

# LEED 2009 FOR NEIGHBORHOOD DEVELOPMENT

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[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 July 2014)





# 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 unsustainable 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

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### **LEED for Neighborhood Development Core Committee**

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

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

## Neighborhood Pattern and Design

44 possible points

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

## Green Infrastructure and Buildings

29 possible points

<i>Prerequisite 1</i>	<i>Certified Green Building</i>	<i>Required</i>
<i>Prerequisite 2</i>	<i>Minimum Building Energy Efficiency</i>	<i>Required</i>
<i>Prerequisite 3</i>	<i>Minimum Building Water Efficiency</i>	<i>Required</i>
<i>Prerequisite 4</i>	<i>Construction Activity Pollution Prevention</i>	<i>Required</i>

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

**Innovation and Design Process**

**6 possible points**

<i>Credit 1</i>	<i>Innovation and Exemplary Performance</i>	<i>1–5</i>
<i>Credit 2</i>	<i>LEED® Accredited Professional</i>	<i>1</i>

**Regional Priority Credit**

**4 possible points**

<i>Credit 1</i>	<i>Regional Priority</i>	<i>1–4</i>
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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*

<i>Certified</i>	<i>40–49 points</i>
<i>Silver</i>	<i>50–59 points</i>
<i>Gold</i>	<i>60–79 points</i>
<i>Platinum</i>	<i>80 points and above</i>

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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.<sup>1</sup> 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.<sup>2</sup> 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,

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).

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 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](http://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 TRACI<sup>3</sup> 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.<sup>4</sup>
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

<sup>3</sup> 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/>).

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

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.

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](http://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 (130 hectares), or half a square mile. A project larger than 320 acres (130 hectares) 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 (130 hectares). 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 area. 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](http://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.”<sup>5</sup> 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.”<sup>6</sup> 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.<sup>7</sup> 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 (16 to 65 hectares). 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 (50.5 hectares), or if the land area is a square, 160 acres (65 hectares). 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. Since half a square mile (square kilometer) contains 320 acres (130 hectares), 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.

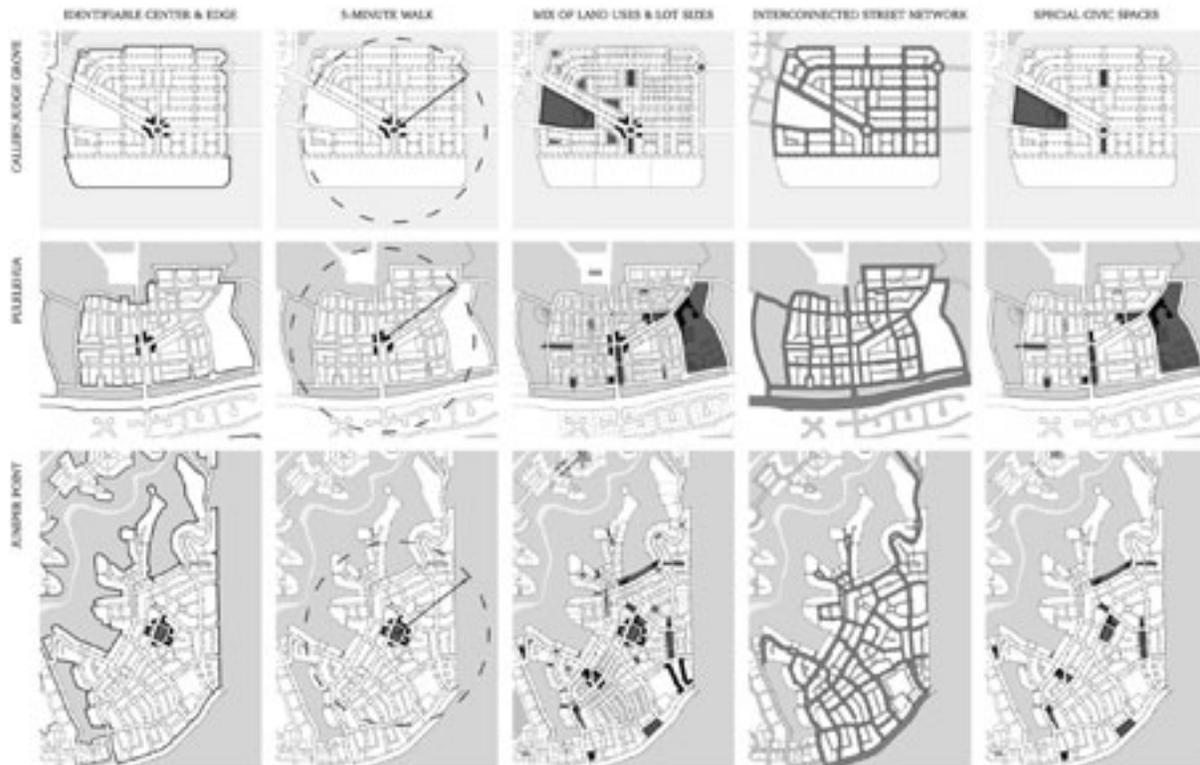
6 Charter of the Congress for the New Urbanism, [www.cnu.org/charter](http://www.cnu.org/charter), 1996.

