

March 2013

Physical Activity, Park Access and Park Use among California Adolescents

Susan H. Babey, Joelle Wolstein, Samuel Krumholz, Breece Robertson, Allison L. Diamant

SUMMARY: In California, 2.15 million adolescents (62.9%) do not engage in at least 60 minutes of physical activity five or more days per week. Adolescents who visited a park in the past month and those who live in a park service area are more likely to meet this goal. Lower-income California adolescents are less

likely to visit local parks and more likely to believe local parks are unsafe. Actions by state and local policymakers to increase park access and attractiveness, especially to underserved populations, may be an effective way to promote physical activity among California's adolescents.

“Teens with access to a park are more likely to engage in regular physical activity.”

Participating in regular physical activity is an important factor in preventing obesity and maintaining health, while also providing many other benefits.¹ Lack of physical activity contributes to obesity and is a risk factor for chronic health conditions including diabetes, coronary heart disease, hypertension, colon cancer and osteoporosis.² Physical activity is also associated with increased mental alertness and higher academic achievement, as well as lower levels of stress and depression.³

Parks, playgrounds and other open spaces provide important opportunities for youth to engage in physical activity and to lead more active lifestyles. In 2007, more than 25 million Californians reported recently visiting a park or playground.⁴ However, many Californians, especially in underserved communities, lack access to safe parks and other open spaces.⁵

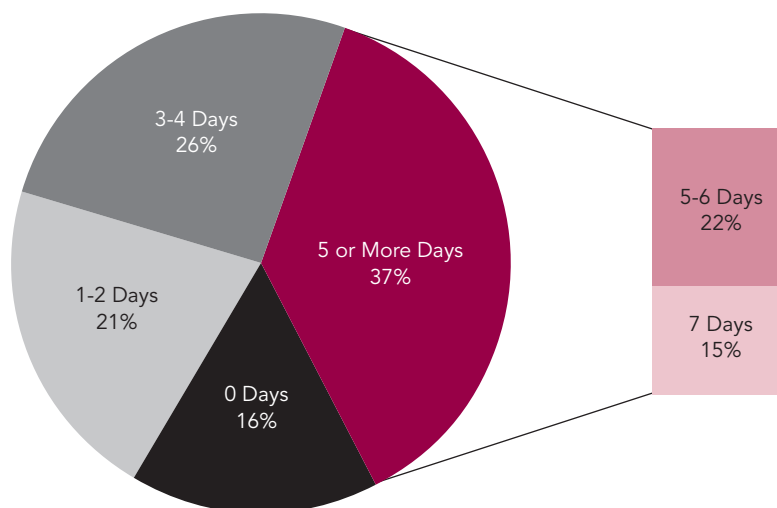
This policy brief examines the relationship between California adolescents' proximity to parks, use of parks and level of physical activity. It also examines disparities in park- and activity-related outcomes as a function

Park Service Areas

Park service areas were determined by using Geographic Information Systems (GIS) to map locations of parks and public open spaces. Park service area buffers were drawn around the perimeter of public parks in California. A one-quarter mile buffer was drawn around small parks (under one acre), and a one-half mile buffer was drawn around larger parks (one acre or greater). These park service areas were linked to CHIS data based on household locations of CHIS respondents. If a household was located within the park service area buffer, that respondent was considered to live in a park service area. Data on the locations of parks are from the California Protected Areas Database. The Trust for Public Land performed the GIS mapping, identifying park service areas in California, prior to the park service area locations being linked with CHIS.

Exhibit 1

Distribution of Days with At Least 60 Minutes of Physical Activity, Adolescents Ages 12-17, California, 2009



Source: 2009 California Health Interview Survey

“Only 15% of California teens get at least 60 minutes of daily physical activity.”

of family income. The findings presented are based on data from the 2009 California Health Interview Survey (CHIS 2009) and the California Protected Areas Database (www.calands.org).⁶

