

LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT

For Public Use and Display

LEED 2009 for Neighborhood Development Rating System

Created by the Congress for the New Urbanism, Natural Resources
Defense Council, and the U.S. Green Building Council
(Updated November 2011)



PREFACE FROM USGBC

The built environment has a profound impact on our natural environment, economy, health, and productivity. Through its Leadership in Environmental and Energy Design (LEED®) certification programs, the U.S. Green Building Council (USGBC) is transforming the built environment. The green building movement offers an unprecedented opportunity to respond to the most important challenges of our time, including global climate change, dependence on nonsustainable and expensive sources of energy, and threats to human health. The work of innovative building planning professionals is a fundamental driving force in the green development movement. Such leadership is a critical component to achieving USGBC's mission of a sustainable built environment for all within a generation.

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USGBC's greatest strength is the diversity of our membership. USGBC is a balanced, consensus-based nonprofit with more than 20,000 member companies and organizations representing the entire building industry. Since its inception in 1993, USGBC has played a vital role in providing a leadership forum and a unique, integrating force for the building industry. USGBC's programs have three distinguishing characteristics:

Committee-based

The heart of this effective coalition is our committee structure, in which volunteer members design strategies that are implemented by staff and expert consultants. Our committees provide a forum for members to resolve differences, build alliances, and forge cooperative solutions for influencing change in all sectors of the building industry.

Member-driven

Membership is open and balanced and provides a comprehensive platform for carrying out important programs and activities. We target the issues identified by our members as the highest priority. We conduct an annual review of achievements that allows us to set policy, revise strategies, and devise work plans based on members' needs.

Consensus-focused

We work together to promote green buildings and neighborhoods, and in doing so, we help foster greater economic vitality and environmental health at lower costs. We work to bridge ideological gaps between industry segments and develop balanced policies that benefit the entire industry.

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The Congress for the New Urbanism and the Natural Resources Defense Council collaborated with the U.S. Green Building Council in creating the LEED for Neighborhood Development Rating System. USGBC's consensus-focused approach to rating system development was furthered by these organizations' expertise in New Urbanism and smart growth strategies.

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ACKNOWLEDGMENTS

The LEED 2009 for Neighborhood Development Rating System has been made possible only through the efforts of many dedicated volunteers, staff members from USGBC and the two partner organizations, consultants, and others in the USGBC community. The rating system development work was managed and implemented by USGBC staff and the LEED for Neighborhood Development Core Committee and included review and input by many Technical Advisory Group (TAG) members with oversight by the LEED Steering Committee. We extend our deepest gratitude to all of our LEED committee members who participated in the development of this rating system, and especially the LEED for Neighborhood Development Core Committee, for their tireless volunteer efforts and support of USGBC's mission:

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The LEED 2009 for Neighborhood Development Rating System is the work of members of the LEED for Neighborhood Development Core Committee, both those who have worked on this version and those who helped create previous versions. In addition, staff would like to thank Criterion Planners, Urban Advantage, and AECOM for the graphics.

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LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT PROJECT CHECKLIST

Smart Location and Linkage

27 possible points

<input checked="" type="checkbox"/>	Prerequisite 1	Smart Location	Required
<input checked="" type="checkbox"/>	Prerequisite 2	Imperiled Species and Ecological Communities	Required
<input checked="" type="checkbox"/>	Prerequisite 3	Wetland and Water Body Conservation	Required
<input checked="" type="checkbox"/>	Prerequisite 4	Agricultural Land Conservation	Required
<input checked="" type="checkbox"/>	Prerequisite 5	Floodplain Avoidance	Required
<input type="checkbox"/>	Credit 1	Preferred Locations	10
<input type="checkbox"/>	Credit 2	Brownfield Redevelopment	2
<input type="checkbox"/>	Credit 3	Locations with Reduced Automobile Dependence	7
<input type="checkbox"/>	Credit 4	Bicycle Network and Storage	1
<input type="checkbox"/>	Credit 5	Housing and Jobs Proximity	3
<input type="checkbox"/>	Credit 6	Steep Slope Protection	1
<input type="checkbox"/>	Credit 7	Site Design for Habitat or Wetland and Water Body Conservation	1
<input type="checkbox"/>	Credit 8	Restoration of Habitat or Wetlands and Water Bodies	1
<input type="checkbox"/>	Credit 9	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

Neighborhood Pattern and Design

44 possible points

<input checked="" type="checkbox"/>	Prerequisite 1	Walkable Streets	Required
<input checked="" type="checkbox"/>	Prerequisite 2	Compact Development	Required
<input checked="" type="checkbox"/>	Prerequisite 3	Connected and Open Community	Required
<input type="checkbox"/>	Credit 1	Walkable Streets	12
<input type="checkbox"/>	Credit 2	Compact Development	6
<input type="checkbox"/>	Credit 3	Mixed-Use Neighborhood Centers	4
<input type="checkbox"/>	Credit 4	Mixed-Income Diverse Communities	7
<input type="checkbox"/>	Credit 5	Reduced Parking Footprint	1
<input type="checkbox"/>	Credit 6	Street Network	2
<input type="checkbox"/>	Credit 7	Transit Facilities	1
<input type="checkbox"/>	Credit 8	Transportation Demand Management	2
<input type="checkbox"/>	Credit 9	Access to Civic and Public Spaces	1
<input type="checkbox"/>	Credit 10	Access to Recreation Facilities	1
<input type="checkbox"/>	Credit 11	Visitability and Universal Design	1
<input type="checkbox"/>	Credit 12	Community Outreach and Involvement	2
<input type="checkbox"/>	Credit 13	Local Food Production	1
<input type="checkbox"/>	Credit 14	Tree-Lined and Shaded Streets	2
<input type="checkbox"/>	Credit 15	Neighborhood Schools	1

Green Infrastructure and Buildings

29 possible points

<input checked="" type="checkbox"/>	Prerequisite 1	Certified Green Building	Required
<input checked="" type="checkbox"/>	Prerequisite 2	Minimum Building Energy Efficiency	Required
<input checked="" type="checkbox"/>	Prerequisite 3	Minimum Building Water Efficiency	Required
<input checked="" type="checkbox"/>	Prerequisite 4	Construction Activity Pollution Prevention	Required