7 Ibid



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.<sup>8</sup> 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

<sup>8</sup> Jane Jacobs, *The Death and Life of Great American Cities* (New York: Random House, 1961), p. 187.

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, 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:

<i>Certified</i>	<i>40–49 points</i>
<i>Silver</i>	<i>50–59 points</i>
<i>Gold</i>	<i>60–79 points</i>
<i>Platinum</i>	<i>80 points and above</i>

## **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 floor area 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 area already entitled must complete the local entitlement process for 100% of new and/or renovated area 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 floor area 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 area 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

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## **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 distance travelled. 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*

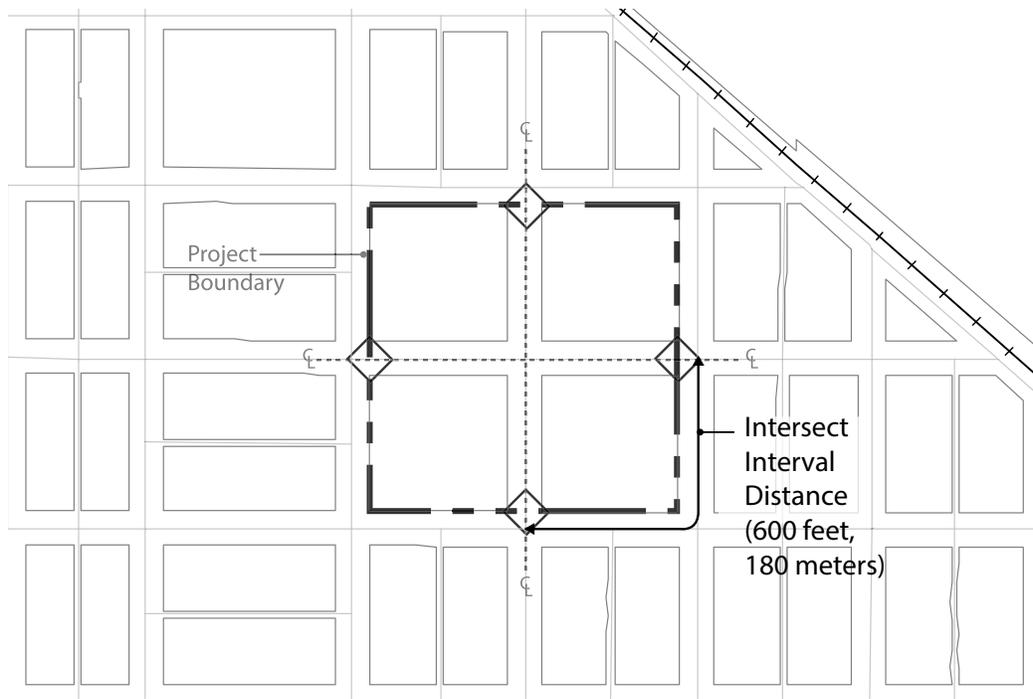
##### *OPTION 2. Adjacent Sites with Connectivity*

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 (35 intersections/ square kilometer) as measured within a 1/2-mile (800 meters) 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 (180 meters) on average, and at least every 800 feet (245 meters), 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 (35 intersections/square kilometer) within 1/2 mile (800 meters) 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 (180 meters) 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 (400 meters) walk distance of bus and/or streetcar stops, or within a 1/2 mile (800 meters) 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).