Few California Teens Meet Physical Activity Recommendations

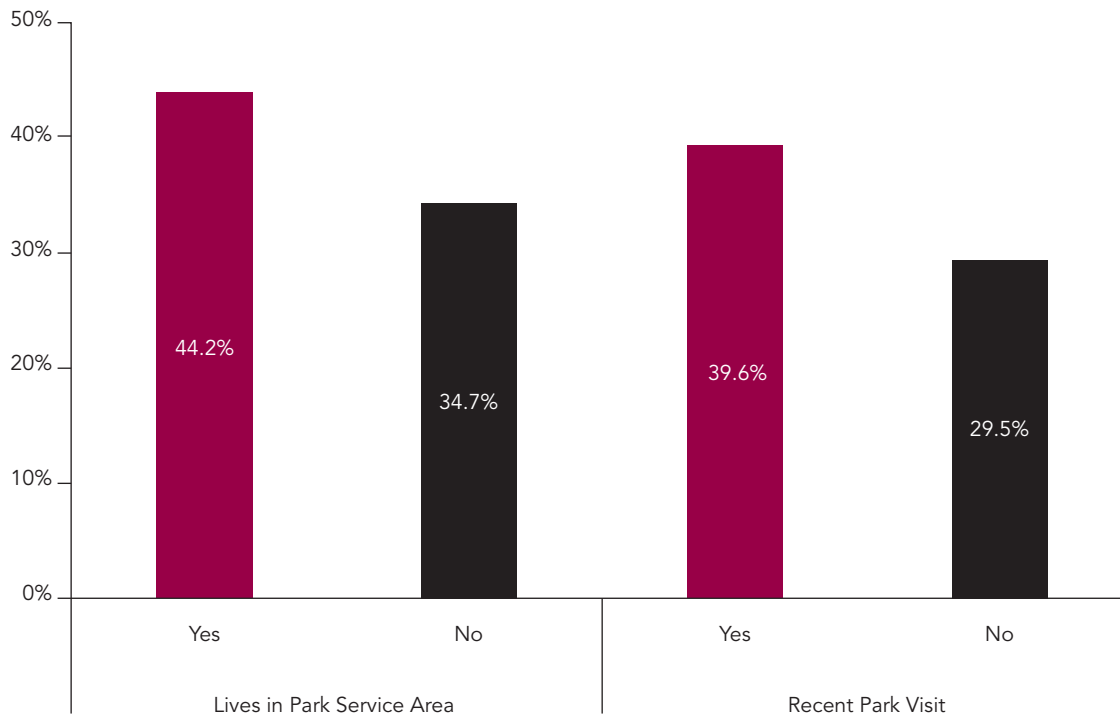
The U.S. Department of Health and Human Services recommends at least 60 minutes of daily physical activity for children and teens.⁷ In California, only 15% of teens meet this recommendation, down from 19% in 2007 (Exhibit 1).⁸ Additionally, more than 60% of California adolescents do not engage in at least 60 minutes of physical activity five or more days per week. Nationally, 18% of high school students participated in at least 60 minutes of daily physical activity in 2009, slightly higher than the percentage in California.⁹

Easy Access to Parks and Visiting Parks Linked to More Physical Activity

Parks provide a venue to engage in physical activity. In California, only 25% of adolescents reside in a park service area (see definitions box and Data Source and Methods for more information). Teens living in a park service area engage in more regular physical activity. Nearly 45% of teens who live in a park service area engaged in at least 60 minutes of physical activity on five or more days each week compared to just over a third of teens (34.7%) who live outside of a park service area (Exhibit 2). The association between living in a park service area and greater physical activity remained statistically significant when adjusting for age, gender, race, income, park visits and perceptions of park safety.

Percent of Adolescents with Five or More Days of At Least 60 Minutes of Physical Activity by Park Access and Park Use, Ages 12-17, California, 2009

Exhibit 2



Source: 2009 California Health Interview Survey and the California Protected Areas Database

Three-quarters of California teens (75.2%) report visiting a park in the past month, suggesting there is considerable demand for parks among this age group. Adolescents who visited a park in the past month engaged in more physical activity than those who did not. Approximately 40% of adolescents who visited a park in the past month were physically active for at least 60 minutes on five or more days during the preceding week, compared to less than one-third of teens (29.5%) who had not visited a park recently (Exhibit 2). The association between a recent park visit and greater physical activity remained statistically significant when adjusting for age, gender, race, income, living in a park service area and perceptions of park safety.