<input type="checkbox"/>	Credit 1	Certified Green Buildings	5
<input type="checkbox"/>	Credit 2	Building Energy Efficiency	2
<input type="checkbox"/>	Credit 3	Building Water Efficiency	1
<input type="checkbox"/>	Credit 4	Water-Efficient Landscaping	1
<input type="checkbox"/>	Credit 5	Existing Building Reuse	1
<input type="checkbox"/>	Credit 6	Historic Resource Preservation and Adaptive Use	1
<input type="checkbox"/>	Credit 7	Minimized Site Disturbance in Design and Construction	1
<input type="checkbox"/>	Credit 8	Stormwater Management	4
<input type="checkbox"/>	Credit 9	Heat Island Reduction	1
<input type="checkbox"/>	Credit 10	Solar Orientation	1
<input type="checkbox"/>	Credit 11	On-Site Renewable Energy Sources	3
<input type="checkbox"/>	Credit 12	District Heating and Cooling	2
<input type="checkbox"/>	Credit 13	Infrastructure Energy Efficiency	1
<input type="checkbox"/>	Credit 14	Wastewater Management	2
<input type="checkbox"/>	Credit 15	Recycled Content in Infrastructure	1
<input type="checkbox"/>	Credit 16	Solid Waste Management Infrastructure	1
<input type="checkbox"/>	Credit 17	Light Pollution Reduction	1

Innovation and Design Process

6 possible points

<input type="checkbox"/>	Credit 1	Innovation and Exemplary Performance	1–5
<input type="checkbox"/>	Credit 2	LEED® Accredited Professional	1

Regional Priority Credit

4 possible points

<input type="checkbox"/>	Credit 1	Regional Priority	1–4
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LEED 2009 for Neighborhood Development Certification Levels

100 base points plus 6 possible Innovation and Design Process and 4 possible Regional Priority Credit points

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

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Credit 8	Transportation Demand Management	65
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Credit 2	Building Energy Efficiency	84
Credit 3	Building Water Efficiency	86
Credit 4	Water-Efficient Landscaping	88
Credit 5	Existing Building Reuse	89
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Credit 9	Heat Island Reduction	95
Credit 10	Solar Orientation	96
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INTRODUCTION

I. THE CASE FOR GREEN NEIGHBORHOOD DEVELOPMENTS

As the U.S. population continues to expand rapidly, consumption of land grows exponentially—currently, three times the rate of population growth. At this breathtaking pace, two-thirds of the development on the ground in 2050 will be built between now and then.¹ The way we grow—especially how and where we grow—will have a profound effect on our planet and on us.

Land use and neighborhood design patterns create a particular physical reality and compel behaviors that have a significant effect on the environmental performance of a given place. Segregated land uses accessed by high-speed roadways that necessitate the use of cars have been the predominant development pattern over the past 50 years. In the United States, transportation accounts for roughly one-third of greenhouse gas emissions, a large portion of which can be attributed to personal automobile use.² Burning fossil fuels for transportation increases air pollution and related respiratory diseases. Automobile-oriented neighborhoods tend to be hostile to pedestrians and unsupportive of traditional mixed-use neighborhood centers. Sprawling development patterns fragment habitat, endanger sensitive land and water bodies, destroy precious farmland, and increase the burden on municipal infrastructure.

In contrast, by placing residences and jobs proximate to each other, thoughtful neighborhood planning and development can limit automobile trips and the associated greenhouse gas emissions. Mixed-use development and walkable streets encourage walking, bicycling, and public transportation for daily errands and commuting. Environmentally responsible buildings and infrastructure are an important component of any green neighborhood, further reducing greenhouse gas emissions by decreasing energy consumption. Green buildings and infrastructure also lessen negative consequences for water resources, air quality, and natural resource consumption.

Green neighborhood developments are beneficial to the community and the individual as well as the environment. The character of a neighborhood, including its streets, homes, workplaces, shops, and public spaces, significantly affects the quality of life. Green neighborhood developments enable a wide variety of residents to be part of the community by including housing of varying types and price ranges. Green developments respect historical resources and the existing community fabric; they preserve open space and encourage access to parks. Green buildings, community gardens, and streets and public spaces that encourage physical activity are beneficial for public health. Combine the substantial environmental and social benefits and the case for green neighborhoods makes itself.

II. LEED® RATING SYSTEMS

Background on LEED®

Following the formation of the U.S. Green Building Council (USGBC) in 1993, the organization's members quickly realized that the sustainable building industry needed a system to define and measure "green buildings." USGBC began to research existing green building metrics and rating systems. Less than a year after formation, the members acted on the initial findings by establishing a committee to focus solely on this topic. The composition of the committee was diverse; it included architects, real estate agents, a building owner, a lawyer, an environmentalist, and

¹ Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* (Washington, D.C.: Urban Land Institute, 2008).

² "Greenhouse Gases, Climate Change, and Energy" (Energy Information Administration, May 2008).

industry representatives. This cross section of people and professions added a richness and depth both to the process and to the ultimate product, the Leadership in Energy and Environmental Design (LEED) certification system.

The first LEED Pilot Project Program, also referred to as LEED Version 1.0, was launched at the USGBC Membership Summit in August 1998. After extensive modifications, LEED Green Building Rating System Version 2.0 was released in March 2000, with LEED Version 2.1 following in 2002 and LEED Version 2.2 following in 2005.

As LEED has evolved and matured, the program has undertaken new initiatives. In addition to a rating system specifically devoted to building operational and maintenance issues (LEED for Existing Buildings: Operations & Maintenance), LEED addresses the different project development and delivery processes that exist in the U.S. building design and construction market, through rating systems for specific building typologies, sectors, and project scopes: LEED for Core & Shell, LEED for New Construction, LEED for Schools, LEED for Retail, LEED for Healthcare, LEED for Homes, and LEED for Commercial Interiors. LEED for Neighborhood Development is the latest LEED certification system to be released.

The green building and neighborhood development field is growing and changing daily. New technologies and products are being introduced into the marketplace, and innovative designs and practices are proving their effectiveness. The LEED rating systems and reference guides will evolve as well. Project teams must comply with the version of the rating system that is current at the time of their registration. USGBC will highlight new developments on its website on a continual basis, at www.usgbc.org.

Background on LEED for Neighborhood Development

The U.S. Green Building Council (USGBC), the Congress for the New Urbanism (CNU), and the Natural Resources Defense Council (NRDC)—organizations that represent leading design professionals, progressive builders and developers, and the environmental community—have come together to develop a rating system for neighborhood planning and development based on the combined principles of smart growth, New Urbanism, and green infrastructure and building. The goal of this partnership is to establish a national leadership standard for assessing and rewarding environmentally superior green neighborhood development practices within the framework of the LEED® Green Building Rating System™.

Unlike other LEED rating systems, which focus primarily on green building practices and offer only a few credits for site selection and design, LEED for Neighborhood Development places emphasis on the site selection, design, and construction elements that bring buildings and infrastructure together into a neighborhood and relate the neighborhood to its landscape as well as its local and regional context. The work of the LEED-ND core committee, made up of representatives from all three partner organizations, has been guided by sources such as the Smart Growth Network's ten principles of smart growth, the charter of the Congress for the New Urbanism, and other LEED rating systems. LEED for Neighborhood Development creates a label, as well as guidelines for both decision making and development, to provide an incentive for better location, design, and construction of new residential, commercial, and mixed-use developments.