Projects must meet the requirements for both weekday and weekend trips and provide service every day. Commuter rail must serve more than one metropolitan statistical area (MSA) and/or the area surrounding the core of an MSA (or a local equivalent for projects outside the U.S.).

**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

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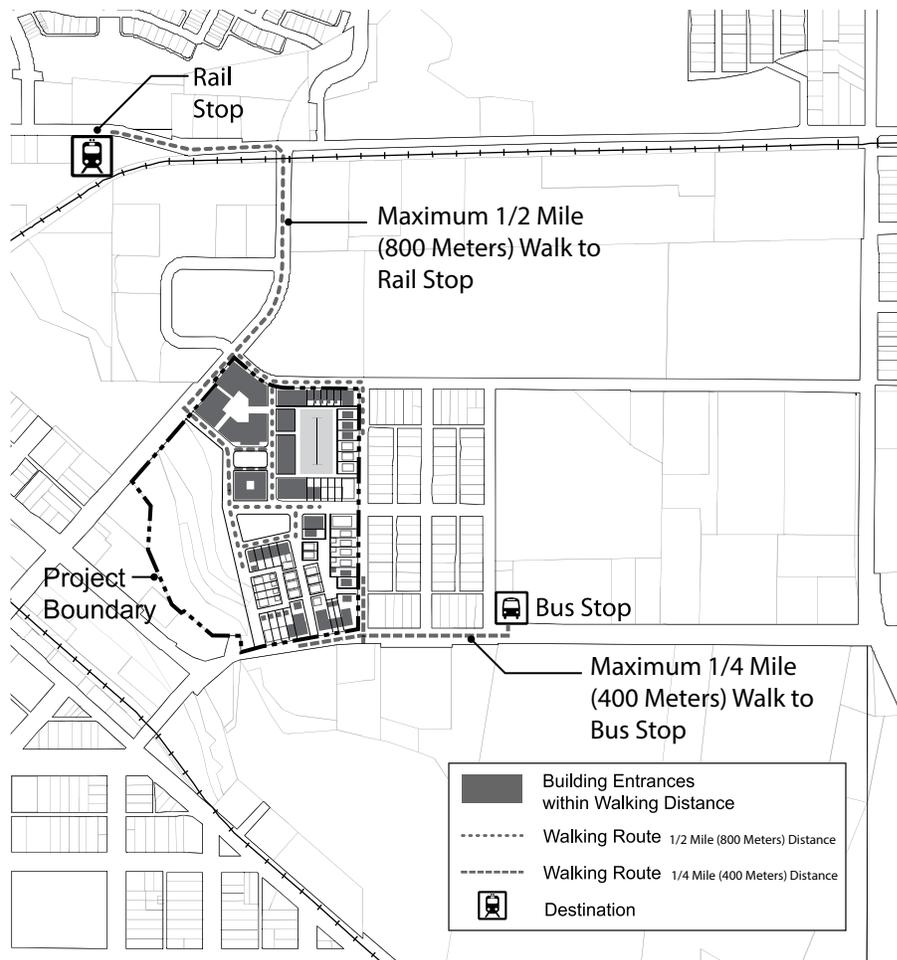
If transit service is planned but not yet operational, the project must demonstrate one of the following:

- a. The relevant transit agency has a signed full funding grant agreement with the Federal Transit Administration (or equivalent national agency for projects outside the U.S.) 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 floor area.
- 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 floor area.
- 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 floor area.

*OR*

- A local government 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 floor area.

