want to figure out how they can be a better leader and a champion in this work," she said, "and how they can engage with companies that are moving into our region to help them be a part of the solution."

Costakis reported that in Billings, Montana, the chamber of commerce has branded the city "Montana's Trailhead." As part of that effort, she explained, the chamber convened a trails committee, boasting nearly 100 members, that works to ensure that the community is connected with an urban trail system so that residents and visitors alike can enjoy what the city has to offer. "They see it as a real economic development strategy," she said. In Charlotte, Nance added, the local chamber has shown interest in expansion of the light rail system because areas around transit stops tend to have higher property values and economic development and economic opportunity potential.

Social Engagement

In response to a comment about how a lack of social engagement can have an even greater long-term effect than obesity on health, Nance observed that open-streets events are something any community can implement. "Just block off the street," she said. "It's neighbors meeting neighbors. It's not about transportation or recreation; it's about community." Meehan added that the arts commission in Tennessee has been a valuable partner because of its work around place making, "which absolutely contributes to healthy, thriving communities."

Nance suggested partnerships across demographic groups as one intriguing option. Charlotte is adding 44 people per day to its population, from millennials to seniors, she explained. "If you think about it," she said "seniors and millennials have a lot of needs that are very similar in terms of transportation, walkability, and being near different types of services.

It's an opportunity for us to be thinking about those things in conjunction with our transportation."

Sustaining Focus on the Built Environment

When asked how to bridge the gap between short-term political thinking and long-term processes, Nance acknowledged that leaders do turn over, which can create difficulties in retaining focus on a long-term issue. Yet, she argued, local government can continue to work on an issue even when membership changes. Often, she explained, former elected officials continue to hold positions of leadership in their communities, and they can be included as ex officio leaders.

Purcell observed that even if a particular leader may not be interested in an issue, other leaders can step in to deliver what people want. "If the state is not taking care of it," he elaborated, "the local government will step up. The federal government sometimes steps into vacuums when the others aren't there. . . . If people really want something, at the end of the day, the elected officials will do their best to deliver it."

Former governor of Maryland Parris Glendening commented that strong leadership on signature policy issues—such as protecting the Chesapeake Bay in Maryland—can create a focus on specific issues that outlasts political turnover. In addition, he highlighted the importance of local ownership, stating, "You don't build a light rail system under any one mayor or even governor. What has to happen is the ownership of the business community and others [has] to really be there."

Institutional structures also can work on issues that transcend individual leaders, Meehan noted. For example, she observed, the work of the Tennessee Resilience Council is premised on the idea that communities need not only an initial response after a disaster but also the long-term ability to recover. "The mission of that council," she explained, "is to focus on livability and quality of life and to build some of this infrastructure into communities so that, when they do have a disaster like a hurricane or tornado, they have the infrastructure built in to figure out how to bounce back."

4

Achieving Equitable Healthy Environments

Highlights from the Presentations of Individual Speakers

- Without intentional focus on underserved communities, policies and programs to improve health through the built environment may actually cause disparities to widen. (Shiriki Kumanyika)
- Playgrounds that are designed and then built by the community to integrate play into everyday spaces and daily routines give all children, particularly those growing up in poverty, an opportunity to play. (James Siegal)
- Systems change, institutional change, and—most important—community collaborations and partnerships that include residents can be useful to provide underresourced communities with equitable development of local assets. (Kimi Watkins-Tartt)
- Real estate professionals, designers, financial services providers, and others associated with development have a responsibility to create healthy places that do not exacerbate inequities. (Sara Hammerschmidt)
- Community development can bring local leaders together with residents to address the physical, social, and economic needs of a neighborhood while assembling public and private capital to meet those needs. (Shai Lauros)

Equity is a major issue to address within the built environment, said Shiriki Kumanyika, emeritus professor of epidemiology at the University of Pennsylvania Perelman School of Medicine and research professor in the Department of Community Health and Prevention at Drexel University's Dornsife School of Public Health. To take just one example, she cited a recent report from the CDC stating that non-Hispanic blacks and people with a high school education or less have the lowest prevalence of walking for transportation or leisure (Ussery et al., 2017). Differences in walking prevalence by education among men have widened over time, she noted, warning that inequities can increase even when the aim is to be inclusive. "Doing the right thing," for both the built environment and health, "may not work well for all population groups," she cautioned.

Specific and targeted actions are necessary to counter such inequities, Kumanyika asserted. She suggested, for example, that communities can implement walking programs tailored to the interests and abilities of specific population groups, and streets can be designed so that walking is safe and convenient for everyone. She emphasized that approaches that consider people with less social capital who historically have been underserved could help reduce disparities in communities with minority residents of low socioeconomic status. "We can achieve equitable communities if we are intentional, we know what the principles are, and we adhere to those principles," she argued.

In the third session of the workshop, moderated by Kumanyika, four presenters described exemplars of equity-focused work in the built environment.

PROVIDING ALL CHILDREN WITH OPPORTUNITIES TO PLAY

The KaBOOM! organization focuses on transforming the built environment to make it as easy as possible for all children, particularly those growing up in poverty, to play, said the organization's chief executive officer, James Siegal. He emphasized how play not only produces active minds and active bodies but also enables children to make friends, build strong bonds with caring adults, and develop creativity and cognitive skills. "Play benefits the whole child," he stated.

KaBOOM! has been building playgrounds in partnership with underresourced communities for 22 years, Siegal noted. He explained that the organization was founded by Darrel Hammond after he read an article about two young children who died after becoming trapped in a hot car while looking for a place to play in Washington, DC. The article reported that there were no places for children to play in the neighborhood, and Hammond was motivated to create the first KaBOOM! playground in

1995. The work continues today, Siegal reported, and KaBOOM! recently completed its 3,000th playground.

Despite its importance, play is disappearing, Siegal continued. The current generation of children is playing less than any generation before them, he observed, "leaving kids unhealthy, unhappy, and falling behind academically."

Parents are well aware of the importance of play in their children's lives, Siegal stated, arguing that the problem is action. To better understand the roadblocks parents face in getting their kids to play, he explained, KaBOOM! worked with the nonprofit group ideas42, which uses behavioral science to address issues facing society. He reported that the first key insight from ideas42 was that parents can go through the whole day and not even think about their children's play. Nutritional choices occur repeatedly throughout the day, he elaborated, but daily life does not have "natural moments" when parents are forced to think about play. Second, he reported, ideas42 found that even if parents do think about play, the hassles of making it happen can get in the way: Is there a safe way to get to a park? Do children have the right clothes? Does the park have a clean, publicly accessible bathroom? "All these little hassle factors add up," he noted, and "make it too easy for parents or other caregivers to say, 'Sorry, now is not the time to play.'"

According to Siegal, to overcome these roadblocks, ideas42 suggested that communities integrate play into the everyday spaces and daily routines of children and families. Cities can have great play destinations, such as parks and playgrounds, he elaborated, but they also need playable sidewalks, bus stops, grocery stores, health clinics, and "all the places that kids and families are already spending their time." "Play can transform these moments into moments of joy," he added.

Siegal went on to say that KaBOOM! saw that very few communities were working to integrate play into the daily routines of children and families. To address this, he explained, the organization collaborated with the Robert Wood Johnson Foundation, Target, the U.S. Department of Housing and Urban Development, the National Endowment for the Arts, and Playworld to solicit ideas for innovative, replicable ways of integrating play into the daily environment, a concept called "Play Everywhere."

From the 1,000-plus contributions it received, Siegal continued, the collaboration identified 50 winning ideas for creating kid-friendly public spaces that are "wondrous, inviting, convenient, challenging for kids, unifying, and shared." He described several examples: in the San Francisco Bay area, a lot sometimes used for parking was converted into a giant sandbox; 1,200 people turned out the day it was opened. In Lexington, Kentucky, the transit center was outfitted with a playable installation that drew children away from traffic. In Miami, dead end streets formerly used for dumping

and other illegal activities were converted into playgrounds that drew multiple generations out to play. In New Orleans, a group called Urban Conga transformed a bus stop in the lower 9th ward into a musical play area called the Hang Out, where children could play drums and otherwise play while waiting for the bus. As a final example, Siegal cited the city of Nashville, which transformed a shipping container into a play structure that could be loaded onto a truck and moved from one place to another. Siegal went on to observe that "These and dozens of other Play Everywhere Challenge ideas are coming now to life and hopefully will spur other communities to follow their lead."

In the communities KaBOOM! serves, safety concerns such as unsafe traffic, illicit activity, and violence create additional barriers to play, said Siegal. The health community, he asserted, needs to acknowledge this reality and find solutions that create safe places for children to play. He cited the example of Baltimore, where KaBOOM! recently partnered with a public housing development that had no play spaces for children. To overcome safety concerns, he explained, the playground was placed in the development's courtyard, surrounded by row houses on all four sides, creating a natural surveillance system. "As Jane Jacobs would say, the eyes on the street are critical to neighborhood safety," he noted. "And now everyone looking out of their back windows has a line of sight to where those kids are playing, and hopefully that will create a safe environment for them."

Siegal stressed that solutions cannot benefit a privileged few. "Everywhere means everywhere," he stated. "It means integrating [play solutions] into everyday spaces in underresourced communities. . . . It means every public housing facility and every public elementary school and everywhere else kids who need it most live and learn." Low-income children are particularly in need of these solutions, he argued, because according to research by ideas42, they spend more time than their more affluent peers doing chores and running errands with their parents and caregivers as there is no viable alternative for childcare (Tantia et al., 2015). Moreover, he observed, their schools are less likely to have adequate places to play. "It is shocking that in most major cities across the country," he said, "most elementary schools in underresourced communities do not have adequate play opportunities. You take it for granted in most communities, but it is not the case where most kids live."