Whereas the other LEED rating systems have five environmental categories, LEED for Neighborhood Development has three: Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Buildings. An additional category, Innovation and Design Process, addresses sustainable design and construction issues and measures not covered under the three categories. Regional bonus credits are another feature of LEED-ND. These credits acknowledge the importance of local conditions in determining best environmental design and construction practices as well as social and health practices.

The LEED 2009 minimum program requirements define the minimum characteristics that a project must possess to be eligible for certification under LEED 2009. These requirements do not apply to LEED for Neighborhood Development projects.

LEED Credit Weightings

In LEED 2009, the allocation of points among credits is based on the potential environmental impacts and human benefits of each credit with respect to a set of impact categories. The impacts are defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, and indoor environmental conditions. In the LEED for Neighborhood Development Rating System, social and public health benefits were added to the impact categories, and the impact categories were then applied at the neighborhood scale. A combination of approaches, including energy modeling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact. The resulting allocation of points among credits is called credit weighting.

LEED 2009 uses the U.S. Environmental Protection Agency's TRACI³ environmental impact categories as the basis for weighting each credit. TRACI was developed to assist with impact evaluation for life-cycle assessment, industrial ecology, process design, and pollution prevention. LEED 2009 also takes into consideration the weightings developed by the National Institute of Standards and Technology (NIST); these compare impact categories with one another and assign a relative weight to each. Together, the two approaches provide a solid foundation for determining the point value of each credit in LEED 2009.

The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED credits are worth a minimum of 1 point.
- All LEED credits are positive, whole numbers; there are no fractions or negative values.
- All LEED credits receive a single, static weight in each rating system; there are no individualized scorecards based on project location.
- All LEED rating systems have 100 base points; Innovation and Design Process and Regional Priority credits provide opportunities for up to 10 bonus points.

Given the above criteria, the LEED 2009 credit weightings process involves three steps for LEED for Neighborhood Development:

1. A reference neighborhood is used to estimate the environmental impacts in 15 categories associated with a typical neighborhood development pursuing LEED certification.
2. The relative importance of neighborhood impacts in each category is set to reflect values based on the NIST weightings.⁴
3. Data that quantify neighborhood impacts on environmental and human health are used to assign points to individual credits.

Each credit is allocated points based on the relative importance of the neighborhood-related impacts that it addresses. The result is a weighted average that combines neighborhood impacts and the relative value of the impact categories. Credits that most directly address the most important impacts are given the greatest weight, subject to the system design parameters described above. Credit weights also reflect a decision by LEED to recognize the market implications of point allocation.

The details of the weightings process vary slightly among individual rating systems. For example, LEED for Neighborhood Development includes credits related to infill development but LEED for New Construction does not. This results in a difference in the portion of the environmental footprint addressed by each rating system and the relative allocation of points.

³ Tools for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI) (U.S. Environmental Protection Agency, Office of Research and Development, <http://www.epa.gov/nrmrl/std/sab/traci/>).

⁴ Relative impact category weights based on an exercise undertaken by NIST (National Institute of Standards and Technology) for the BEES program, <http://www.bfirl.nist.gov/oae/software/bees/>.

The weightings process for each rating system is fully documented in a weightings workbook. The credit weightings process will be reevaluated over time to incorporate changes in values ascribed to different neighborhood impacts and neighborhood types, based on both market reality and evolving knowledge related to buildings and neighborhood design. A complete explanation of the LEED credit weightings system is available on the USGBC website, at www.usgbc.org.

III. OVERVIEW AND PROCESS

The LEED 2009 for Neighborhood Development Rating System is a set of performance standards for certifying the planning and development of neighborhoods. The intent is to promote healthful, durable, affordable, and environmentally sound practices in building design and construction.

Prerequisites and credits in the rating system address five topics:

- Smart Location and Linkage (SLL)
- Neighborhood Pattern and Design (NPD)
- Green Infrastructure and Buildings (GIB)
- Innovation and Design Process (IDP)
- Regional Priority Credit (RPC)

When to Use LEED for Neighborhood Development

The LEED for Neighborhood Development Rating System responds to land use and environmental considerations in the United States. It is designed to certify exemplary development projects that perform well in terms of smart growth, urbanism, and green building. Projects may constitute whole neighborhoods, portions of neighborhoods, or multiple neighborhoods. There is no minimum or maximum size for a LEED-ND project, but the core committee's research has determined that a reasonable minimum size is at least two habitable buildings and that the maximum area that can appropriately be considered a neighborhood is 320 acres, or half a square mile. A project larger than 320 acres is eligible but may find documenting certain credits difficult and may want to consider dividing the area into separate LEED-ND projects, each smaller than 320 acres. Although projects may contain only a single use, typically a mix of uses will provide the most amenities to residents and workers and enable people to drive less and safely walk or bike more. Small infill projects that are single use but complement existing neighboring uses, such as a new affordable-housing infill development in a neighborhood that is already well served by retail and commercial uses, are also good candidates for certification.

This rating system is designed primarily for the planning and development of new green neighborhoods, whether infill sites or new developments proximate to diverse uses or adjacent to connected and previously developed land. Many infill projects or projects near transit will be in urban areas, which helps direct growth into places with existing infrastructure and amenities. LEED-ND also promotes the redevelopment of aging brownfield sites into revitalized neighborhoods by rewarding connections beyond the site, walkable streets within the site, and the integration of any historic buildings and structures that will give the new neighborhood development a unique sense of place.

Existing neighborhoods can also use the rating system, and its application in this context could be especially beneficial in urban areas and historic districts. It is, however, important to point out that the owner or owners applying for certification should already own, have title to, or have significant control over a majority of the land within the project boundary and the plan for new construction or major renovation for the majority of the project's square footage. The new construction could take place on vacant land within the boundary, and the major renovations could involve existing buildings, recent or historic, within the project. In addition to guiding infill development opportunities, LEED-ND has additional relevance for existing neighborhoods, as a tool to set

performance levels for a group of owners wanting to retrofit their homes, offices, or shops, and finally for shaping new green infrastructure, such as sidewalks, alleys, and public spaces. Many prerequisites or credits have a specific compliance path for existing buildings; this is highlighted in the rating system, and more detail is provided in the reference guide.

LEED-ND also can be used in suburban locations. There are tremendous opportunities to retrofit the suburbs, whether this involves reviving old shopping centers and their surrounding parking lots or adding new units and vibrant walkable town centers to existing subdivisions. Increasingly, many suburbs are well served by transit and thus should be considered good candidates for creating mixed-use, walkable developments with the potential to decrease residents' and workers' dependence on personal automobiles.