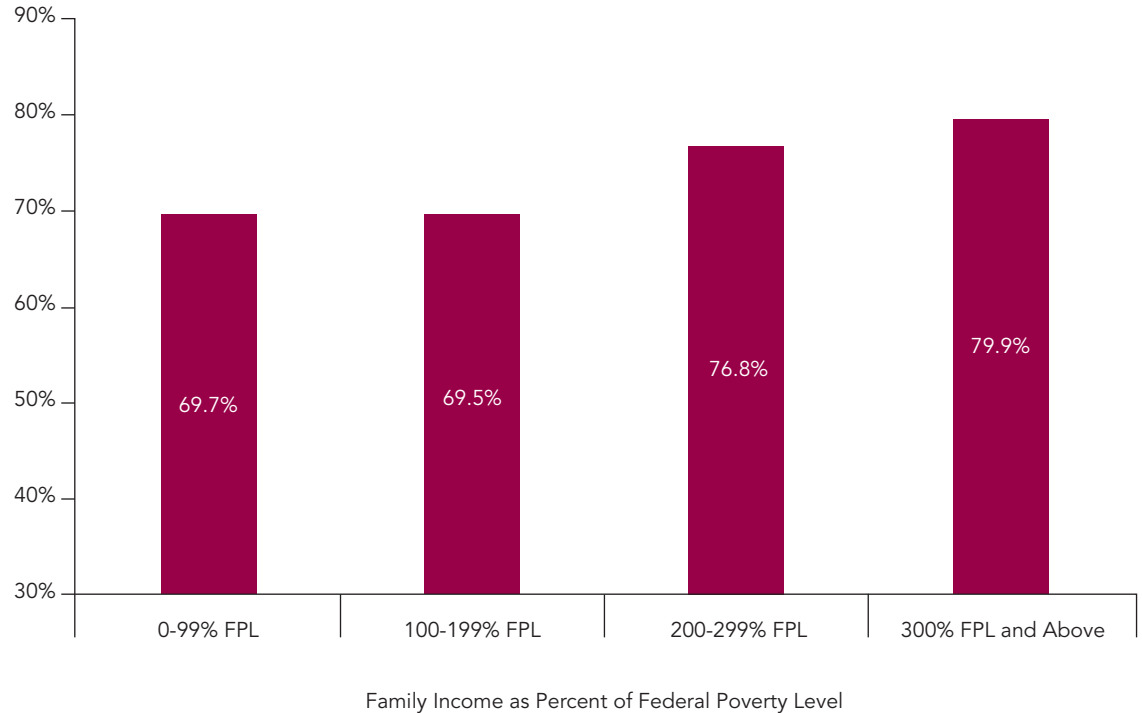
Low-Income Teens Get Less Physical Activity, Report Neighborhood Parks Are Unsafe and Visit Parks Less Often

Adolescents from low-income families are less likely to meet physical activity recommendations. Just over one-third of adolescents (34.5%) with family incomes below 300% of the Federal Poverty Level (FPL) were physically active for at least one hour on five or more days in the past week compared to 40% of those with incomes above 300% FPL. This disparity may be due in part to low-income adolescents' lack of access to safe parks.

“The data suggest considerable demand for parks among teens.”

Exhibit 3

Percent Who Visited a Park in the Past Month by Family Income, Adolescents Ages 12-17, California, 2009



Source: 2009 California Health Interview Survey

“Low-income teens are less likely to visit parks.”

Adolescents from low-income families are also less likely than their more affluent counterparts to have visited a park in the past month. Eighty percent of teens with annual family incomes at or above 300% FPL visited a park in the past month compared with just under 70% of those with family incomes below 200% FPL (Exhibit 3).

Park safety is also linked with income. Adolescents from low-income families are more likely to perceive that their neighborhood parks are unsafe. The percent of teens who reported their neighborhood park is unsafe was more than twice as high among teens with family incomes below the federal poverty line compared to teens with family incomes at or above 300% FPL (16.1% vs. 5.8%; Exhibit 4). Research suggests that residents of low-income neighborhoods have limited access to well-maintained, safe parks.¹⁰ These