To make play a part of the lives of children everywhere, Siegal asserted, a renewed sense of urgency is needed. "What we hear from the communities that we work with on the ground is that they have had decades of disinvestment and decades of empty promises," he said. "There is a hopelessness that comes from [thinking] that change is not possible. We have to help overcome that hopelessness before any change is possible." One approach, he observed, is to seek quick wins that can link to larger-scale change. For

KaBOOM!, he noted, the "special sauce" is in the process of developing play spaces, which engages community members in caring for children. The process starts with children, he explained, who design their dream playground, "and then we help bring it to life." He added that several hundred volunteers come together to build a playground in 6 hours. "It is like a modern-day urban barn raising for kids," he said. "It is a cathartic moment that makes people care about the changes that are happening in their community and gets them to think bigger about what is possible."

These quick wins can drive larger-scale change, Siegal argued. He urged the health community to help create linkages between shorter-term outcomes, such as increases in social cohesion, community pride, and perceptions of neighborhood safety, and longer-term health outcomes. He suggested that researchers could investigate how these short- and intermediate-term outcomes link to the health outcomes that are desired.

Responding to a question about local regulations, Siegal noted that every playground faces the challenge of obtaining building permits. Generally, he explained, the communities get the permits, with KaBOOM! providing technical assistance with the process. The most successful projects with which he has been involved have had co-leadership between government and a nonprofit organization because government partners are adept at the permitting process, while nonprofits are good at community engagement. "A lot of good things are happening in communities," Siegal observed. "We have a lot of momentum. If we roll up our sleeves and engage in the change process, we can get a lot done. As a result, kids are going to be happier and healthier."

COMMUNITY ENGAGEMENT IN ALAMEDA COUNTY

Kimi Watkins-Tartt, deputy director of the Alameda County Public Health Department, defined health equity as achieving the highest level of health for everyone. "Health equity," she elaborated, "entails focused societal efforts to address avoidable inequalities by equalizing the conditions for health for all groups, especially those who have experienced socioeconomic disadvantage or historical injustices such as racism." She described the goal of the Alameda County Public Health Department as ensuring that all residents of the county, regardless of where they live, how much money they make, or the color of their skin, can lead a healthy, fulfilling, and productive life. "Unfortunately," she said, "in our county, that is not the case. The projects that I am going to talk about work to address that."

Watkins-Tartt explained that the department has approached its equity work by focusing on policy and systems change, institutional change, and community collaborations and partnerships that include residents. She offered three examples that incorporate this approach.

First was the Ashland and Cherryland Community Health and Wellness project, part of the Alameda County General Plan, which sets the policies for how the county uses and manages its physical, social, and economic resources. The General Plan is not just a land use plan, Watkins-Tartt emphasized, although land use is an integral part of it.

Watkins-Tartt explained that the Ashland and Cherryland Community Health and Wellness project is based on the principles of equity, accountability, collaboration, diverse resident partnerships, and the development of local assets. She added that the project used a website so that residents of the community could track the progress of the planning process, a wellness advisory council to hold planners accountable and to make sure residents' voices were heard, workshops so that residents could participate in the process, outreach in community events so that people who could not participate in some of the more formal structures were able to see what was happening, a communitywide survey of every household to hear from people who were not able to participate in the other venues, and focus groups to obtain more detailed information on what the residents wanted. The objective, she said, was to ensure that the residents most often left out of the planning process were instead front and center.

Watkins-Tartt described the plan, which was approved by the board of supervisors in December 2015, as a success, and noted that it also produced some lessons for similar initiatives. First, she said, future plans can try to avoid being dependent on champions within organizations: "As we all know, as organizations change, people move on. If that is how this is getting done, then some of the work can stall or just come to a halt altogether." A second lesson she shared is that a more formal structure could help ensure that the planning department uses the policy document consistently to maintain the vision of the community. "We are working on putting that structure in place now," she added. She observed that one of the primary strengths of this effort was the deep engagement of the residents of Ashland and Cherryland and the community partners, who now have collective ownership of the values and the intentions of the project.

Watkins-Tartt then described a partnership with the East Oakland Building Healthy Communities group, which is funded by the California Endowment, to incorporate a health equity lens into the City of Oakland planning department's reviews of new projects. A collaborative group created Healthy Development Guidelines as a tool to be used by the planning department and the general public to better understand the city's requirements and expectations for health equity. Watkins-Tartt noted that the guidelines were intended to benefit the health of both new and existing residents, especially those who face the greatest exposures to cumulative health impacts or the effects of multiple environmental exposures. She added that the group worked diligently with community leaders to convene

a half-year process focused on developing the vision and priorities of the tool and then led follow-up meetings and events to share updates, determine ground truth for the various drafts, and obtain residents' feedback. As one resident said, "[This has been] an opportunity to be true partners. I can see how these [guidelines] could have been made without residents at all. We have partnered because we have something to say. We have a lens that should always be there. We know how [development] will affect the people who live here."

Watkins-Tartt described the role of the public health department as helping to convene a technical advisory group that included community-based organizations, the City of Oakland, public health staff, developers, and consultants, which met after the resident meetings to review their input and develop policy goals and standards. She added that city planners provided helpful feedback on existing policies and technical details to ensure that the new standards would be implementable. "It was a long and iterative process," she observed, "and naturally issues of capacity and trust came up quickly." She stressed the importance of trust and accountability, and of sustaining the vision of the residents in the process of creating the standards. She explained that informing residents helped involve and engage them authentically, and the public health department built on its own knowledge by gathering the perspectives of everyone at the table. She added that opportunities for transparency were created so that residents could see that their vision was not being lost. As an example of the changes made, she reported that the new guidelines include language about displacement and ensuring that people who live in Oakland are not forced out when development occurs.

"We consider the guidelines to be an interim step," said Watkins-Tartt. "We are hoping that we will be able to participate in a more formal process of including objectives and health equity language into the city's general plan at a future date."

Finally, Watkins-Tartt described an effort to change the physical and social conditions of low-income neighborhoods by improving the food retail environment. She pointed to the Healthy Food Retail project, which is designed to achieve and sustain healthy food retail environments in the neighborhoods most burdened by chronic disease. She explained that the project included demonstrations in both east and west Oakland, research on local policy options to institutionalize promising practices, and identification of resources for a countywide effort. She noted that two community-based organizations—the Hope Collaborative and Mandela MarketPlace—implemented the project along with public health staff. Each of these organizations has a unique approach to its work, she elaborated, but they share the approach of engaging residents in the surrounding neighborhoods to inform the approach being taken. She added that the

two organizations worked with stores to increase the availability of healthy foods, reduce the shelf space allotted to such unhealthy products as tobacco and alcohol, reduce advertising for unhealthy products, and increase the visibility of the choices available in stores.

Watkins-Tartt described one success of this project as having much deeper relationships with store owners, which increases their investment and participation. She noted that the public health department has used its own resources to garner additional funding to support store changes. She explained that store owners are under economic pressure to replace lost profits from unhealthy products, to cover the high costs of making improvements in their stores, and to change negative perceptions of the stores among the neighborhood residents and law enforcement. "What we have learned," she said, "is that asking store owners for layout changes is possible, but [it is] easier after there is a relationship. Once tobacco and alcohol ads were reduced, customers started to look at the store differently and see them as places to purchase healthy food." She added that as the demographics of many Oakland neighborhoods change, the department is working with stores to strike a balance among the increasing demand for healthier products, the increasing ability of customers to pay higher prices, and the needs of long-term neighborhood residents. "Offering a variety of store interventions contributed to the success of this model," she stated.

Watkins-Tartt noted that she has been with the public health department for more than 25 years, and asserted that a key ingredient in transforming practice is leadership. "For us," she said, "it has been evolving over time to look at public health as being more than just about caring for sick people, though that is a lot of what we do." She added that work on upstream factors and the built environment was not a part of the health department 25 years ago. "It has taken a constant commitment," she noted.

Watkins-Tartt also emphasized that community members in Alameda County expect to be involved. "If we do anything that they are not driving and they are not at the center of, they are very quick to say, 'Wait. That is not how you guys do things. That is not how we do things here.' That is where the accountability comes in," she observed.

In closing, Watkins-Tartt said, "We know that, when we make changes in the environments that people live in, their health will improve. The challenge is to make sure that the people who we so often read about in the data are at the center of the conversation. They have to drive it. They have to shape it. And they have to own it."

DEVELOPING HEALTHY COMMUNITIES

Sara Hammerschmidt, senior director for content at the Urban Land Institute (ULI), described it as an 80-year-old nonprofit organization dedi-

cated to promoting best practices in real estate development. She explained that it uses convenings, research, case studies, and other strategies to help its 40,000 members achieve its mission, which is to help create and sustain thriving communities worldwide.

In 2013, the Institute launched the Building Healthy Places Initiative, whose purpose Hammerschmidt characterized as engaging the Institute's membership and networks in shaping places and projects in ways that improve the health of people and communities. "It was launched out of a recognition that many global health trends are pointing in the wrong direction," she said. "We recognized that the real estate community needed to do more to be part of the solution to our global health problems."