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



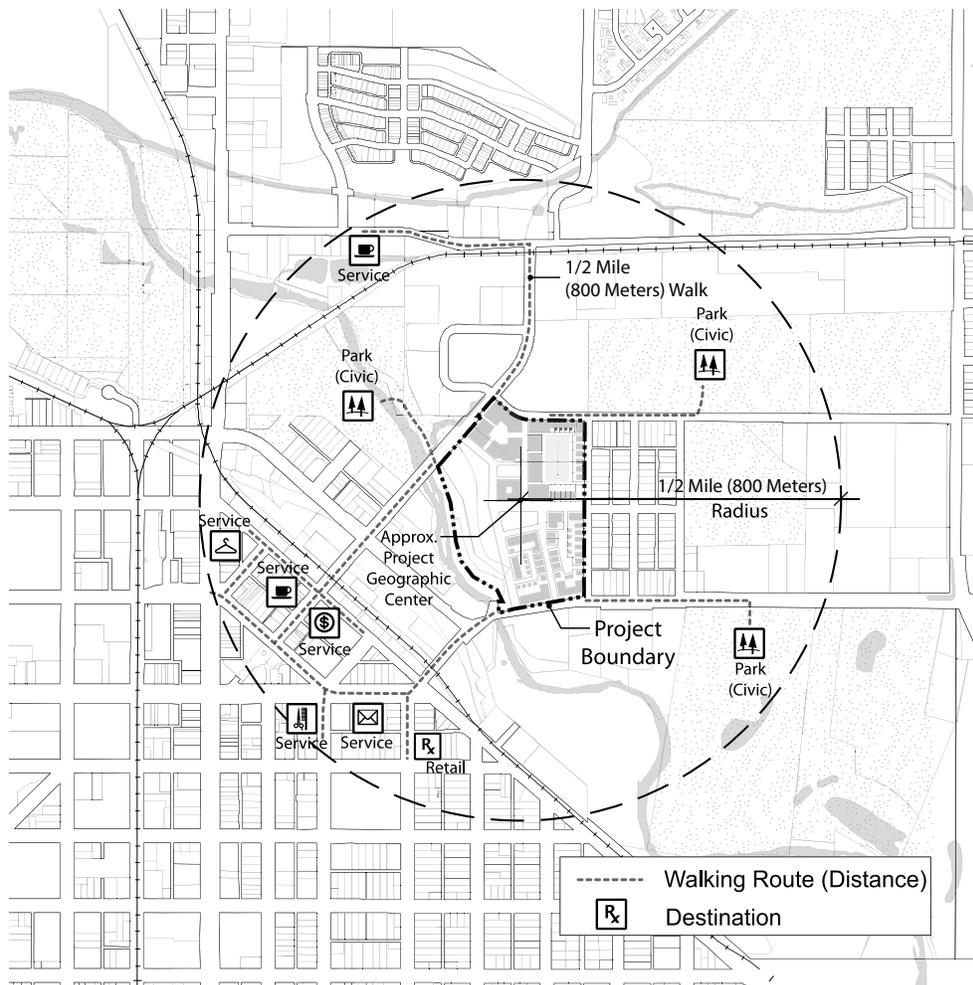
OR

**OPTION 4. Sites with Nearby Neighborhood Assets**

Include a residential component equaling at least 30% of the project’s total building floor area (exclusive of portions of parking structures devoted exclusively to parking), and locate the project near existing neighborhood shops, services, and facilities (“diverse uses”; see Appendix) such that the project boundary is within 1/4-mile (400 meters) walk distance of at least five diverse uses, or such that the project’s geographic center is within 1/2-mile (800 meters) 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).

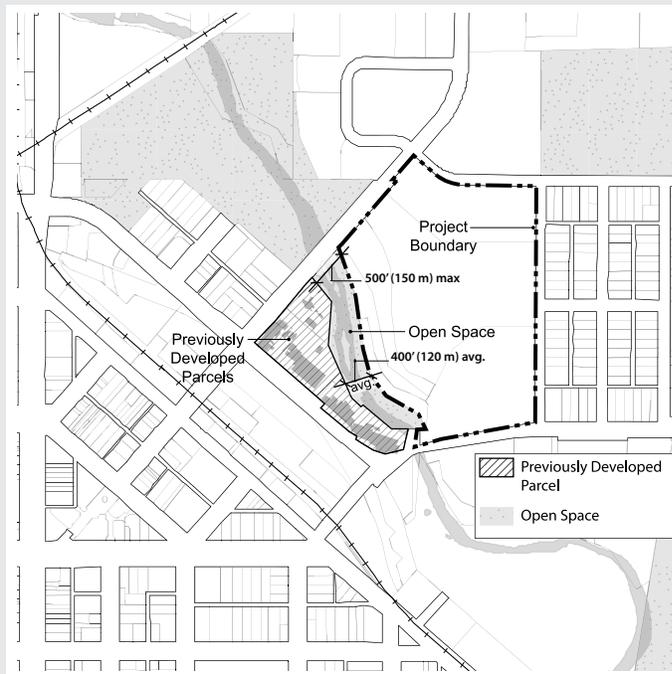
**Figure 4.** Walking routes on pedestrian network showing distances from dwellings and nonresidential uses to diverse use destinations



## 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 (120 meters) in width and no more than 500 feet (155 meters) 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 (180 meters) 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*



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connectivity the number of publicly accessible intersections per square mile (square kilometer), including any combination of streets, dedicated alleys, transit rights-of-way, and 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 (square kilometer) excludes water bodies, parks larger than 1/2 acre (0.2 hectares), 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.