LEED for Neighborhood Development was not designed as a rating system for existing campuses, such as colleges, universities, and military bases. Many campuses have circulation patterns and building forms and placement that differ from the strategies outlined in LEED-ND. As a result, the rating system may not be appropriate for such facilities, but it could be applied in certain situations. For example, LEED-ND could be used for a civilian-style development on or adjacent to a military base, especially now that there is increased interest in developing mixed-use main streets as a focal point for new residential development in military bases. In addition, with many installations facing closure under the Base Realignment and Closure Act, LEED-ND could be used to guide the redevelopment of a base as it finds a new use. For colleges and universities, the program best lends itself to campuses that are expanding or undergoing major redevelopment. Increasingly, many universities are creating mixed-use development projects, often with local partners, to serve as catalytic projects in their communities, and LEED-ND could be a good framework and certification tool. Some universities are looking to their own campus lands for new development opportunities, particularly for housing that is affordable to faculty and staff but also walkable to campus and other amenities, and LEED-ND may be appropriate.

LEED for Neighborhood Development is not meant to be a national standard that replaces zoning codes or comprehensive plans, nor has it been designed to certify sector plans or other policy tools. Local development patterns and performance levels vary greatly across the country because land regulation is largely controlled by local governments. One city may be a leader in stormwater management, and another an innovator in traffic calming, but neither may be advanced in all areas covered by LEED-ND. The rating system should therefore not be considered a one-size-fits-all policy tool. Instead, LEED-ND is a voluntary leadership standard, and local governments should consider promoting its use by the development community or public-private partnerships. In addition, LEED-ND can be used to analyze whether existing development regulations, such as zoning codes, development standards, landscape requirements, building codes, or comprehensive plans are "friendly" to sustainable developments. By comparing a locality's development practices with the rating system, public officials and the planning department can better identify code barriers that make it onerous, costly, or even impossible to undertake some aspects of sustainable development. Finally, public sector projects (e.g., those sponsored by housing authorities, redevelopment agencies, or specialized development authorities) are eligible to use the rating system. Please visit the LEED for Neighborhood web page at www.usgbc.org for LEED-ND policy guidance for state and local governments.

“Neighborhood Development,” Defined

Based on research on the origins of neighborhood design and current best practices for locating and designing new development, the LEED for Neighborhood Development core committee has developed a rating system for smart, healthy, and green neighborhood development. Although LEED-ND does not strictly define what constitutes a neighborhood, the prerequisites and credits are written to encourage a type of development that recalls the siting and design of traditional neighborhoods and promotes best practices in new neighborhood development today.

Since ancient times, cities around the world have been spatially divided into districts or neighborhoods. Excavations of some of the earliest cities reveal evidence of social neighborhoods. Urban scholar Lewis Mumford noted that “neighborhoods, in some primitive, inchoate fashion exist wherever human beings congregate, in permanent family dwellings; and many of the functions of the city tend to be distributed naturally—that is, without any theoretical preoccupation or political direction—into neighborhoods.”⁵ In basic terms, a neighborhood is an area of dwellings, employment, retail, and civic places and their immediate environment that residents and/or employees identify with in terms of social and economic attitudes, lifestyles, and institutions.

A neighborhood can be considered the planning unit of a town. The charter of the Congress for the New Urbanism characterizes this unit as “compact, pedestrian-friendly, and mixed-use.”⁶ By itself the neighborhood is a village, but combined with other neighborhoods it becomes a town or a city. Similarly, several neighborhoods with their centers at transit stops can constitute a transit corridor. The neighborhood, as laid out in LEED-ND, is in contrast to sprawl development patterns, which create podlike clusters that are disconnected from surrounding areas. Existing and new traditional neighborhoods provide an alternative to development patterns that characterize sprawl, such as the single-zoned, automobile-dominated land uses that have been predominant in suburban areas since the 1950s. Instead, traditional neighborhoods meet all those same needs—for housing, employment, shopping, civic functions, and more—but in formats that are compact, complete, and connected, and ultimately more sustainable and diverse.⁷ The metrics of a neighborhood vary in density, population, mix of uses, and dwelling types and by regional customs, economies, climates, and site conditions. In general, they include size, identifiable centers and edges, connectedness with the surroundings, walkable streets, and sites for civic uses and social interaction.

Size is a defining feature of a neighborhood and is typically based on a comfortable distance for walking from the center of the neighborhood to its edge; that suggests an area of 40 to 160 acres. In the 1929 Regional Plan of New York and Environs, urban planner Clarence Perry outlined a neighborhood center surrounded by civic uses, parks, residential uses, a school, and retail at the edge, all within one-quarter mile—about a 5-minute walk. This amounts to an area or pedestrian “shed” of 125 acres, or if the land area is a square, 160 acres. Although Perry’s diagram does not address many of the sustainable features of LEED-ND, such as access to multimodal transportation options, location of infrastructure, and building form, it serves as a reference point for the mix of uses and walkable scale of neighborhood development encouraged in the rating system. Most people will walk approximately one-quarter mile (1,320 feet) to run daily errands; beyond that, many will take a bicycle or car. Additional research shows that people will walk as far as a half-mile (2,640 feet) to reach heavy rail transit systems or more specialized shops or civic uses.⁸ Since half a square mile contains 320 acres, the core committee has decided that this size should serve as guidance for the upper limit of a LEED-ND project.

5 Lewis Mumford, “The Neighbourhood and the Neighbourhood Unit,” *Town Planning Review* 24 (1954): 256–270, p. 258.

6 Charter of the Congress for the New Urbanism, www.cnu.org/charter, 1996.

7 Ibid

8 H. Dittmar and G. Ohland, eds., *The New Transit Town: Best Practices in Transit-Oriented Development* (Washington, D.C.: Island Press, 2004), p. 120.