According to Hammerschmidt, the Institute's theory of change is that its members (who represent development, design, financial services, the public sector, and other land use professionals) can promote health in three ways. First, in their own organizations, members can create and promote policies that boost the health of their employees. Second, in their investment and project decisions, they can promote healthy and thriving communities. And finally, in the influence they have on their own communities, they can increase opportunities for people to be active or enhance their access to healthy food. Hammerschmidt asserted that the private sector has a responsibility to create healthy places that do not exacerbate inequities.

At the same time, however, Hammerschmidt acknowledged that there are differences in understanding and terminology between real estate developers and public health professionals. For example, she observed, the word "equity" has two definitions. In the context of this workshop session, she noted, equity means "just and fair inclusion." "An equitable society is one in which all can participate and prosper with a goal of creating conditions that allow us all to reach our full potential," she elaborated. She cited as another definition that equity is the value of the shares issued by a company. "Equity, to a real estate developer, is more along the lines of the second definition," she observed. "Equity in real estate relates to the component of development capital provided by investors who obtain the return mainly from project performance. These are very different definitions and very different meanings of the same word." To overcome this barrier, Hammerschmidt continued, ULI is working to explain equity issues from a land use perspective and encourages its members to learn from and form new partnerships with other disciplines, including public health. "We know it is going to take coordinated effort to improve our built environments in ways that improve health for all," she said.

Hammerschmidt then described how, as one way to improve the built environment, ULI issued a joint call to action with seven other built environment–focused membership organizations, including the American Institute of Architects, the American Public Health Association, and the

American Planning Association, that encouraged the more than 450,000 individual members of these organizations to promote healthier and more equitable communities.[1] She added that members of the partnering organizations, which include architects, planners, engineers, public health officials, recreation and park administrators, and other professionals, are encouraged to build relationships, share expertise, establish health goals within their projects and plans, implement strategies and certification systems that improve health, and communicate with other professionals about the importance of health.

As an example of a specific project, Hammerschmidt described ULI's Healthy Corridors work. Unhealthy, automobile-centric, commercial corridors exist in almost every community, she noted, adding that they make it challenging not only to walk and bike but also to access healthy foods, transit, jobs, and other services. Moreover, she observed that these corridors often cut through low-income neighborhoods, separating residents from each other and from the places they need to reach.

The Institute has done work on such corridors in the past, Hammerschmidt noted, but realized that less attention has been paid to the health issues that arise for those people who live, work, and travel along the corridors. She explained that to address this issue, ULI has been working closely with its local chapters on demonstration projects designed to show how a focus on health and equity can change the standard approach to urban and suburban arterials. She listed the key questions the project is seeking to answer: What is a healthy corridor? How can a focus on health and equity inspire community action? How can low-income people and people who live in lower-income neighborhoods be better served by these roads? What are the barriers to healthier corridors, and how can they be overcome? For each "demonstration corridor," she explained, there is an interdisciplinary local group guiding the work that includes business owners, real estate developers, planners, elected officials, community representatives, public health professionals, and others. "We have been convening stakeholders and bringing in national experts to help each corridor address specific challenges and create actionable plans for change," she said.

Hammerschmidt also mentioned several specific development projects that are working to improve health and provide more equitable access to housing and services. She described Aria, Denver, as a new community that was designed with an intentional focus on the health of not only its residents but also the surrounding communities. It sits on a 17-acre site that was formerly home to a convent. The development has a 1.25-acre production garden, a greenhouse, and other features to accommodate access to fresh produce. A pay-what-you-can farm stand allows residents of

[1] See www.planning.org/nationalcenters/health/calltoaction (accessed November 7, 2017).

Aria and the surrounding communities to purchase produce grown in the garden at whatever cost they can afford. Pocket gardens allow residents to learn about permaculture, a system of sustainable gardening practices. Hammerschmidt explained that the onsite greenhouse, which is run by a local nonprofit organization and is tended by teenage employees, can produce up to 10,000 pounds of food annually, 75 percent of which is sold to local restaurants and a local university, while the other 25 percent is donated for affordable sale. She noted that the developers have built 72 affordable rental apartments and townhouses and have planned a total of 450 homes, with a grocery store slated for future development.

The developers of Aria participate in the Cultivate Health partnership, which provides health care services and nutrition education, Hammerschmidt continued, adding that the partnership, which is supported by the Colorado Health Foundation, also includes Regis University and surrounding neighborhood groups. She noted that an adjacent Regis neighborhood health clinic offers primary care services through providers who not only write traditional prescriptions but also offer prescriptions for fruits and vegetables. According to Hammerschmidt, the project "illustrates how innovative partnerships among real estate developers, nonprofit organizations, private philanthropy, and community institutions can produce a development with a set of shared priorities that are really focused on improving health and equity."

Another example Hammerschmidt described is Arbor House, a 120,000-square-foot building with 124 units of affordable housing in the Bronx neighborhood of New York City. Located in a part of the city with disproportionately high rates of chronic diseases, such as diabetes and heart disease, the development includes features to promote healthy living, including a hydroponic rooftop farm that allows residents to buy healthy produce grown on the farm. Hammerschmidt explained that 40 percent of the produce is available to the surrounding neighborhood through school, hospital, and food market programs. She added that Arbor House includes features designed to promote physical activity, including indoor and outdoor fitness areas and playgrounds and prominently placed stairs. A living green wall in the lobby produces fresh oxygen, she observed, an air filtration system helps clean the air, and a 100 percent no-smoking policy is designed to improve air quality in and around the development.

Finally, Hammerschmidt described Silver Moon Lodge, a mixed-use development in Albuquerque with 154 studio and one-bedroom units built for renters who are seeking a car-optional lifestyle or who do not own a car. The project, she noted, is located adjacent to new bike lanes and designated cycling routes that provide easy access to the city's 400 miles of trails. The location allows residents to get to work or the grocery store or to go out to eat on foot or by bicycle, she said, and the project is also located near a

transit stop and has an onsite car share service. The building is consistently nearly fully leased, Hammerschmidt reported.

In general, Hammerschmidt observed, social equity has typically not been something real estate developers have talked much about. She described a new effort by ULI to initiate a deliberate conversation about social equity. She explained that a consultant is helping the organization reflect on how it thinks about equity and is providing advice on opportunities to integrate social, economic, and health equity considerations into thinking about land use in a way that its members will relate to and use. "We know that equitable growth provides greater access to economic opportunities," she said. "It is beneficial to a broad cross section of the population, and it can help prevent or minimize commercial and residential displacement in communities. This is very important to us as an organization."

DEVELOPMENT STRATEGIES FOR EQUITY

Real estate development has many facets, observed Shai Lauros, national health program director at LISC (Local Initiatives Support Corporation) National, a community development intermediary that brings capital investment from banks, foundations, investors, the public sector, and other sources together with technical resources from community development corporations, community action agencies, community-based organizations, and real estate development organizations to build community assets and local capacity. She described how developers can be both for-profit and nonprofit, and how private developers can have nonprofit missions, while nonprofit developers can have profit-driven missions. She also noted that development entails many other forms of supplementary and complementary programming, initiatives, and policies, describing it as a comprehensive undertaking that involves the confluence of many issues, concerns, and opportunities.

In operation since 1980, LISC has local offices in 31 cities and works in 2,000 rural counties across 44 states. Its work has resulted in more than 365,000 affordable homes and apartments, 61 million square feet of retail and community space, and $17.3 billion in investments that have leveraged $52 billion in total development, Lauros reported. She explained that its goal is to drive investments to low-income communities to improve the quality of life for all residents.

According to Lauros, LISC has two financing affiliates to invest in affordable housing and mixed-use facility and institutional developments: New Markets Support Company and National Equity Fund. She noted that the organization approaches community development as a form of "transaction for transformation." Its approach, she elaborated, is to bring local leaders together with residents to address the physical, social, and economic

needs of a neighborhood and facilitate cross-sector partnerships while also assembling public and private capital to do the work. She added that its investments are usually high-risk. "We all know that the market does not always provide what is needed by a neighborhood," she said. She noted that LISC facilitates the development of public goods, which are often more difficult to pursue financially because of questions about whether there will be a return on investment.

One goal of comprehensive community development is to strengthen communities by addressing the social determinants of health, Lauros explained, which involves working on housing, facilities, infrastructure, and other aspects of the built environment; on jobs, small businesses, financial literacy, and other features of economic vitality; on education, early-childhood workforce training, wellness education, and other components of human capital; and on engagement, organization, connectedness, and participation in building social capital. "We look at a place as a way to bring all of the elements together," she said, "to not just work comprehensively but to leverage each other's effects for sustainability." Although she cautioned that no type of work can be continually subsidized, she asserted that the implementation of best practices can allow for sustainability, while revenue-generating opportunities can supplement and support community development beyond short-term interventions.

Lauros then described several examples that embody this approach. The first was LISC's Healthy Futures Fund initiative, which brought together a variety of funders, including The Kresge Foundation, Morgan Stanley, and Dignity Health, to pool about $200 million for investment that was dispersed in targeted initiatives across the country. She also cited Low Income Housing Tax Credits, which enabled the development of affordable housing with on-site health care, and New Market Tax Credits, which funded federally qualified health centers that connect with housing and other local partners. She added that grants supported capacity building and collaboration across sectors. "The major thrust of this was about collocation," she said. "We were trying to bring together initiatives that would have a greater health impact. . . . That means being able to articulate outcomes and impacts, tracking and evaluating them. You cannot set goals if you are not able to then determine whether or not you have achieved them." She acknowledged that although causality can be difficult to determine, the organization is using techniques for evaluating outcomes: "We are evaluating, tracking, adjusting . . . evaluating, tracking, and adjusting."