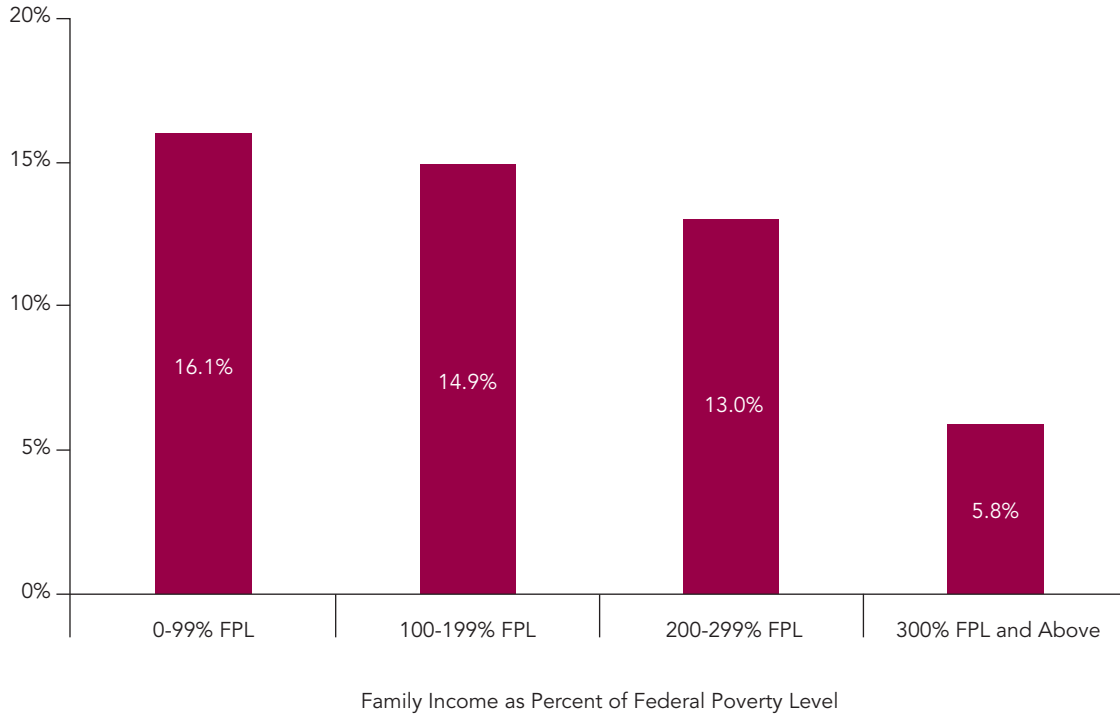
neighborhoods also often have higher crime rates. Perceptions of park safety may contribute to the observed income disparities in park visits as well as in physical activity levels. For example, 80% of adolescents who strongly agreed that their neighborhood park is safe reported a recent park visit compared to just 66% of those who thought their nearby park was not safe. However, although visiting a park and perceptions of park safety were associated with income, living in a park service area did not differ significantly by family income.

Conclusions and Policy Recommendations

In California, only 15% of adolescents meet the recommendation of at least 60 minutes of daily physical activity, and only 37% engage in 60 minutes of activity at least five days per week. However, teens that live near a park and teens that have visited a park in the past month are more likely than

Percent Who Report Nearby Park Is Not Safe by Family Income, Adolescents Ages 12-17, California, 2009

Exhibit 4



Source: 2009 California Health Interview Survey

their peers to achieve this level of physical activity. Disparities by family income exist in adolescent level of physical activity, perceptions of park safety and park use. Adolescents from low-income families get less physical activity, are less likely to visit parks and are more likely to report that their neighborhood parks are not safe. The existing research supports efforts to promote physical activity by enhancing local parks and other green spaces as well as improving access to and safety of parks. Such efforts may prove effective in increasing physical activity and park use, as well as helping to prevent obesity.

To ensure that all Californians have safe places to play and be active, policymakers and community leaders—in conjunction with parks and recreation, education, and health and public safety organizations—need to focus on maintaining and improving

existing resources as well as creating new opportunities for teens to engage in physical activity.¹¹ Policymakers should consider the following options:

- Invest in maintenance, improvements to amenities and recreational programming in existing parks.** Improving and maintaining equipment and park grounds can increase use of parks and the physical activity levels of park users.¹² For example, purchasing aerobic and strength-training equipment to create outdoor fitness spaces, or Fitness Zones, would create new physical activity opportunities in public parks. This equipment is effective, durable and easy-to-use, as well as weather and vandal proof. Research has found that installing such equipment in parks increased the number of new park users, as well as increasing energy expenditure at those parks.¹³

“Outdoor fitness spaces can increase park use.”

“School playing fields and playgrounds can serve the fitness needs of the community.”

Age-appropriate recreational programming can offer additional opportunities for physical activity. Offering structured, supervised group activities could increase physical activity as well as promote park use among adolescents. One study found that parks with a greater number of supervised activities and programs had higher observed park visitation levels.¹⁴ These supervised activities may also increase park users' feelings of safety.