Figure 1. Clarence Perry's Neighborhood Unit, 1929.
Source: Regional Plan Association

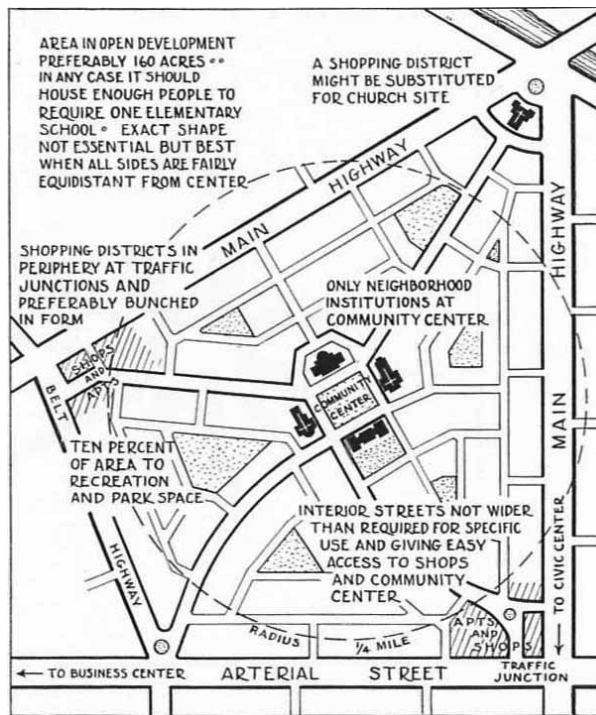
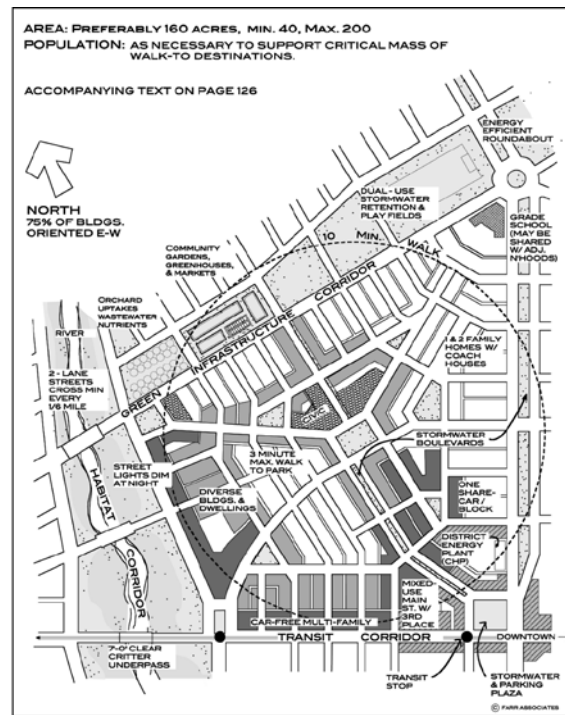


Figure 2. A “sustainable” update of Perry’s neighborhood unit. Source: Douglas Farr, *Sustainable Urbanism*



A neighborhood should have places where the public feels welcome and encouraged to congregate, recognizable as the heart of the community. A proper center has at least one outdoor public space for this purpose, designed with pedestrians in mind; this is the most well-defined outdoor “room” in the neighborhood. The best centers are within walking distance of the primarily residential areas, and typically some gradient in density is discernible from center to edge. The “center” need not be in the geographic center of the neighborhood; it can be along the edge, on an arterial or transit line. It is important for a neighborhood to have boundaries as well as a defined center, and this characteristic is often achieved through identifiable edges, either man-made or natural, such as adjacent farmland, parks, greenways, schools, major rights-of-way, or other uses.

When a neighborhood has a robust network of internal streets and good connections to surrounding communities, pedestrians, bicyclists, and drivers can move more efficiently and more safely. Multiple intersections and short blocks also give pedestrians a more interesting environment. The maximum average block perimeter to achieve an integrated network is 1,500 feet, with a maximum uninterrupted block face of ideally no more than 450 feet; intersecting streets are placed at intervals of 500 to 600 feet, and no greater than 800 feet apart along any single stretch.

The morphology of a sustainable neighborhood—the design of its blocks, streets, and buildings—can serve as the foundation of a walkable environment. Walkable streets have many features, and those elements deemed most important by the core committee are encouraged by the LEED-ND Rating System. These features, such as human-scaled buildings and street widths, wide sidewalks, buildings that are pulled up to the sidewalk to create a continuous street wall, retail storefronts and other uses, and interesting street furniture and trees, are meant to create a safe, inviting, and well-used public realm with visual interest. To keep loading docks, garage openings, and utilities away from sidewalks, neighborhoods with walkable streets often feature alleys.

Figure 3. Examples of neighborhood morphology. Source: Douglas Farr, *Sustainable Urbanism*



A mix of uses is often integral to the vitality of a neighborhood; the mix can include not only residential and commercial but also a variety of retail establishments, services, community facilities, and other kinds of “diverse uses,” whether available within the neighborhood or adjacent. Urban theorist Ray Oldenburg would classify diverse uses as “Third Places”—small neighborhood grocers, coffee shops, pubs, or post offices that allow residents and workers to mingle and have social interactions. A mix of active and diverse retail uses on a walkable street can create a place that is alive day and night, and not closed down at 6 p.m.

Existing neighborhoods have the added benefit of historic buildings and events with cultural significance. Jane Jacobs argued that every neighborhood needed a mixture of newer and older buildings to allow for a variety of uses, income levels, and even ideas within the neighborhood.⁹ New neighborhoods can bring some of the architectural diversity found in existing neighborhoods by including a mix of uses and housing types, each of which might need a different building type and design, thus generating visual interest. Finally, placing important civic buildings, such as churches, libraries, schools, or local government buildings at the termination of a street can create civic pride and also an interesting vista for pedestrians. With a focus on civic buildings and gathering places and the pedestrian experience in general, it is no surprise that walkable neighborhoods are often defined by the social interaction among people living and working near one another.

In conclusion, LEED for Neighborhood Development emphasizes the creation of compact, walkable, vibrant, mixed-use neighborhoods with good connections to nearby communities. In addition to neighborhood morphology, pedestrian scale, and mix of uses, the rating system also emphasizes the location of the neighborhood and the performance of the infrastructure and buildings within it. The sustainable benefits of a neighborhood increase when it offers proximity to transit and when residents and workers can safely travel by foot or bicycle to jobs, amenities,

⁹ Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), p. 187.

and services. This can create a neighborhood with a high quality of life and healthy inhabitants. Likewise, green buildings can reduce energy and water use, and green infrastructure, such as landscaping and best practices to reduce stormwater runoff, can protect natural resources. Together, well-located and well-designed green neighborhood developments will play an integral role in reducing greenhouse gas emissions and improving quality of life.

Certification

To earn LEED certification, the applicant project must satisfy all the prerequisites and qualify for a minimum number of points to attain the project ratings listed below. Having satisfied the basic prerequisites of the program, applicant projects are then rated according to their degree of compliance within the rating system.

LEED for Neighborhood Development certifications are awarded according to the following scale:

Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

Stages of Certification

LEED for Neighborhood Development involves projects that may have significantly longer construction periods than single buildings, and as a result the standard LEED certification process has been modified. To provide developers of certifiable projects with conditional approval at an early stage, LEED 2009 for Neighborhood Development certification is divided into a three-stage process. A land-use entitlement, referred to below, is the existing or granted right to use property for specific types and quantities of residential and nonresidential land uses.