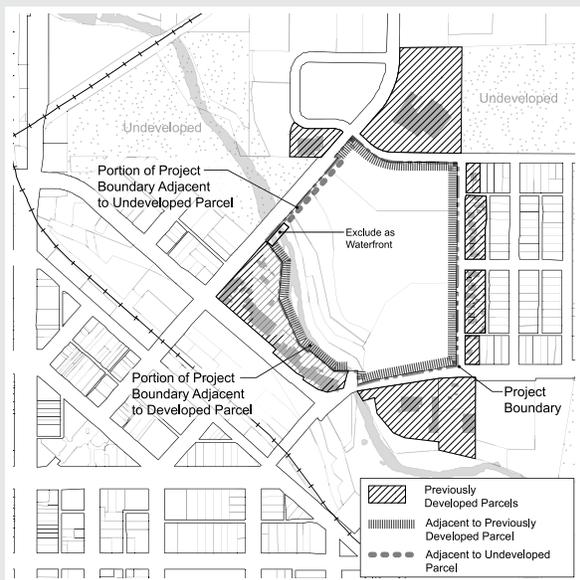
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infill site a site that meets any of the following four conditions:

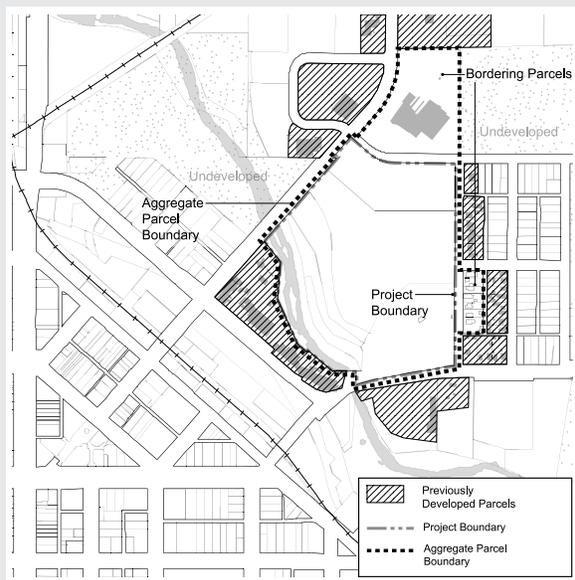
- a. At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- d. The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

**(a).** Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels



**(b).** Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



**(c).** Infill project site based on minimum 75% of land area within 1/2 mile (800 meters) of project boundary being previously developed



**(d).** Infill project site based on minimum 140 intersections/sq.mi. (54 intersections/square kilometer) within 1/2 mile (800 meters) of project boundary



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previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre (0.4 hectares); previous development on lots larger than 1 acre (0.4 hectares) is defined as the development footprint and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

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## **SLL Prerequisite 2: Imperiled Species and Ecological Communities Conservation Required**

### **Intent**

To conserve imperiled species and ecological communities.

### **Requirements**

#### *FOR ALL PROJECTS*

Consult with the state Natural Heritage Program and state fish and wildlife agencies (or a local equivalent for projects outside the United States) to determine whether species listed as threatened or endangered under the federal Endangered Species Act, the state's endangered species act, or species or ecological communities classified by NatureServe as GH (possibly extinct), G1 (critically imperiled), or G2 (imperiled) have been or are likely to be found on the project site because of the presence of suitable habitat and nearby occurrences (local equivalent standards for threatened and endangered species may be used by projects outside the U.S. if the site area is not covered by NatureServe data). If the consultations are inconclusive and site conditions indicate that imperiled species or ecological communities could be present, using a qualified biologist, perform biological surveys using accepted methodologies during appropriate seasons to determine whether such species or communities occur or are likely to occur on the site.

#### *OPTION 1. Sites without Affected Species or Ecological Community*

The prerequisite is satisfied if the consultation and any necessary biological surveys determine that no such imperiled species or ecological communities have been found or have a high likelihood of occurring.