Lauros then described the new development of a grocery store in Brockton, Massachusetts, adjacent to a 13,600-square-foot health center on a long-vacant site, which featured an on-site test kitchen, collaboration between the grocer and the health center on nutrition education, cooking demonstrations, guided shopping, and a rewards program for healthy food

purchases. As another example of "health-intent housing," she cited a clinic and affordable assisted living community in the rural village of Manito, Mason County, Illinois, in which the health department and housing authority are part owners of the development. She reported that as the result of work with the community to determine what they needed, the clinic built for the seniors as an assisted living facility also operates as a pediatric clinic.

Lauros next described the So Others Might Eat (SOME) Conway Center in Washington, DC, a 300,000-square-foot mixed-use development adjacent to a metro stop featuring 202 affordable apartments, a medical and dental clinic, a job training center, retail shops, and green space. She noted that the initiative also includes a focus on youth education and recreation through a partnership with the National Baseball Hall of Fame. Another project highlighted by Lauros was the Senior Residences development at Mercy Park in Chamblee, Georgia, which has 79 units and a 45,000-square-foot medical facility that includes 13 fixed and mobile primary care clinics, and which offers direct service, health education, and referrals on site to tenants. She also described the Neighborhood Health Association Clinic in Toledo, Ohio, a 42,000-square-foot health clinic that consolidated locations and expanded services to include family and adult medicine, urgent care, women's health, dental health, specialized care for homeless persons, a credit union, a community garden, and a pharmacy providing heavily discounted medications.

LISC works to form partnerships between institutions and organizations on the ground for greater health impact, Lauros continued. In New York City, for example, LISC worked with the Tisch Foundation in the Communities for Healthy Food initiative, which integrates multiple healthy food strategies. Lauros noted that LISC is also working with the Robert Wood Johnson Foundation's County Health Rankings Project to use existing data to improve programs. In Boston, Indianapolis, and Philadelphia, she added, it is creating new planning initiatives that are coordinating multiple nonprofits working on similar issues. "We brought them together," she said, and "had them look at the data and figure out what were their next steps, using the data and using their partnerships to move forward for greater health impacts."

Lauros then described the Home Preservation Initiative, which addressed deferred maintenance and pests, mold, and indoor air quality in small and low-rise multifamily homes in West Philadelphia, a largely low-income community of color. In surveys administered by local hospitals and health systems, she explained, lack of stable housing was the number one issue raised by patients in the neighborhood. She gave the example of a patient with hearing loss diagnosed during a medical appointment. "This is a critical issue," she stressed. "You are losing your hearing. Yet for the patient, hearing is not the issue right now. They might not have a place to

go after they leave the appointment. How do you start talking about health issues if you do not have your basic foundation of a place to sleep each day?" She added that the project's investment in home maintenance was intended not only to bring a renewed sense of dignity to the neighborhood but also to support housing stability.

Partnerships with public health agencies, health systems, and hospitals also can have important health impacts, Lauros asserted, although this work is "still in its infancy." She suggested that the health sector has mainly reached out to partners willing to work with it instead of seeking new partnerships across sectors. According to Lauros, "We are trying to bridge this divide and move forward and not just for the funding it potentially provides . . . but also for the new opportunities that it brings by tapping into essentially untapped resources." She then described several examples of projects that bring together health and community development. In New York City, she reported, the health department worked with LISC to help owners of affordable housing with green and healthy retrofits, such as integrated pest management, smoking cessation programs, and active living supports. In Rhode Island, she continued, the health department initiated a Health Equity Zones initiative with extensive community planning. In both Richmond, Virginia, and Richmond, California, revitalization of a commercial corridor reflected the local health care system's awareness of the importance of commercial corridors to a neighborhood. In the Twin Cities, Lauros observed, a grassroots initiative partnered with LISC to improve social connections, build health literacy, and help residents care for their own health with Citizen Health Action Teams.

These and other programs seek to "focus on place without too much of a focus on place," Lauros explained. She stated that development involves both positive and negative externalities, including gentrification that can displace not only residents but also businesses. "There are opportunities to do things differently around [Hurricanes] Harvey and Irma and . . . things that did not happen during [Hurricane] Katrina, where there were conversations about sustainable redevelopment, that hopefully can happen now," she suggested, adding that "communities need to start addressing gentrification 10 years before they think they are going to have to start working on it. I have had cities come to me [saying] that they do not need to worry about gentrification. They are just starting on their path. I said, 'You will not be able to worry about it later. It will be too late. We have to be thinking about it very early.'"

Lauros closed by noting that conversations are ongoing around the country about racial and geographic divides. Equitable development can be part of these conversations, she argued: "We need to merge the conversations of equity in health and equity in development, workforce development, and social services."

DISCUSSION

The discussion following this session's presentations addressed accountability to communities, sustaining progress in equity-focused work, and evaluation.

Accountability to Communities

In response to a question from Kumanyika about accountability to people in the community, Watkins-Tartt responded that accountability means constantly considering whom an action is supposed to benefit, who is going to be disadvantaged, how the disadvantages can be mitigated, and how the benefits can be institutionalized. "We have to literally graft it onto the bones of our organizations and our systems," she asserted. Another part of accountability, she argued, is embedding equitable practices so that they continue beyond the life span of a project. She explained that in her work, this means institutionalizing the practice of having community members drive, rather than inform, projects. People in communities, she said, "have to be at the table, because that is the only way accountability can occur." If the work is not institutionalized, she warned, it can become an easily discarded side project.

Siegal agreed, adding that mission-driven organizations, whether nonprofit or governmental, often "set the bar way too low for community interaction." Even when communities are asked for their input, he observed, the input is often at odds with the ultimate directions of the project. "The bar has to be at community ownership and community leadership," he argued. "If we are not achieving that, then we are not going to be able to address the needs of the communities that we are purporting to serve."

Hammerschmidt pointed out that real estate developers do not typically take the lead on community engagement strategies. Furthermore, she observed, challenges arise when what some see as one community to engage is actually many different communities, all with different needs. For example, she noted, some community members may be wary of change, thinking that a new grocery store or bike trail will drive gentrification. Successful and meaningful community engagement is difficult, she acknowledged, and ULI is working on strategies for its private-sector members to use to achieve it.

Another complication, Lauros observed, is that trust in government may be broken in some communities. Given a history of red lining[2] or racist policies, she elaborated, community members may not trust what a

[2]The illegal practice of refusing to offer credit or insurance in a particular community on a discriminatory basis (as because of the race or ethnicity of its residents) (Merriam-Webster Law Dictionary, available at https://www.merriam-webster.com/legal/redlining [accessed March 19, 2018]).

government official says; they may not even come to meetings because they do not see any value in providing input. She then described best practices around antidisplacement work. Ideally, she suggested, a community-based organization that has a long history and the trust of community residents can initiate a partnership with government, providing a broader voice for the community. The pressure that can be brought to bear on government through such a partnership can lead to major changes, she asserted. "I have seen significant investment by cities, and multiple millions of dollars for one neighborhood happen because of that pressure and because it is community-based," she said.

Lauros added that when she first started doing this work more than two decades ago, she engaged in programming with children to design public spaces and play spaces. She characterized the children as "in many cases more innovative than the adults." Instead of providing childcare at community planning events, she held planning activities with the children. "What do you want to see in the community? They are the same questions we were asking the adults, just asking a little differently. They have something to say and should be participating."

Sustaining Progress in Equity-Focused Work

As the discussion turned to the sustainability of equity-focused work, Katie Adamson, senior director of health partnerships and policy, YMCA of the USA, pointed out that only a small proportion of health outcomes are due to clinical care, "yet all of our money goes to pay for the treatment." She asked how hospitals and health systems can be involved in financing and sustaining work on healthy communities. Lauros observed that an increasing number of hospitals are acknowledging the costs they incur for dealing with issues in the community that are not being addressed, such as homelessness. She suggested that having someone on their staff—"ideally their chief financial officer"—sit on advisory councils and task forces in community development can build relationships through which to work on prevention rather than dealing with problems after they arise.

Lauros suggested further that the key to sustainability is volunteerism. Programs continue, she argued, when they represent an investment by individual community members who work to keep them going.

Siegal cautioned that "hoping for large-scale policy change, whether at the federal level or even at the state level, is a really tough road." Policy tends to be a lagging indicator, he observed: "There is proof of success, and then the policy codifies it." The current opportunity, he argued, is to identify existing sources of funds that are not being used for health outcomes. "It is incumbent on people interested in health outcomes to look at those aligned fields where there are resources available and figure out how to tilt

the ship without having to argue for additional resources from some new pot of money."

Watkins-Tartt made a similar point, noting that resources are going into systems that affect people's diets, physical activity, and levels of education. But, she suggested, those systems could "use the resources they [already have] to ensure that everyone is actually benefiting from [them]. . . . That is why our focus has been on trying to reframe how we look at the communities where people are living."

Hammerschmidt described an example of integrating health care within communities. She pointed to the Henry Ford Hospital in Detroit, which has been considering how best to use the land around the hospital. The hospital would like to develop the land in ways that reflect not just what patients need but what the community needs, she explained. "If more hospitals took that type of approach," she argued, "we could get somewhere."