- **Lead efforts to create joint use agreements that allow community use of school grounds on weekends and outside of school hours, especially in low-income neighborhoods.** Joint use agreements allow community members and organizations to use school facilities, such as playing fields and playgrounds, when school is not in session. Allowing access to and use of existing school facilities can be a cost-effective way of increasing opportunities for physical activity. Research suggests that providing access to school recreational facilities outside of school hours can increase physical activity among youth.¹⁵ Currently, higher-income communities are more likely to provide for shared use of school facilities than lower-income communities, exacerbating already existing disparities in access to spaces for physical activity. Efforts to establish joint use agreements should target low-income neighborhoods that lack safe spaces for physical activity.
- **Improve park security and aesthetics, particularly in low-income areas, to increase park use.** Perceptions of park safety and cleanliness may be related to frequency of park use and physical activity levels.¹⁶ Local governments should consider undertaking projects to improve the perceived and actual safety of parks. Local policymakers should work with parks and recreation departments as well as community members to determine appropriate strategies. For example, the principles of Crime Prevention through

Environmental Design suggest that making community spaces more open and reducing dark and obscured areas can prevent crime, as well as increase feelings of safety.¹⁷ Park administrators should also concentrate on maintenance and park aesthetics; for example, dealing with vandalism and graffiti and reducing litter may increase use of existing parks.

- **Target efforts to improve access to and safety of low-income neighborhoods and other park-poor areas.** Residents of low-income neighborhoods frequently lack access to safe places to engage in physical activity. When funding is available for parks and open spaces it is important to prioritize park-poor areas for investment to address disparities in access to safe parks and open spaces.

Data Source and Methods

All statements in this report that compare rates for one group with another group reflect statistically significant differences ($p < 0.05$) unless otherwise noted. The findings in this brief are primarily based on data from the 2009 California Health Interview Survey (CHIS 2009). CHIS 2009 completed interviews with over 47,000 households including 3,379 adolescents, drawn from every county in the state. Interviews were conducted in English, Spanish, Chinese (both Mandarin and Cantonese), Vietnamese and Korean. A validated self-report question was used to assess the number of days adolescents were physically active for 60 minutes or more. In addition, adolescents reported whether they had visited a park, playground or open space in the past 30 days and whether the park or playground closest to home is safe during the day. Using Geographic Information System (GIS) software, we linked CHIS 2009 data with the locations of park service areas in California using a GIS dataset provided by The Trust for Public Land (TPL). For each adolescent CHIS respondent, we determined whether they resided in a park service area. Locations of parks and public open spaces are from the California Protected Areas Database (CPAD), a GIS inventory of all protected park and open space lands in California (www.calands.org). Using CPAD, TPL identified park service areas for all public parks and open space lands in California. Buffers were drawn around the perimeter of the parks and open spaces in California. A one-quarter mile buffer was drawn around small parks (under one acre), and a one-half mile buffer was drawn



This publication contains data from the California Health Interview Survey (CHIS), the nation's largest state health survey. Conducted by the UCLA Center for Health Policy Research, CHIS data give a detailed picture of the health and health care needs of California's large and diverse population. Learn more at: www.chis.ucla.edu

around larger parks (one acre or greater). These buffers defined the park service areas. These park and park service area data were then linked to CHIS data based on household locations of CHIS respondents. If a household was located within the park service area buffer, that respondent was considered to live in a park service area.

The California Health Interview Survey is a collaboration of the UCLA Center for Health Policy Research, the California Department of Public Health, the California Department of Health Care Services and the Public Health Institute. For funders and other information on CHIS, visit www.chis.ucla.edu

Author Information

Susan H. Babey, PhD, is a senior research scientist at the UCLA Center for Health Policy Research. Joelle Wolstein, MPP, is a graduate student researcher at the UCLA Center for Health Policy Research and doctoral candidate in the UCLA Fielding School of Public Health, Department of Health Policy and Management. Samuel Krumholz is a graduate student researcher at the UCLA Center for Health Policy Research and a masters student in the UCLA Luskin School of Public Affairs, Department of Public Policy. Breece Robertson, MA, is the National Conservation Vision and GIS Director at The Trust for Public Land. Allison L. Diamant, MD, MSHS, is a professor in the Division of General Internal Medicine and Health Services Research at the David Geffen School of Medicine at UCLA.

Acknowledgements

The authors wish to thank Brenda Faber and Smitty Smith for creating the park GIS data files; Yueyan Wang for linking the park GIS data files with CHIS data; YuChing Yang for data analysis; and Gwen Driscoll, Letisia Marquez and Celeste Maglan for publication assistance. The authors would also like to thank the following individuals for their helpful comments: Jane H. Adams, Executive Director, California Park & Recreation Society; Harold Goldstein, DrPH, Executive Director, California Center for Public Health Advocacy; Ying-Ying Meng, DrPH, Senior Research Scientist, UCLA Center for Health Policy Research; Sharon Sugerman, MS, RD, FADA, Program Director, Network for a Healthy California, California Department of Public Health.