*OR*

#### *OPTION 2. Sites with Affected Species or Ecological Community: Habitat Conservation Plan*

Comply with an approved habitat conservation plan under the Endangered Species Act (or a local equivalent for projects outside the U.S.) for each identified species or ecological community.

*OR*

#### *OPTION 3. Sites with Affected Species or Ecological Community: Habitat Conservation Plan Equivalent*

Work with a qualified biologist, a conservation organization, or the appropriate national, state, or local agency to create and implement a conservation plan that includes the following actions:

- a. Identify and map the extent of the habitat and the appropriate buffer, not less than 100 feet (30 meters), according to best available scientific information.
- b. To the maximum extent practicable, protect the identified habitat and buffer in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust, conservation organization, or relevant government agency.
- c. If on-site protection can be accomplished, analyze threats from development and develop a monitoring and management plan that eliminates or significantly reduces the threats.

- d. If any portion of the identified habitat and buffer cannot be protected in perpetuity, quantify the effects by acres (hectares) or number of plants and/or animals affected, and protect from development in perpetuity habitat of similar or better quality, on-site or off-site, by donating or selling a conservation easement on it to an accredited land trust, conservation organization or relevant government agency. The donation or easement must cover an amount of land equal to or larger than the area that cannot be protected.

## SLL Prerequisite 3: Wetland and Water Body Conservation

### Required

#### Intent

To preserve water quality, natural hydrology, habitat, and biodiversity through conservation of wetlands and water bodies.

#### Requirements

Limit development effects on wetlands, water bodies, and surrounding buffer land according to the requirements below.

*OPTION 1. Sites with No Wetlands, Water Bodies, Land within 50 Feet (15 meters) of Wetlands, or Land within 100 Feet (30 meters) of Water Bodies*

Locate the project on a site that includes no wetlands, no water bodies, no land within 50 feet (15 meters) of wetlands, and no land within 100 feet (30 meters) of water bodies..

OR

*OPTION 2. Sites with Wetlands, Water Bodies, Land within 50 Feet (15 meters) of Wetlands, or Land within 100 Feet (30 meters) of Water Bodies*

- a. Locate the project such that preproject wetlands, water bodies, land within 50 feet (15 meters) of wetlands, and land within 100 feet (30 meters) of water bodies is not affected by new development, unless the development is minor improvements or is on previously developed land.

OR

- b. Earn at least 1 point under GIB Credit 8, Stormwater Management, and limit any impacts beyond minor improvements to less than the percentage of buffer land listed in Table 1.

**Table 1.** Maximum allowable area of impacts within buffer zone, by density

Residential density (DU/acre)*	Residential density (DU/hectare)	Nonresidential density (FAR)*	Percentage of buffer land** where impacts beyond minor improvements are allowed
> 25	> 62	> 1.75	≤ 20%
> 18 and ≤ 25	> 45 and ≤ 62	> 1.25 to ≤ 1.75	≤ 15%
> 10 and ≤ 18	> 25 and ≤ 45	> .75 to ≤ 1.25	≤ 10%
≤ 10	> 25	≤ .75	≤ 5%

*DU = dwelling unit; FAR = floor-area ratio.*

*\* For this option, a mixed-use project may use either its residential or its nonresidential density to determine the percentage of allowable impacts, regardless of which is higher.*

*\*\* For this option, buffer width may vary as long as the total buffer area is equal to the area within 50 feet (15 meters) of wetlands and/or within 100 feet (30 meters) of water bodies, minus excluded features (see below). The minimum buffer width, however, is 25 feet (8 meters) for wetlands and 50 feet (15 meters) for water bodies, measured from the edge. In the minimum buffer, only minor improvements and/or improvements that result in no ecological impairment of the wetland or water body, as determined by a qualified biologist, are allowed.*

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AND

*FOR ALL PROJECTS*

Comply with all local, state, and federal regulations pertaining to wetland and water body conservation.

The following features are not considered wetlands, water bodies, or buffer land that must be protected for the purposes of this prerequisite:

- a. Previously developed land.
- b. Man-made water bodies (such as industrial mining pits, concrete-lined canals, or stormwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge.
- c. Man-made linear wetlands that result from the interruption of natural drainages by existing rights-of-way.
- d. Wetlands that were man-made incidentally and have been rated "poor" for all measured wetland functions. Wetland quality assessment must be performed by a qualified biologist using a method that is accepted by state or regional permitting agencies.