Bill Purcell noted that all of the panelists represented organizations with fairly long histories. "What keeps organizations like these growing, transforming, and responding to various needs?" he asked. Watkins-Tartt, Lauros, and Hammerschmidt all emphasized the importance of leadership in transforming their organizations. In Alameda county, Watkins-Tartt observed, a new health director came in with the mission to "put the public back in public health." He created a foundation of community engagement on which each successive director has built, she explained. Lauros echoed Watkins-Tartt's comments, noting that senior-level leaders at LISC have an understanding of the relationship between income and health. Similarly, at ULI, Hammerschmidt noted, board members became aware of the evidence showing a relationship between health and the built environment, "and understood that land use professionals really do have a significant role to play in improving health outcomes."

Referring to the work of ideas42, Siegal explained that KaBOOM!'s focus has shifted in light of research that "suggested a path forward that we had not seen before." He noted that other aspects of the work have been driven by lived experience in the community. For example, he said, when Freddie Gray was killed in Baltimore and the city was in turmoil, KaBOOM! reached out to the 18 community organizations with which it had built playgrounds, as well as connections within the Baltimore government and philanthropy community. He explained that KaBOOM! learned that a new area of focus for the city was engaging youth aged 16 to 24, so the organization created a path forward for engaging young adults as apprentices. "It is finding those multiple objectives based on real community need to mobilize a broader group of stakeholders to drive larger-scale change," he said.

Evaluation

Finally, as the discussion turned to evaluation, Hammerschmidt acknowledged that obtaining measurements and hard data is difficult. She noted that the Healthy Corridors project has created an audit tool that collects baseline information about corridors, such as demographics, aspects of the physical environment, and health metrics for people who live and work along the corridor. She explained that follow-ups then show where progress is being made, where demographics are changing, and whether different strategies could be considered. At the same time, she observed, people like to hear about specific case studies in terms of communicating successes and failures.

According to Hammerschmidt, her organization is constantly examining research so it can inform its members about trends that are taking place. She noted that the Building Healthy Places toolkit offers 21 recommendations that are based on research. She added that the organization is also learning from its members, who are collecting their own measurements and learning what works in practice.

Siegal added that at the time of the workshop, KaBOOM! was about to publish a playbook that synthesizes lessons learned from the national challenge in a way that is useful for a variety of stakeholders, including urban planners. He noted that the attention to livability and urban planning has not yet trickled down to a focus on children and families in the way that it could. "That is where I see our work going forward," he said.

5

Considerations and Potential Opportunities for Communities and Organizations

In the final session of the workshop, four panelists discussed potential opportunities for action gleaned from the earlier presentations and discussions.[1] The panelists were Janet Fulton, chief of the Physical Activity and Health Branch in the Division of Nutrition, Physical Activity, and Obesity at the CDC; Steve Lavrenz, technical programs specialist for the Institute of Transportation Engineers; Patricia Smith, senior policy advisor for the Reinvestment Fund; and Ken Wilson, a principal and design director of interiors in the Washington, DC, office of Perkins and Will.

"We want to think about what we can do, how we can take our work to the next level, and what steps we could take together to focus on leveraging built environment opportunities to prevent obesity," said the panel's moderator, Monica Hobbs Vinluan, senior program officer at the Robert Wood Johnson Foundation. The remarks of the panelists are organized thematically in this chapter to highlight the potential actions they suggested for communities and organizations.

[1] The information summarized here reflects the knowledge and opinions of individual panelists and should not be seen as a consensus of the workshop; the Roundtable on Obesity Solutions; or the National Academies of Sciences, Engineering, and Medicine.

UNDERSTANDING AND MEETING THE NEEDS OF COMMUNITIES

Several members of the final panel raised the topic of understanding the needs of specific communities—from rural environments to large cities with diverse populations—and ensuring that solutions address those needs.

Fulton began by emphasizing a point made by several of the earlier presenters: understanding the needs and opportunities of communities at the local level may be useful for achieving large-scale impact. She highlighted the importance of meeting communities where they are and approaching them by asking questions about their needs. Doing so, she asserted, can result in strategies that differ from community to community and region to region, including communities and regions that are disadvantaged or in which obesity rates are highest.

On this point, Smith emphasized the importance of being sensitive to cultural heritage. "We must, as we think about planning and land use," she said, "not overlook those long traditions of culture and heritage and what that means to [a] community. The way you get at that is by having community voice and decision making at that table." She noted that the Reinvestment Fund, with the support of the Robert Wood Johnson Foundation, has been working in small and midsized cities and towns on an initiative called Invest Health.[2] The capacities of these places are very different from those of large cities with respect to resources, skill sets, and access to information, she observed. For that reason, she said, the Reinvestment Fund has been acting in a convening and facilitative role to share information and data to which officials may otherwise not have access. She added that leadership teams include a public-sector official, a representative of a hospital or university, a community organizer, and someone focused on development, and that creating such teams facilitates collaboration and cross-sector thinking.

Lavrenz pointed out that taking action at the local level often requires personalizing issues that would otherwise remain abstract. He explained, for example, that the Institute of Transportation Engineers has been emphasizing to its members that transportation need not be improved just for transportation's sake; rather, it can be tied to the idea of more livable communities and the specific ways in which people work and play.

For many communities, he continued, improvements to the built environment are also economic development opportunities. The construction of bicycle infrastructure offers a particularly high rate of return by attracting new residents and businesses, he observed. "Not only are you making the space more welcoming and safer for the people using the transportation system," he said, "but you are revitalizing a lot of those communities. That

[2] More information about the program is available at https://www.reinvestment.com/initiatives/invest-health (accessed November 30, 2017).

is a message that resounds strongly with practitioners, whether they are in transportation or public health or other policy areas."

Lavrenz also pointed out that many of the members of the Institute of Transportation Engineers are from smaller and more rural communities. In those communities, he argued, large-scale and expensive design solutions, such as separated bike paths, may not make sense. Rather, he suggested, smaller and simpler measures, such as slowing down traffic through pavement markings or making roads more amenable to multiple modes of travel, may be preferable. "Being sensitive to context is important," he stressed.

Smith made the point that new models are exciting but that innovation also involves costs. She asked: "How do you finance it? What [funding] is needed to make sure that it is carried out and implemented in a great way? Is that the role of philanthropy? Is that the role of government? Whose job is it to pay for innovation and new concepts?" In response to this point, Wilson observed that many new best practices, such as health and wellness rating systems or Leadership in Energy and Environmental Design (LEED) ratings[3] for buildings, cost relatively little now that they are more common or mandated by code. He added that organizational policies also can make businesses and workplaces more healthy and active, such as by reducing access to sugar-sweetened beverages. People spend more than 90 percent of their time indoors, he noted, and "minor improvements in the quality of the indoor environment—whether it is air quality, natural light, views to the outside, being able to get up and walk around, take the stairs—things like that can have a huge value [to a worksite]."

EVALUATING IMPACT

Fulton observed that implementing programs is essential, "but we need to show that they work." For that reason, she noted, evaluation can be built into programs to establish a foundation of evidence. "We need to build on it," she said. "We need to use it as we go out and try to change the world."

Practitioners need to think ahead of time about what they want to show, she continued. "What successes do we want to see in our investments?" She stressed that planning for data gathering, analysis, and dissemination has to take place "up front," and the objective should be "not just data for data's sake, but data that matter and data that can help improve the lives of the people we are trying to affect." As an example, she cited the displacement of people and businesses as a complex issue that demands advance thought. "Those kinds of issues need to come front and center when we think about working in disadvantaged [or low-resourced] communities," she argued.

Smith suggested that for practitioners, demonstrating impact can help

[3] More information about the LEED ratings can be found at www.new.usgbc.org/leed (accessed November 30, 2017).

as they advocate for resources. "That is the first question you are usually asked," she said. "What difference does it make, and how can you prove it?" Good evaluation sometimes requires questioning assumptions, she added: "If the evidence is starting to indicate that our original assumptions are not playing out, don't be afraid to question them."

Engineers thrive in a data-rich environment, Lavrenz pointed out. He observed that "the more that we, as a community of transportation professions and stakeholder groups, can collect data and tie it to particular performance measures in health and transportation—to measurable outcomes—[the greater the] level of adoption and buy-in from stakeholders within the transportation profession."

COMMUNICATING WITH STAKEHOLDERS

Several of the panelists suggested that the role of the built environment in advancing obesity solutions can be conveyed to a variety of stakeholders.

Vinluan noted that different things resonate with different types of decision makers, including transportation engineers, architects, or the general public.

Fulton emphasized the importance of telling "really good stories." She added that accounts of success and opportunity can be tailored to the targeted audience: "It can be decision makers. It can be parents. It can be kids themselves. But [tell] those stories with emotion—and also [try] to bring in the data that matter to them. . . . I heard a lot in this room about the great things that are happening. I would love to see those stories translated to key audiences in emotionally compelling ways."

Lavrenz stressed that framing messages correctly is critical when facilitating healthier communities. For example, he observed that when communities are hit by natural disasters, the process of rebuilding can be framed in terms of healthy, safe, and resilient communities. For example, he said, "as horrible as hurricanes are, they do provide a good opportunity to have some of those conversations about that larger scale of rebuilding."

Smith cautioned, however, that the complexity of the issue confounds the task of communicating messages to audiences. "We are a society of sound bites," he noted. "Quick and simple is what you are under pressure to do."