Stage 1. Conditional Approval of a LEED-ND Plan. This stage is optional for projects at any point before the entitlement process begins, or when no more than 50% of a project's total new and/or renovated building square footage has land-use entitlements to use property for the specific types and quantities of residential and nonresidential land uses proposed, either by right or through a local government regulatory change process. Projects with more than 50% of new and/or renovated square footage already entitled must complete the local entitlement process for 100% of new and/or renovated square footage and apply under Stage 2. If conditional approval of the plan is achieved, a letter will be issued stating that if the project is built as proposed, it will be eligible to achieve LEED for Neighborhood Development certification. The purpose of this letter is to help the developer build a case for entitlement among land-use planning authorities, as well as attract financing and occupant commitments.

Stage 2. Pre-Certified LEED-ND Plan. This stage is available after 100% of the project's total new and/or renovated building square footage has been fully entitled by public authorities with jurisdiction over the project. The project can also be under construction or partially completed, but no more than 75% of the total square footage can be constructed; projects that are more than 75% constructed must finish and use Stage 3. Any changes to the conditionally approved plan that could affect prerequisite or credit achievement must be communicated as part of this submission. If precertification of the plan is achieved, a certificate will be issued stating that the plan is a Pre-Certified LEED for Neighborhood Development Plan and it will be listed as such on the USGBC website.

Stage 3. LEED-ND Certified Neighborhood Development. This final step takes place when the project can submit documentation for all prerequisites and attempted credits, and when certificates of occupancy for buildings and acceptance of infrastructure have been issued by public authorities with jurisdiction over the project. Any changes to the Pre-Certified LEED-ND Plan that could affect prerequisite or credit achievement must be communicated as part of this submission. If certification of the completed neighborhood development is achieved, a plaque or similar award for public display at the project site will be issued and it will be listed as certified on the USGBC website.

Since the location of a project cannot be changed, whereas its design and technologies can, a review is offered to determine a project's compliance with the Smart Location and Linkage (SLL) prerequisites and inform the team whether the location qualifies. If it does, a project team can proceed; if it doesn't, the team can end its participation in the program before investing more time. This optional review of the SLL prerequisites is available to projects in advance of a Stage 1, Stage 2, or Stage 3 application.

IV. EXEMPLARY PERFORMANCE

Exemplary performance strategies result in performance that greatly exceeds the performance level or expands the scope required by an existing credit. To earn an exemplary performance point, teams must meet the performance level defined by the next step in the threshold progression. For a credit with more than one compliance path, an Innovation and Design Process point can be earned by satisfying more than one compliance path if their benefits are additive.

The credits for which exemplary performance points are available are listed in the LEED Reference Guide for Green Neighborhood Development, 2009 Edition.

V. REGIONAL PRIORITY

To provide incentive to address geographically specific environmental issues, USGBC regional councils and chapters, the Congress for the New Urbanism chapters, and representatives of Smart Growth America's State and Local Caucus have identified 6 credits per rating system that are of particular importance to specific areas. Each Regional Priority credit is worth an additional 1 point, and a total of 4 additional points may be earned by achieving Regional Priority credits, with 1 point earned per credit. If the project achieves more than 4 Regional Priority credits, the team can choose the credits for which these points will apply. The USGBC website contains a searchable database of Regional Priority credits.

SMART LOCATION AND LINKAGE

SLL Prerequisite 1: Smart Location

Required

Intent

To encourage development within and near *existing* communities and public transit infrastructure. To encourage improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the *development footprint* in the region to appropriate circumstances. To reduce vehicle trips and *vehicle miles traveled* (VMT). To reduce the incidence of obesity, heart disease, and hypertension by encouraging daily physical activity associated with walking and bicycling.

Requirements

FOR ALL PROJECTS

Either (a) locate the *project* on a site served by existing *water and wastewater infrastructure* or (b) locate the project within a legally adopted, publicly owned, planned water and wastewater service area, and provide new water and wastewater infrastructure for the project.

AND

OPTION 1. Infill Sites

Locate the project on an *infill site*.

OR

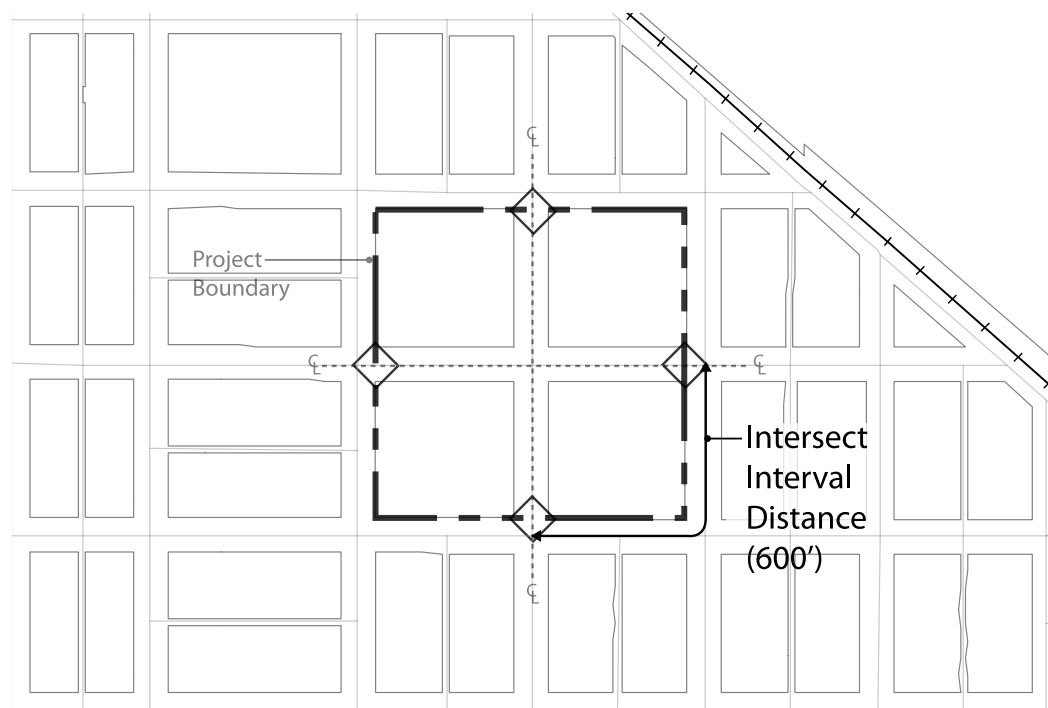
OPTION 2. Adjacent Sites with Connectivity

Locate the project on an *adjacent site* (i.e., a site that is adjacent to *previously developed* land; see Definitions) where the *connectivity* of the site and adjacent land is at least 90 intersections/square mile as measured within a 1/2-mile distance of a continuous segment of the *project boundary*, equal to or greater than 25% of the project boundary, that is adjacent to previous development. Existing external and internal intersections may be counted if they were not constructed or funded by the project *developer* within the past ten years. Locate and/or design the project such that a through-*street* and/or nonmotorized right-of-way intersects the project boundary at least every 600 feet on average, and at least every 800 feet, connecting it with an existing street and/or right of way outside the project; nonmotorized rights-of-way may count for no more than 20% of the total. The exemptions listed in NPD Prerequisite 3, Connected and Open Community, do not apply to this option.

