



**DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention**



**National Center for Environmental Health
Division of Emergency and Environmental Health Services**



LEED-ND and Healthy Neighborhoods An Expert Panel Review

The Centers for Disease Control and Prevention (CDC), is the primary federal agency for conducting and supporting public health activities in the United States. CDC does not endorse or recommend any products or information; it does support public health efforts to design and build active communities that make it easier for people to live healthy lives.

The Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) is one of those public health efforts.

LEED-ND is a rating system in collaboration among the U.S. Green Building Council, the Congress for the New Urbanism, and the Natural Resources Defense Council. LEED-ND is the first national standard for neighborhood design that:

- encourages neighborhood development projects that protect and enhance the overall health, natural environment, and quality of life of communities
- promotes the location and design of neighborhoods that reduce auto dependence by providing jobs and services that are accessible by foot, bicycle or public transit

CDC's Involvement with LEED-ND

In 2004, findings from a CDC-funded literature review on land use, urban design and public health contributed to LEED-ND. See Resources for a Weblink to the pilot rating system.

In 2007, CDC convened an expert review panel of public health and land use experts to review the rating system. Eight of the 17 panelists were CDC experts. Their findings are found in the report *An Expert Review on the Strength of the Data in Support of Proposed Community Design Standards*. See Resources for a weblink to the report.

Expert Review Panel Findings

The panel found that, based on scientific research or expert opinion, several of the LEED-ND rating system features could contribute to the several health benefits listed below. The Smart Location & Linkage (SLL) and Neighborhood Pattern & Design (NPD) Prerequisites and Credits that support the health benefit are in parentheses. A description of these SLL and NPD Prerequisites and Credits are in the Appendix section of this fact sheet.

Neighborhood Pattern & Development (NPD)

Prerequisite 2 and Credit 2: Compact Development - Conserve land. Promote livability, transportation efficiency, and walkability.

Credit 1: Walkable Streets - Promote appealing and comfortable pedestrian street environments in order to promote pedestrian activity. Promote public health through increased physical activity.

Credit 3: Diversity of Uses - Promote community livability, transportation efficiency, and walkability.

Credit 4: Mixed-Income Diverse Communities - To enable citizens from a wide range of economic levels and age groups to live within a community.

Credit 5: Reduced Parking Footprint - Design parking to increase the pedestrian orientation of projects and to minimize the adverse environmental effects of parking facilities.

Credit 6: Street Network - Encourage the design of projects that incorporate high levels of internal connectivity and the location of projects in existing communities in order to conserve land, promote multimodal transportation, and promote public health through increased physical activity.

Credit 8: Transportation Demand Management - Reduce energy consumption and pollution from motor vehicles by encouraging use of public transit.

Credit 9: Access to Public Spaces - To provide a variety of open spaces close to work and home to encourage walking, physical activity, and time spent outdoors.

Credit 10: Access to Active Spaces - To provide a variety of open spaces close to work and home to encourage walking, physical activity, and time spent outdoors.

Credit 12: Community Outreach and Involvement - To encourage community participation in the project design and planning and involve the people who live in a community in deciding how it should be improved or how it should change over time.

Credit 13: Local Food Production - Promote community-based and local food production to minimize the environmental impacts from transporting food long distance and increasing direct access to foods.

Credit 15: Neighborhood Schools - Promote public health through physical activity by facilitating walking to school. Promote community interaction and engagement.

- **Reduce the risk of obesity, heart disease, and hypertension** by integrating physical activities into residents' daily lives by
 - developing communities that promote walking to and from accessible public transit (SLL Prerequisite 1)
 - encouraging the building of residences and businesses closer together and within existing communities encouraging shorter vehicle trips or other modes of transportation such as walking, biking and public transit (SLL Credits 1 and 5; NPD Prerequisite 2; NPD Credits 2, 3, and 15)
 - creating streets or areas that are interconnected and easily accessible to one another, which makes walking and biking easy, enjoyable, and efficient (SLL Credit 4, NPD Credit 6)
 - providing appealing and comfortable street environments and reducing surface parking facilities to promote pedestrian activity (NPD Prerequisite 1; NPD Credits 1 and 5)
 - placing a variety of open spaces and parks close to work and home (NPD Credits 9 and 10).

- **Reduce the risk of asthma and other respiratory diseases, and reduce air pollution and injuries from vehicle crashes** by
 - encouraging the building of residences and businesses closer together and within existing communities to encourage shorter vehicle trips or other modes of transportation such as walking, biking and public transit (SLL Credit 1)
 - providing accessible, safe, and comfortable transit services that are within walking distance of homes, businesses, and facilities (SLL Credit 3, NPD Credit 6)
 - promoting the creation of a bicycling network that makes biking an easy, efficient and safe mode of transportation (SLL Credit 4)
 - encouraging people to ride public transit (NPD Credit 8)

- **Increase social connection and sense of community** by
 - providing appealing and comfortable street environments, parks, and active open spaces for social networking, civic engagement, personal recreation, and other activities that create social bonds between individuals and groups (NPD Credits 9 and 10)
 - encouraging community participation in project design and planning (NPD Credit 12)

- **Improve mental health** by
 - reducing the amount time spent commuting to work and increasing the amount of time devoted to leisure, community activities, and family (SLL Prerequisite 1; SLL Credits 1, 3, and 5; NPD Credit 6)
 - providing a variety of active open spaces close to work and home (NPD Credits 9 and 10)

- **Encourage healthier diets** by
 - making fresh fruits and vegetables more accessible by promoting community-based and local food production (NPD Credit 13)

CONCLUSION

The expert review panel found that several of the LEED-ND rating system features encourage the development of healthy, active neighborhoods. Further research is needed to find out if residents are healthier and more active as a result of living in a LEED-ND certified neighborhood.

RESOURCES

The following resources provide further information on the relationship between public health and community design:

- Centers for Disease Control and Prevention—www.cdc.gov/healthyplaces
- U.S. Green Building Council—
 Understanding the Relationship Between Public Health and the Built Environment, www.usgbc.org/ShowFile.aspx?DocumentID=1736
 LEED for Neighborhood Development home page, www.usgbc.org/leed/nd
 LEED for Neighborhood Development Rating System, www.usgbc.org/ShowFile.aspx?DocumentID=2845
- U.S. Environmental Protection Agency—www.epa.gov/smartgrowth
- Active Living By Design—www.activelivingbydesign.org
- *An Expert Review on the Strength of the Data in Support of Proposed Community Design Standards*—www.farside.com/firm/Research.php

APPENDIX

The following LEED-ND Rating System Smart Location & Linkage (SLL) and Neighborhood Pattern & Design (NPD) Prerequisites and Credits are those listed in the Expert Review Panel Findings section of this fact sheet.

Smart Location and Linkage (SLL)

- Prerequisite 1: Smart Location** - Encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.
- Credit 1: Preferred Locations** - Encourage development within existing communities and developed places to reduce multiple environmental harms associated with sprawl. Reduce development pressure beyond the limits of existing development. Conserve natural and financial resources required for construction and maintenance of infrastructure.
- Credit 3: Reduced Auto Dependence** - Encourage development in locations that exhibit superior performance in providing transportation choices or otherwise reducing motor vehicle use.
- Credit 4: Bicycle Network and Storage** - To promote bicycling and transportation efficiency.
- Credit 5: Housing and Jobs Proximity** - Encourage balanced communities with a diversity of uses and employment opportunities. Reduce energy consumption and pollution from motor vehicles by providing opportunities for shorter vehicle trips and/or use of alternate modes of transportation.