BUILDING PARTNERSHIPS

The importance of partnerships was another point highlighted by many of the presenters and echoed by several members of the final panel. Building partnerships requires good communication, Fulton pointed out, which in turn requires listening as well as communicating. "What does transporta-

tion need?" she asked. "What do decision makers need? What do parents need? If we enter those conversations in that way, we will be able to form those cross-sectoral collaborations in a better way." To illustrate this point she cited support by the CDC for a training program that brings together professionals from different sectors (e.g., transportation and planning, business, and public health) to develop an action plan for their communities. She described this as "a great model to think about as we move forward to develop effective partnerships." She added that many of the partners who need to be involved are not among what she called "the usual suspects"; for example, real estate developers are major influences in the built environment, yet they are not often involved in these conversations. "We have to open up the tent and really look beyond the usual suspects," she argued. "It might not be easy to invite people into our room," she acknowledged, "but we certainly can go into others, like conferences and meetings and opportunities to meet with other [potential partners]. I am talking about the developers, the bankers, and the business owners." She emphasized as well the importance of including young people as partners: "They are also not among the usual suspects. Getting and bringing in their voice is very important."

Wilson observed that because obesity is a complex problem, no one strategy or one sector can completely address the issue. Rather, he asserted, "it is really multiple strategies that will get you where you want to go." Vinluan made a similar point. Because of the complexity of the problem, she said, advancing obesity solutions requires considering a "whole bundle of problems and solution sets that can address all those strategies."

OVERCOMING BARRIERS

Finally, the panelists discussed some of the many barriers communities may face in addressing the issue of obesity through changes in the built environment. Smith cited funding as one significant barrier. "Having worked for a local government," she said, "and currently trying to advocate for resources to improve access to healthier foods, . . . it is always the issue of cost and who pays for it." The way to overcome this barrier, she continued, is to create political will, which can be accomplished in multiple ways—through community action, through the ballot box, or by bringing the business community to the table as a partner. Another way to create political will, she suggested, is by bringing the story of an investment's impacts on individuals to a wide audience. "One of the most moving experiences I had," she said, "was when we took a young man to Harrisburg at the beginning of the Pennsylvania Fresh Food Financing Initiative to talk about what that job meant to him—and not only to him but to his younger brother, to be able to see him get up every day and go to a job and come

home and not be dealing drugs. People get that. It touches [in particular] policy makers and elected officials."

Lavrenz cited as another barrier not having a holistic view of policy and how changes in policy can ripple through multiple domains. He explained, for example, that transportation has historically emphasized straight roads, wide lanes, and clear zones on the sides. He observed that this makes the roadway a safer environment for drivers, but it also tends to increase speed, which has safety and psychological impacts for people using other modes of travel. "Those kinds of policy implications were never considered or given significant weight until recently," he said, noting that at the local level, decision makers set much of the design and overall planning policy that influences these systems. He argued that "simply providing education can go a long way toward demonstrating how all those different moving pieces interact with one another and what some of those trade-offs are."

Fulton stressed the importance of greater understanding of why some policy options are not being implemented in particular communities or regions of the country. She suggested that the similarities among such places are of interest. She noted, for example, that about a quarter of municipalities have adopted Complete Streets policies, and said she wonders about the characteristics and motivations of the other 75 percent of municipalities. Smith referenced a point made by Shiriki Kumanyika in the third workshop session (see Chapter 4)—that one factor may be the aftereffects of legal segregation or other inequities that have been powerful forces in U.S. history. "It is easy to overlook people who have been overlooked and often are not in the position to make their voices heard," she said.

CLOSING THOUGHTS

At the end of the session, Vinluan invited the panelists to share their thoughts on particular action steps that workshop participants can implement in their own communities and organizations.

Fulton suggested four potential action steps: First, collect the data that matter. For example, she said, while policies in many communities call for increasing walkability, there is no system for comprehensively and cost-effectively measuring the walkability of communities in the United States. Second, form partnerships at all levels, from the federal to the local, because "we should all [work] together on these issues." Third, think beyond the health benefits of improvements to the built environment: "How do these changes affect economic vitality or social cohesion? What are the other benefits that are being affected that sell to different audiences?" Finally, make the changes simple—"People will be more likely to do them if they perceive them as simple. . . . Making temporary bike lanes. Inviting the

mayors to take a bike ride with you. How can we do more of those simple things that show people that these types of easy changes do have benefit?"

Smith focused on rural communities, particularly since her organization is seeking to work more in rural communities around issues of access to healthy foods. She explained, "What we are learning is that the issue of access is incredibly different in places like Montana or in places like Appalachia where geography can play a major role. It is not just about the built environment, but also other types of infrastructure like transportation and how does a truck of food or fresh produce get to places over long distances."

Vinluan added that the Robert Wood Johnson Foundation has a long history of dedicating resources to changing the built environment and creating optimally healthy communities, and it is now looking at how it can leverage assets in communities, especially in rural areas, to increase economic pathways that would also benefit health. "All of these are connected issues," she said.

Lavrenz cited two potential action steps. First, a transportation and health task force at the Institute of Transportation Engineers has been developing short-, medium-, and long-term action items and goals. The conversation at the workshop, he said, "can help to inform that." Second, he suggested, health can be linked more explicitly to safety, noting, "The two go hand in hand." He added that one way to make the connection is through case studies that highlight the linkage for the Institute's members so they can more easily have conversations with health professionals.

Wilson noted that designing for health and wellness is a core value of his practice at Perkins and Will. "We need to practice what we preach," he said. He added that his firm is participating in the Fitwel Champions program, which includes a rating system that provides a roadmap for designing interior spaces that support wellness.[4] "Health and wellness can be taught at the workplace," he argued, stating, "If your organization has a policy that supports that, people learn about it and then they take it home and tell their friends."

Finally, Bill Purcell asked all the workshop participants to ask themselves what they and their organizations can do to change the built environment in such a way as to promote health. "What is your next step? How will you put into practice what you learned today? . . . There are definitely things that all of us can do . . . to create more healthy and equitable environments."

[4] More information about the program is available at https://fitwel.org/certification/champions (accessed November 30, 2017).

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A

Workshop Agenda

Advancing Obesity Solutions Through Investments
in the Built Environment: A Workshop

Roundtable on Obesity Solutions
September 12, 2017

National Academy of Sciences Building
2101 Constitution Avenue, NW, Washington, DC
Lecture Room

Workshop Goals

The overall goals of the 1-day workshop are to improve understanding of the roles built environment policies and practices play in the prevention and treatment of obesity and to identify promising strategies in multiple sectors that can be scaled up to create more healthful and equitable environments. Built environment topics to be considered include urban planning and design, transportation systems, parks and recreation, and food systems.

The workshop will

- introduce attendees to evidence-based principles of designing built environments to support health and reduce the risk of obesity;
- describe examples of successful multisector strategies (policies, programs, projects, and public investments) that are creating health-promoting built environments;
- discuss approaches for ensuring that built environment strategies improve health equity and environmental justice;
- discuss strategies by which promising, effective, and equitable built environment strategies to improve health can be scaled up and institutionalized; and
- discuss who should be involved and next steps.

8:30 AM	**WELCOME AND SETTING THE STAGE** Bill Purcell, Chair, Roundtable on Obesity Solutions, former Mayor of Nashville, Tennessee Jim Sallis, Workshop Planning Committee Member, University of California, San Diego
8:45 AM	**SESSION 1: Built Environments, Obesity, and Health Overview** *Moderator:* Governor Parris Glendening, Smart Growth America Rodrigo Reis, Washington University in St. Louis Karen Glanz, University of Pennsylvania Daniel Rodríguez, University of California, Berkeley
9:30 AM	**MODERATED DISCUSSION**
10:00 AM	**PHYSICAL ACTIVITY BREAK**
10:30 AM	**SESSION 2: Progress in Improving Built Environments—Examples from Communities and Cities** *Moderator:* Bill Purcell Michelle Nance, Centralina Council of Governments Leslie Meehan, Tennessee Department of Health Cathy Costakis, Montana State University
11:30 AM	**MODERATED DISCUSSION**
12:00 PM	**LUNCH**
1:00 PM	**SESSION 3: Challenging and Promising Strategies for Achieving Equitably Healthy Environments** *Moderator:* Shiriki Kumanyika, Drexel University James Siegal, KaBOOM! Kimi Watkins-Tartt, Alameda County Public Health Department Sara Hammerschmidt, Urban Land Institute Shai Lauros, LISC (Local Initiatives Support Corporation) National
3:00 PM	**PHYSICAL ACTIVITY BREAK**

3:30 PM	**SESSION 4: Opportunities for Action** *Moderator:* Monica Hobbs Vinluan, Robert Wood Johnson Foundation Janet Fulton, Centers for Disease Control and Prevention Steve Lavrenz, Institute of Transportation Engineers Patricia Smith, Reinvestment Fund Ken Wilson, Perkins+Will
4:30 PM	**ADJOURN**

B

Acronyms and Abbreviations

APA	American Planning Association
APHA	American Public Health Association
BACI	Building Active Communities Initiative
BMI	body mass index
CCOG	Centralina Council of Governments
CDC	Centers for Disease Control and Prevention
LISC	Local Initiatives Support Corporation
MPO	metropolitan planning organization
SBM	Society of Behavioral Medicine
ULI	Urban Land Institute

C

Speaker and Facilitator Biographies

Cathy Costakis, M.P.H., works for Montana State University (MSU)–Bozeman and is a senior consultant to the Montana Department of Public Health and Human Services' Nutrition and Physical Activity (NAPA) program. NAPA is a statewide obesity prevention program funded through the Centers for Disease Control and Prevention (CDC). For the past 12 years, Ms. Costakis has worked on statewide initiatives focused on the connection between public health and community design. In partnership with statewide advisors and mentor counties, she developed the Montana Building Active Communities Initiative (BACI), and works statewide to provide technical assistance and training to cities and towns working to build better places for walking, biking, and transit. Multisector leadership teams attend a statewide BACI Action Institute annually. Ms. Costakis holds a bachelor's degree in finance from the University of Illinois and a master's degree in health promotion from MSU–Bozeman.