Minor improvements within the buffer may be undertaken to enhance appreciation for the wetland or water body, provided such facilities are open to public access. Only the following improvements are permitted:

- a. Bicycle and pedestrian pathways no more than 12 feet (3.5 meters) wide, of which no more than 8 feet (2.5 meters) may be impervious.
- b. Activities to maintain or restore native natural communities and/or natural hydrology.
- c. One single-story structure not exceeding 500 square feet (45 square meters) per 300 linear feet (90 meters) of buffer, on average.
- d. Grade changes necessary to ensure public access.
- e. Clearings, limited to one per 300 linear feet (90 meters) of buffer on average, not exceeding 500 square feet (45 square meters) each, for tables, benches, and access for nonmotorized recreational watercraft. Off-street parking is not considered a minor improvement.
- f. Removal of hazardous trees; up to 75% of dead trees; trees less than 6 inches (150 millimeters) diameter at breast height; trees under 40% condition rating; and up to 20% of trees more than 6 inches (150 millimeters) diameter at breast height with a condition rating of 40% or higher. The condition rating must be based on an assessment by an arborist certified by the International Society of Arboriculture (ISA) using ISA standard measures.
- g. Brownfield remediation activities.

Direct impacts to wetlands and water bodies are prohibited, except for minimal-impact structures, such as an elevated boardwalk, that allow access to the water for educational and recreational purposes. Structures that protrude into wetlands or water bodies may be replaced, provided the replacement structure has the same or smaller footprint and a similar height.

## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre (0.4 hectares); previous development on lots larger than 1 acre (0.4 hectares) is defined as the development footprint and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

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## **SLL Prerequisite 4: Agricultural Land Conservation**

### **Required**

#### **Intent**

To preserve irreplaceable agricultural resources by protecting prime and unique soils on farmland and forestland from development.

#### **Requirements**

##### *FOR ALL PROJECTS*

Locate the project on a site that is not within a state or locally designated agricultural preservation district, unless any changes made to the site conform to the requirements for development within the district (as used in this requirement, "district" does not equate to land-use zoning).

##### *AND*

##### *OPTION 1. Protected Soils Not Impacted*

Locate the project development footprint such that it does not disturb prime soils, unique soils, or soils of state significance as identified in a state Natural Resources Conservation Service soil survey.

##### *OR*

##### *OPTION 2. Infill Sites*

Locate the project on an infill site.

##### *OR*

##### *OPTION 3. Sites Served by Transit*

Comply with SLL Prerequisite 1, Option 3, Transit Corridor or Route with Adequate Transit Service.

##### *OR*

##### *OPTION 4. Development Rights Receiving Area*

Locate the project within a designated receiving area for development rights under a publicly administered farmland protection program that provides for the transfer of development rights from lands designated for conservation to lands designated for development.

##### *OR*

##### *OPTION 5. Sites with Impacted Soils*

If development footprint affects land with prime soils, unique soils, or soils of state significance, as identified in a state Natural Resources Conservation Service soil survey, mitigate the loss through the purchase of easements providing permanent protection from development on land with comparable soils in accordance with the ratios based on densities per acre/hectare of buildable land as listed in Tables 1 and 2.

**Table 1.** Mitigation ratios for projects in metropolitan or micropolitan statistical areas, pop. 250,000 or more

Residential density (DU per acre of buildable land available for residential use)	Residential density (DU per hectare of buildable land available for residential use)	Nonresidential density (FAR of buildable land available for nonresidential use)	Mitigation ratio (acres of easement : acres of project on prime, unique, or significant soil)
> 7 and ≤ 8.5	> 17.5 and ≤ 21	> 0.50 and ≤ 0.67	2 to 1
> 8.5 and ≤ 10	> 21 and ≤ 25	> 0.67 and ≤ 0.75	1.5 to 1
> 10 and ≤ 11.5	> 25 and ≤ 28.5	> 0.75 and ≤ 0.87	1 to 1
> 11.5 and ≤ 13	> 28.5 and ≤ 32	> 0.87 and ≤ 1.0	.5 to 1
> 13	> 32	> 1.0	No mitigation