Suggested Citation

Babey SH, Wolstein J, Krumholz S, Robertson B, Diamant AL. *Physical Activity, Park Access and Park Use among California Adolescents*. Los Angeles, CA: UCLA Center for Health Policy Research, 2013.

Endnotes

- 1 Dietz WH. Overweight in childhood and adolescence. *New England Journal of Medicine* 2004;350:855–857.
- 2 U.S. Department of Health and Human Services. Physical activity guidelines advisory committee report. Washington, DC: U.S. Department of Health and Human Services, 2008.
- 3 Centers for Disease Control and Prevention. The association between school-based physical activity, including physical education and academic performance. Atlanta, GA: U.S. Department of Health and Human Services; 2010.
- 4 2007 California Health Interview Survey. Los Angeles, CA: UCLA Center for Health Policy Research.
- 5 Active Living Research. 2010. Parks, Playground and Active Living: Research Synthesis. Active Living Research: San Diego, California. Accessed online at: http://www.activelivingresearch.org/files/Synthesis_Mowen_Feb2010_0.pdf
- 6 The California Protected Areas Database is a GIS inventory of all protected park and open space lands in California. For more information, see: www.calands.org
- 7 U.S. Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington, DC: U.S. Department of Health and Human Services, 2008.
- 8 Diamant AL, Babey SH and Wolstein J. *Adolescent Physical Education and Physical Activity in California*. Los Angeles, CA: UCLA Center for Health Policy Research, 2011.
- 9 Centers for Disease Control and Prevention (CDC). Youth Risk Behavior Surveillance—United States, 2009. *MMWR* 2010;59(SS-5):1–142.
- 10 Active Living Research. Do All Children Have Places to Be Active? Research Synthesis. San Diego, CA: Active Living Research, 2011.
- 11 All Communities Deserve Safe Places to Play and Be Active. Strategic Alliance; 2011. Accessed online at: <http://preventioninstitute.org/component/jlibrary/article/id-306/127.html>
- 12 Active Living Research. 2010. Parks, Playground and Active Living: Research Synthesis. Active Living Research: San Diego, CA. Accessed online at: http://www.activelivingresearch.org/files/Synthesis_Mowen_Feb2010_0.pdf
- 13 Cohen DA, Marsh T, Williamson S, et al. Impact and cost-effectiveness of family Fitness Zones: A natural experiment in urban public parks. *Health Place*. 2012 Jan;18(1):39-45.
- 14 Cohen DA, McKenzie TL, Sehgal A, et al. Contribution of Public Parks to Physical Activity. *American Journal of Public Health*. 2007 March; 97(3): 509–514.
- 15 Centers for Disease Control and Prevention. Strategies to Prevent Obesity and Other Chronic Diseases: The CDC Guide to Increase Physical Activity in the Community. Atlanta: U.S. Department of Health and Human Services; 2011. Active Living Research. Promoting Physical Activity Through the Shared Use of School and Community Recreational Resources. San Diego, CA: Active Living Research, 2012.
- 16 Active Living Research. 2010. Parks, Playground and Active Living: Research Synthesis. Active Living Research: San Diego, CA. Accessed online at: http://www.activelivingresearch.org/files/Synthesis_Mowen_Feb2010_0.pdf
- 17 Crowe, T. 2000. *Crime Prevention Through Environmental Design*. 2nd edition. Boston: Butterworth - Heinman.

10960 Wilshire Blvd., Suite 1550
Los Angeles, California 90024



The UCLA Center
for Health Policy Research
is affiliated with the
UCLA Fielding School of Public Health and
the UCLA Luskin School of Public Affairs.

The analyses, interpretations, conclusions
and views expressed in this policy brief are
those of the authors and do not necessarily
represent the UCLA Center for Health Policy
Research, the Regents of the University
of California, or collaborating
organizations or funders.

PB2013-2

Copyright © 2013 by the Regents of the
University of California. All Rights Reserved.

Portions of this document include intellectual
property of GreenInfo Network and are used herein
by permission. Copyright 2011 GreenInfo Network.
All Rights Reserved.

Editor-in-Chief: Gerald F. Kominski, PhD

Phone: 310-794-0909
Fax: 310-794-2686
Email: chpr@ucla.edu
www.healthpolicy.ucla.edu



Read this publication online