Janet E. Fulton, Ph.D., is an epidemiologist and chief of the Physical Activity and Health Branch in the Division of Nutrition, Physical Activity, and Obesity at the Centers for Disease Control and Prevention in Atlanta, Georgia. Dr. Fulton has published more than 100 scientific articles on the epidemiology of physical activity. She was the science coordinator and a member of the writing group for the *2008 Physical Activity Guidelines for Americans*, the *Physical Activity Guidelines for Americans Midcourse Report: Strategies to Increase Physical Activity among Youth*, and most recently for *Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities*. She also served as a technical consul-

tant to the World Health Organization for the *Global Recommendations on Physical Activity for Health*. She is the 2010 recipient of the American Heart Association's Steven N. Blair Award for Excellence in Physical Activity Research. She is a fellow of the American College of Sports Medicine and the American Heart Association. Her research interests include the epidemiology of physical activity and chronic diseases, measurement and quantification of physical activity, and population-based promotion of physical activity. She earned her Ph.D. in epidemiology at the University of Texas–Houston School of Public Health.

Karen Glanz, Ph.D., is the George A. Weiss University Professor, professor in the Perelman School of Medicine and the School of Nursing, and director of the UPenn Prevention Research Center at the University of Pennsylvania. A globally influential public health scholar whose work spans psychology, epidemiology, nutrition, and other disciplines, she focuses her research in community and health care settings on obesity, nutrition, and the built environment; reducing health disparities; and health communication technologies. Her research, funded for more than $40 million over the past 25 years, focuses on cancer prevention and control, theories of health behavior, obesity and the built environment, social and health policy, and new health communication technologies. Beginning in the 1980s, her research and publications on understanding, measuring, and improving healthy food environments have been widely recognized and replicated. She is a member of the National Heart, Lung, and Blood Institute's advisory council and served on the U.S. Community Preventive Services Task Force for 10 years. Dr. Glanz was elected to membership in the National Academy of Medicine in 2013. She was designated a highly cited author by ISIHighlyCited.com, is in the top 0.5 percent of authors in her field over a 20-year period, and was named a highly cited author and one of the world's most influential scientific minds, 2015, by Thomson Reuters. She earned her M.P.H. (health behavior and health education) from the University of Michigan School of Public Health, Ann Arbor, and her Ph.D. (health behavior and health education) from the University of Michigan Rackham School of Graduate Studies, Ann Arbor.

Parris N. Glendening, Ph.D., M.A., is the president of Smart Growth America's Leadership Institute and the Governors' Institute on Community Design. In these roles, he speaks across the country and around the world about smart growth, sustainability, global climate change, land conservation, transit-oriented development, and equity. He regularly speaks to environmental advocacy groups, business leaders, and professional organizations. Governor Glendening served as governor of Maryland from 1995 to 2003. While governor, he created the nation's first state-level

smart growth program, for which he received Harvard University's Innovations in American Government Award. Prior to being elected governor, he served three terms as elected county executive of Prince George's County, Maryland (population 800,000) and 10 years as a city and county council member. He was elected president of the Maryland Association of Counties, the Democratic Governors Association, the National Governors Association, and the Council of State Governments. For his leadership, *Governing Magazine* twice named him "Outstanding Public Official of the Year," making him the first ever to receive that prestigious award at both the local and state levels. Governor Glendening was a highly regarded professor at the University of Maryland, College Park, for 27 years, repeatedly recognized for his innovative, quality teaching and receiving the Regents' Excellence in Teaching Award. He continues to be involved in the National Academy of Public Administration as an elected fellow. He has served as a senior advisor to the president and National Council of the American Society of Public Administration (ASPA). His unique mix of academic, political, and nonprofit careers has led to numerous public service awards, including ASPA's Donald C. Stone Award and the Hubert H. Humphrey Award. He is currently the founder and president of Scarlett Oak Strategies in Washington, DC. Governor Glendening holds a doctorate in government and politics from Florida State University, as well as eight honorary degrees.

Sara Hammerschmidt, Ph.D., M.S., is senior director, content, at the Urban Land Institute, where she develops content and programs focused on the impact of the built environment on public health through the Building Healthy Places Initiative. Throughout her career, she has done extensive work on issues that lie at the intersection of health and the built environment. Previously, she worked at PolicyLink in Oakland, California, researching the inclusion of social and economic equity into projects, plans, and policies being implemented at this intersection. She has spoken at several national conferences on the topics of health impact assessment, the role of urban planning in creating healthier cities, and recommendations for incorporating health into all built environment decision making. Dr. Hammerschmidt holds a B.S. in industrial operations and engineering from the University of Michigan and worked for 8 years in the technology industry prior to graduate school. She holds an M.S. and a Ph.D. in community and regional planning from The University of Texas at Austin, where her research focused on developing recommendations for how planning departments across the country can incorporate public health considerations into their work.

Shiriki Kumanyika, Ph.D., M.P.H., M.S.W., is professor emerita of epidemiology at the University of Pennsylvania Perelman School of Medicine and research professor in the Department of Community Health and Prevention

at the Dornsife School of Public Health, Drexel University. Dr. Kumanyika has a unique interdisciplinary background that integrates epidemiology, nutrition, social work, and public health methods and perspectives. The main themes of her research concern prevention and control of obesity and other diet-related risk factors and chronic diseases, with a particular focus on reducing the prevalence and health burdens of obesity in black communities. In 2002, Dr. Kumanyika formed the African American Collaborative Obesity Research Network, a national network of academic scholars and community research partners who generate and translate research on nutrition, physical activity, and weight issues in African American children and adults. She is a past president of the American Public Health Association and has served in numerous advisory roles related to public health research and policy in the United States and abroad. She is currently co-chair of the Policy and Prevention Section of the World Obesity Federation, a member of the Lancet Commission on Obesity, and a nutrition advisor to the World Health Organization. Dr. Kumanyika has served on the Food and Nutrition Board and a number of committees of the National Academies of Sciences, Engineering, and Medicine. She received her M.S. in social work from Columbia University, her M.P.H. from Johns Hopkins University, and her Ph.D. in human nutrition from Cornell University. She is a member of the National Academy of Medicine.

Shai Lauros, M.Arch., M.Sc., is the national health program director at LISC (Local Initiatives Support Corporation) National and oversees the organization's health and community development initiatives at the national and local levels, encompassing more than 30 cities and 2,000 rural counties across 44 states. Ms. Lauros has worked in the private, public, and nonprofit sectors in planning, design, development, community health, and sustainability. Trained professionally as both an architect and a planner with a focus on sustainable community development, she has been working on the intersections between these issues for more than 15 years. Her previous consulting and advisory work spanned strategic planning, development, and policy initiatives, with a focus on sustainability and equity to create local and regional economic generators and healthy environments. Her work has included the Robert Wood Johnson Foundation's Invest Health initiative with the Reinvestment Fund and Bennett Midland, as well as several sustainable community development projects in New York. Ms. Lauros has presented publicly on issues of community development, public health, equitable development, strategic planning and redevelopment, affordable housing policy, and the use of metrics in sustainability initiatives. She holds an M.Sc. RUP (regional and urban planning) from the London School of Economics and Political Science, an M.Arch. (architecture) from Columbia University, and a B.A. from Barnard College-Columbia University, and

has taught site planning and social and economic geography at Temple University and the City University of New York (CUNY)-NYC College of Technology.

Steven Lavrenz, Ph.D., M.S., is a technical programs specialist for the Institute of Transportation Engineers (ITE). In this role, he also oversees the technical services program for the National Operations Center of Excellence. Dr. Lavrenz works on a number of projects at ITE involving active transportation, context-sensitive design, and transportation safety. He is staff liaison for the ITE Vision Zero Task Force and the recently launched Transportation and Health Task Force. His research background is in traffic safety, operations, and infrastructure management, and he has a number of committee roles and peer-reviewed publications in these areas. He received his B.S. and M.S. in civil engineering from Iowa State University and a Ph.D. in civil engineering from Purdue University.

Leslie Meehan, Ph.D., A.I.C.P., oversees the Office of Primary Prevention in the Commissioner's Office of the Tennessee Department of Health. Her focus is on increasing physical activity through the built environment as the foremost way to combat the state's largest health issues. Previously, Ms. Meehan served 10 years as director of healthy communities for the Nashville Area metropolitan planning organization (MPO) in Tennessee. At the MPO, she focused on the intersection of transportation and health, specifically on transportation's impacts on physical activity, air quality, and injury. Her work has been recognized nationally and internationally. Ms. Meehan is a member of the American Institute of Certified Planners, the Institute of Transportation Engineers, the Association of Bicycle and Pedestrian Professionals, and the Tennessee Public Health Association. She co-authored the Transportation Sector of the National Physical Activity Plan, served as expert advisor on the U.S. Department of Transportation and Centers for Disease Control and Prevention Transportation and Health Tool, was appointed by Transportation Secretary Peters to the National Safe Routes to School Task Force, and has presented at a White House event on transportation and health. She currently serves as a panel member for the Research Roadmap for Transportation and Health of the National Cooperative Highway Research Program, Transportation Research Board, National Academies of Sciences, Engineering, and Medicine.