Figure 1. Adjacent and connected project site based on minimum 25% of perimeter adjacent to previously developed parcels and at least 90 eligible intersections per square mile within 1/2 mile of boundary segment adjacent to previous development



Figure 2. Project site with through-street right-of-way intersecting project boundary at least every 600 feet on average



OR

OPTION 3. Transit Corridor or Route with Adequate Transit Service

Locate the project on a site with existing and/or planned transit service such that at least 50% of *dwelling units* and nonresidential building entrances (inclusive of existing buildings) are within a 1/4 mile *walk distance* of bus and/or streetcar stops, or within a 1/2 mile walk distance of *bus rapid transit* stops, light or heavy rail stations, and/or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Table 1 (both weekday and weekend trip minimums must be met).

Weekend trips must include service on both Saturday and Sunday. Commuter rail must serve more than one *metropolitan statistical area* (MSA) and/or the area surrounding the core of an MSA.

Table 1. Minimum daily transit service

	Weekday trips	Weekend trips
Projects with multiple transit types (bus, streetcar, rail, or ferry)	60	40
Projects with commuter rail or ferry service only	24	6

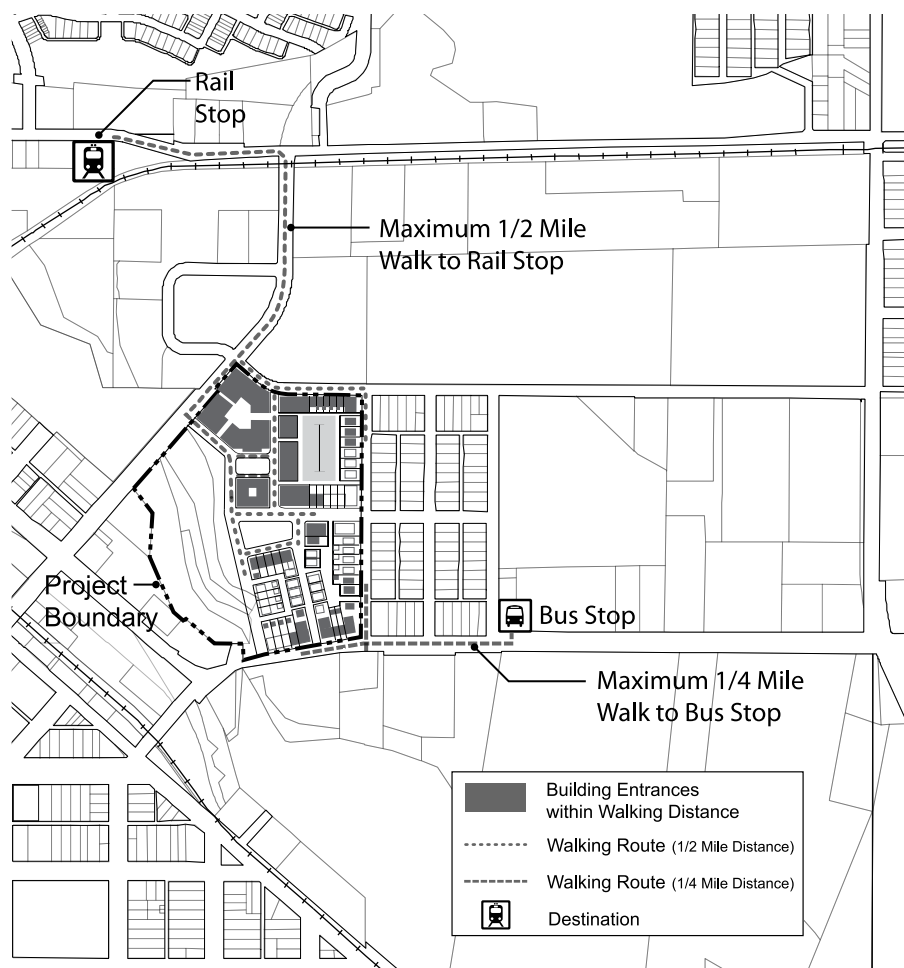
If transit service is planned but not yet operational, the project must demonstrate one of the following:

- a. The relevant transit agency has a signed full funding grant agreement with the Federal Transit Administration that includes a revenue operations date for the start of transit service. The revenue operations date must be no later than the occupancy date of 50% of the project's total building square footage.
- b. For bus, streetcar, bus rapid transit, or ferry service, the transit agency must certify that it has an approved budget that includes specifically allocated funds sufficient to provide the planned service at the levels listed above and that service at these levels will commence no later than occupancy of 50% of the project's total building square footage.
- c. For rail service other than streetcars, the transit agency must certify that preliminary engineering for a rail line has commenced. In addition, the service must meet either of these two requirements:
 - A state legislature or local subdivision of the state has authorized the transit agency to expend funds to establish rail transit service that will commence no later than occupancy of 50% of the project's total building square footage.

OR

- A municipality has dedicated funding or reimbursement commitments from future tax revenue for the development of stations, platforms, or other rail transit infrastructure that will service the project no later than occupancy of 50% of the project's total building square footage.