Michelle E. Nance, M.P.A., A.I.C.P., is the planning director for the Centralina Council of Governments, providing planning services to nine counties in the greater Charlotte, North Carolina, region. She directs the Council's work related to land use and transportation, healthy community initiatives, energy, and the environment. Her work is focused on helping local govern-

ments address shared long-term issues through collaboration and partnerships. She co-founded the Centralina Health Solutions Center, one of two coalitions in the Southeast to receive the American Planning Association's Plan4Health grant, and currently manages the statewide Planners4Health NC initiative. Ms. Nance is the former director of planning and development services for the city of Gastonia and has experience in state, regional, and local government planning. She is a past president of the North Carolina Chapter of the American Planning Association, was named 2014 Health Champion for Active Living by the Region 4 Community Transformation Grant Project Team, was honored as one of the 50 most influential women in the Charlotte region in 2017, and was named 2017 Woman of the Year by the *Mecklenburg Times*. She holds an M.P.A. and a B.S. in urban and regional planning from East Carolina University.

Bill Purcell, J.D., is an attorney in Nashville, Tennessee, and an adjunct professor of public policy at Vanderbilt University. While serving as mayor of Nashville (1999 to 2007), he earned Public Official of the Year honors in 2006 from *Governing Magazine* for his accomplishments as a civic leader. Elected to five terms in the Tennessee House, he held the positions of majority leader and chair of the Select Committee on Children and Youth. After retiring from the General Assembly, Mr. Purcell founded and became director of the Child and Family Policy Center at the Vanderbilt Institute of Public Policy Studies. From 2008 to 2010, he served as director of the Institute of Politics at the Harvard Kennedy School of Government. He was then appointed special advisor and co-chair of the Work Team for Allston in the Office of the President at Harvard University. He previously served in various capacities on obesity-related committees of the National Academies of Sciences, Engineering, and Medicine. He graduated from Hamilton College and Vanderbilt University School of Law.

Rodrigo Reis, Ph.D., M.S., is a professor of public health and chair of the urban design and public health M.P.H. specialization at the Washington University in St. Louis. He previously worked as a professor at the Pontifical Catholic University of Parana and at the Federal University of Parana in Curitiba, Brazil. His research focuses on physical activity and public health, with particular emphasis on community interventions for promoting physical activity, the built environment and health, active transportation and health, and surveillance of physical activity. His policy and research experience includes working as a consultant for the Brazilian Ministry of Health in the development and monitoring of the national plan for combating noncommunicable diseases in Brazil and being involved in international projects, such as Project GUIA (Guide for Community in Latin America), the International Physical Activity and Environment Network, and the Cen-

ters for Disease Control and Prevention physical activity courses in Latin America. Dr. Reis is also a founding member and former president of the Brazilian Society for Physical Activity and Health and is a current board member of the International Society for Physical Activity and Health. He is a member of the Lancet Physical Activity Series Group, which developed a series of studies published in summer 2012 and 2016, and is co-author of the Urban Design and Public Health Series, published in summer 2016 by *The Lancet*. He received his Ph.D. from the Federal University of Santa Catarina, Brazil.

Daniel A. Rodríguez, Ph.D., M.S., is chancellor's professor in the Department of City and Regional Planning at the University of California, Berkeley. His research focuses on the reciprocal relationship between the built environment and transportation and its effects on the environment and health. He is currently involved in several studies examining the built environment and health outcomes in several countries. Dr. Rodríguez's research has been funded by the National Institutes of Health, the Environmental Protection Agency, the Wellcome Trust, the U.S. Department of Transportation, and the Robert Wood Johnson Foundation, among others. He has a distinguished publication record, including co-authoring the book *Urban Land Use Planning* (University of Illinois Press). He serves on the editorial board of the *Journal of the American Planning Association*, *International Journal of Sustainable Transportation*, *Journal of Architectural Planning and Research*, *Journal of Transportation and Health*, and *Journal of Transport and Land Use*. Dr. Rodríguez earned his M.S. from the Massachusetts Institute of Technology and his Ph.D. from the University of Michigan, Ann Arbor.

James F. Sallis, Ph.D., is a distinguished professor emeritus of family medicine and public health at the University of California, San Diego. His primary research interests are promoting physical activity and understanding policy and environmental influences on physical activity, nutrition, and obesity. He has made contributions in the areas of measurement, correlates of physical activity, intervention, and advocacy. Dr. Sallis's health improvement programs have been studied and used in health care settings, schools, universities, and companies. He is the author of more than 600 scientific publications and is one of the world's most cited scientists. He is a frequent consultant to universities, health organizations, and corporations worldwide. Dr. Sallis is a member of the National Academy of Medicine. He received his Ph.D. in clinical psychology from Memphis State University.

James Siegal, J.D., is the CEO of KaBOOM!, the national nonprofit that seeks to give children the childhood they deserve, filled with balanced and

active play, so they can thrive. Prior to joining KaBOOM!, he served as chief of staff for the Corporation for National and Community Service, the federal agency that supports citizen engagement to address community challenges through AmeriCorps, the Social Innovation Fund, and other programs. Mr. Siegal has broad experience in the public, private, and nonprofit sectors, including serving as vice president of nonprofit programs and practice at the leading nonprofit coalition, Independent Sector. He also served as registration section chief and assistant attorney general at the New York State Attorney General's Charities Bureau and associate at the global law firm Paul, Weiss, Rifkind, Wharton & Garrison. He is a graduate of Princeton University and Harvard Law School.

Patricia Smith, J.D., serves as the senior policy advisor for the Reinvestment Fund, a community development financial institution dedicated to creating economic opportunity for low-income people and places through the innovative use of capital, data, and partnerships. Ms. Smith is responsible for the Reinvestment Fund's federal policy agenda. In 2009, she helped launch the Healthy Food Financing Initiative, a national campaign that to date has yielded more than $197 million in federal investments to improve access to and expand the supply of and increase the demand for fresh and healthy foods in rural and urban communities. She works with a range of partners and is a well-regarded resource to the private, public, and philanthropic sectors on programs for access to healthy food. During her career, Ms. Smith has held leadership positions in the foundation, government, and nonprofit sectors and managed award-winning community development and capacity-building programs. She is a contributor to several Reinvestment Fund reports, most recently *Feeding the Line or Ending the Line?: Innovations Among Food Banks in the United States* (2016). She was also featured in the PBS documentary *Philadelphia: The Holy Experiment, Edens Lost and Found: How Ordinary Citizens Are Restoring Our Great American Cities*. She holds a B.A. from Mount Holyoke College and a J.D. from The George Washington University Law Center.

Monica Hobbs Vinluan, J.D., is a senior program officer for the Robert Wood Johnson Foundation (RWJF). She joined RWJF in 2015 as part of the childhood obesity team. Her work focuses on supporting policy strategies to help children attain their optimal physical, social, and emotional development and well-being. Prior to joining RWJF, she directed YMCA of the USA's Healthier Communities Initiatives, which catalyzed nearly 250 community- and state-level leadership teams to advance policies that allow people to make healthy choices where they live, work, learn, pray, and play. Ms. Vinluan has spent her career advocating for strategies that help individuals and communities live well, including policy issues connected

to physical activity, healthy eating, and health equity. She has served as a government relations professional on a variety of health and well-being issues for 18 years and has been a professional advocate for health promotion issues for more than two decades. Her experience includes working for a U.S. senator and serving as a child and family advocate, a regulatory counsel, a legislative counsel, and a lobbyist. She completed her J.D. at the American University Washington College of Law and graduated with a bachelor's degree in political science from Virginia Tech.

Kimi Watkins-Tartt serves as deputy director of the Alameda County Public Health Department, where she is responsible for overseeing the department's operational divisions, which include Family Health Services, Community Health Services, Public Health Nursing, and Communicable Disease Control and Prevention. Additionally, she oversees the management of internal department policies, program budgets, grant coordination, and personnel management. Ms. Watkins-Tartt has worked for more than 25 years within the local public health community and brings a wealth of experience in public health administration, policy development, and community health planning and coordination. Prior to taking on the role of deputy director, she led the Division of Community Health Services, driving its strategic initiatives, including the launching of new efforts aligned with the department's strategic direction to achieve health equity. She was instrumental in helping the department design and implement its health equity and local policy efforts and recently spearheaded its first Chronic Disease Prevention Planning process. Ms. Watkins-Tartt has a long-standing passion for and commitment to health equity and social justice. She is a founding member and current Internal Capacity Committee co-chair for the Bay Area Regional Health Inequities Initiative and recently joined the Health Equity and Social Justice Committee of the National Association of County & City Health Officials.

Ken Wilson is a principal and design director of interiors in the Washington, DC, office of Perkins and Will. His portfolio includes architecture, interiors, graphics, and product design—all with a focus on sustainability and wellness. He is the only architect in the United States to have been named a fellow in the American Institute of Architects (AIA), the International Interior Design Association (IIDA), and the Green Building Certification Institute (Leadership in Energy and Environmental Design [LEED] fellow). His work has been published in seven different countries and has received more than 120 national and local design awards. His projects include headquarters offices for the U.S. Green Building Council, the International Interior Design Association, and the American Society of Interior Designers.