Figure 3. Walking routes on pedestrian network showing distances from dwellings and nonresidential uses to transit stops



OR

OPTION 4. Sites with Nearby Neighborhood Assets

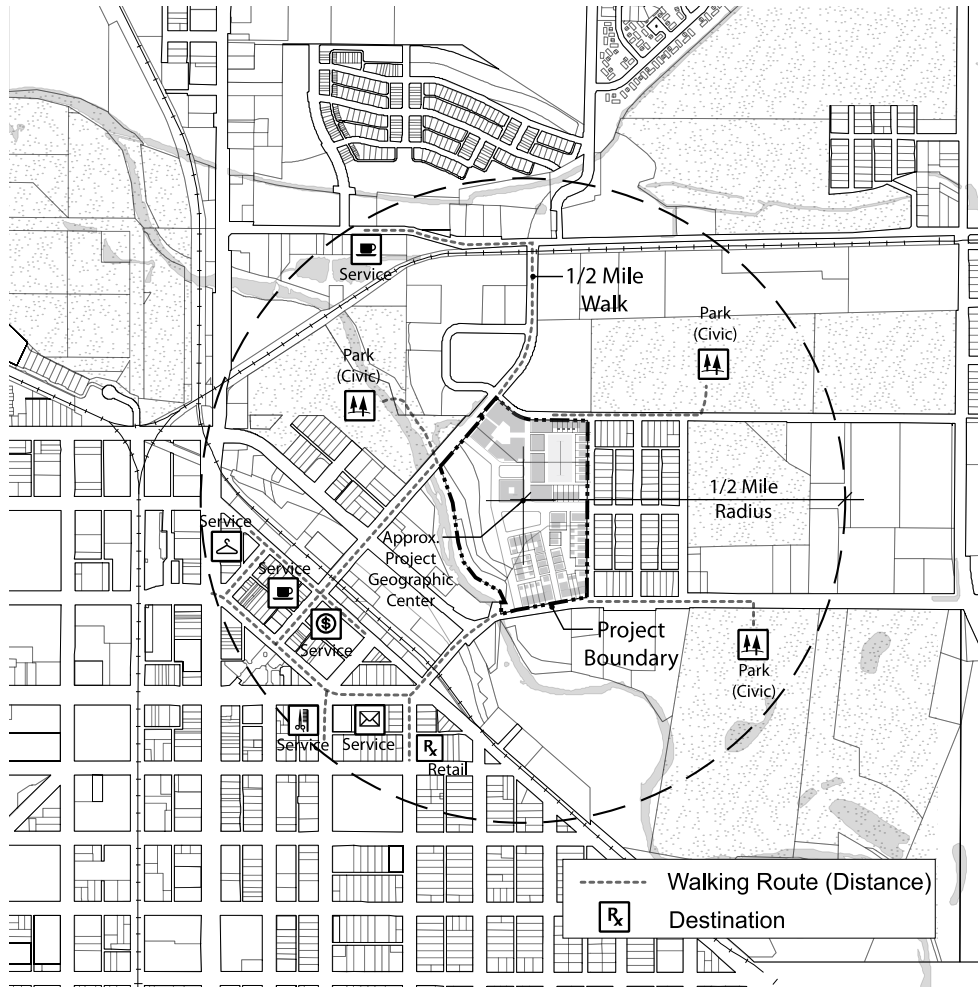
Include a residential component equaling at least 30% of the project's total building square footage (exclusive of portions of parking structures devoted exclusively to parking), and locate the project near existing neighborhood shops, uses, and facilities ("diverse uses"; see Appendix) such that the project boundary is within 1/4-mile walk distance of at least five diverse uses, or such that the project's geographic center is within 1/2-mile walk distance of at least seven diverse uses. In either case the qualifying uses must include at least one food retail establishment and at least one use from each of two other categories, with the following limitations:

- a. A single establishment may not be counted in two categories (e.g., a place of worship may be counted only once even if it also contains a daycare facility, and a retail store may be counted only once even if it sells products in several categories).
- b. Establishments in a mixed-use building may each count if they are distinctly operated enterprises with

separate exterior entrances, but no more than half of the minimum number of diverse uses can be situated in a single building or under a common roof.

- c. Only two establishments in a single category may be counted (e.g., if five restaurants are within the required distance, only two may be counted).

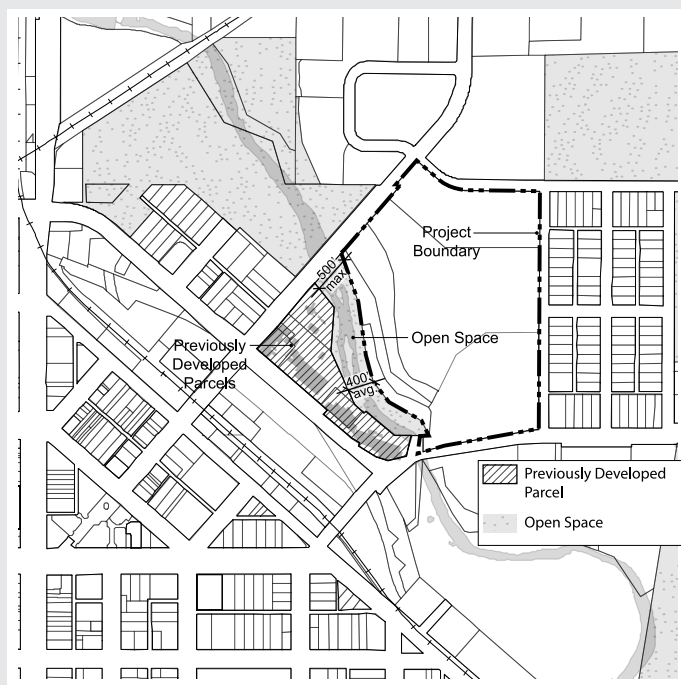
Figure 4. Walking routes on pedestrian network showing distances from dwellings and nonresidential uses to diverse use destinations



Key Definitions

adjacent site a site having at least 25% of its boundary bordering parcels that are each at least 75% *previously developed*. A *street* or other right-of-way does not constitute previously developed land; instead, it is the status of the property on the other side of the street or right-of-way that matters. Any fraction of the boundary that borders waterfront other than a stream is excluded from the calculation. A site is still considered adjacent if the 25% adjacent portion of its boundary is separated from previously developed parcels by undeveloped, permanently protected land averaging no more than 400 feet in width and no more than 500 feet in any one place. The undeveloped land must be permanently preserved as natural area, riparian corridor, *park*, greenway, agricultural land, or designated *cultural landscape*. Permanent pedestrian paths connecting the project through the protected parcels to the bordering site may be counted to meet the requirement of SLL Prerequisite 1, Option 2 (that the *project* be connected to the adjacent parcel by a through-street or nonmotorized right-of-way every 600 feet on average, provided the path or paths traverse the undeveloped land at no more than a 10% grade for walking by persons of all ages and physical abilities).

Adjacent project site based on minimum 25% of perimeter adjacent to previously developed parcels, including allowance for permanently protected land between project boundary and previously developed parcels



connectivity the number of publicly accessible *street* intersections per square mile, including intersections of streets with dedicated *alleys* and transit rights-of-way, and intersections of streets with nonmotorized rights-of-way. If one must both enter and exit an area through the same intersection, such an intersection and any intersections beyond that point are not counted; intersections leading only to *culs-de-sac* are also not counted. The calculation of square mileage excludes *water bodies*, *parks* larger than 1/2 acre, public facility campuses, airports, rail yards, slopes over 15%, and areas nonbuildable under codified law or the rating system. Street rights-of-way may not be excluded.