**Table 2.** Mitigation ratios for projects in metropolitan or micropolitan statistical areas, pop. less than 250,000

Residential density (DU/acre of buildable land available for residential use)	Residential density (DU per hectare of buildable land available for residential use)	Nonresidential density (FAR of buildable land available for nonresidential use)	Mitigation ratio (acres of easement : acres of project on prime, unique, or significant soil)
> 7 and ≤ 8	> 17.5 and ≤ 20	> 0.50 and ≤ 0.58	2 to 1
> 8 and ≤ 9	> 20 and ≤ 22	> 0.58 and ≤ 0.67	1 to 1
> 9 and ≤ 10	> 22 and ≤ 25	> 0.67 and ≤ 0.75	0.5 to 1
> 10	> 25	> 0.75	No mitigation

*DU = dwelling unit; FAR = floor-area ratio.*

All off-site mitigation must be located within 100 miles (160 kilometers) of the project.

Up to 15% of the impacted soils area may be exempted from the density requirements if it is permanently dedicated for community gardens, and may also count toward the mitigation requirement for the remainder of the site. Portions of parking structures devoted exclusively to parking must be excluded from the numerator when calculating the floor-area ratio (FAR).

The mitigation ratio for a mixed-use project is calculated as follows:

1. Determine the total area of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the total area.
3. Determine the density of the residential and nonresidential components as measured in dwelling units per acre (per hectare) and FAR, respectively.
4. Referring to Tables 1 and 2, find the appropriate mitigation ratios for the residential and nonresidential components.
5. If the mitigation ratios are different, multiply the mitigation ratio of the residential component by its percentage of the area and multiply the mitigation ratio of the nonresidential component by its percentage.
6. Add the two numbers produced by Step 5. The result is the mitigation ratio.

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## Key Definitions

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in density calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An applicant may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

- a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

*AND*

- b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a water body or areas outside the project boundary that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

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infill site a site that meets any of the following four conditions:

- a. At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- d. The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

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## SLL Prerequisite 5: Floodplain Avoidance

### Required

#### Intent

To protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrological systems.

#### Requirement

##### *OPTION 1. Sites without Floodplains*

Locate on a site that does not contain any land within a 100-year high- or moderate-risk floodplain as defined and mapped by the Federal Emergency Management Agency (FEMA) (or a local equivalent for projects outside the U.S.) or a state or local floodplain management agency, whichever is more recent. For projects in places without legally adopted flood hazard maps or legal designations, locate on a site that is entirely outside any floodplain subject to a 1% or greater chance of flooding in any given year.

*OR*

##### *OPTION 2. Infill or Previously Developed Sites with Floodplains*

Locate the project on an infill site or a previously developed site or in a nonconveyance area of river or coastal floodplain without storm surge potential where compensatory storage is used in accordance with a FEMA-approved mitigation plan (or a local equivalent for projects outside the U.S.). Comply with the National Flood Insurance Program (NFIP) requirements, (or a local equivalent for projects outside the U.S.) for developing any portions of the site that lie within a 100-year high-or moderate-risk floodplain, as defined in Option 1. If the project includes construction of any critical facility, such as a hospital, water and sewage treatment facility, emergency center, or fire or police station, the critical facility must be designed and built so as to be protected and operable during a 500-year event.

*OR*

For any portion of the site within the flood hazard area, design buildings in accordance with American Society of Civil Engineers Standard 24-05 (ASCE 24). If the project includes construction of a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for post flood recovery, design the facility to be protected and operable at the floodwater levels specified in ASCE 24, or at the water levels represented by a 0.2% annual chance (500-year) flood, whichever is higher. For the purpose of this requirement, critical facilities include, but are not limited to; hospitals, emergency operations centers, building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

*OR*

##### *OPTION 3. All Other Sites with Floodplains*

If any part of the site is located within a 100-year high- or moderate-risk floodplain, as defined above, develop only on portions of the site that are not in the floodplain, or that have been previously developed, or that are in a nonconveyance area of river or coastal floodplain without storm surge potential where compensatory

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storage is used in accordance with a FEMA-approved mitigation plan (or a local equivalent for projects outside of the U.S.). Previously developed portions in the floodplain must be developed according to NFIP requirements, (or a local equivalent for projects outside the U.S.). If development includes construction of any critical facility, as described above, the critical facility must be designed and built so as to be protected and operable during a 500-year event.

*OR*

For any portion of the site within the flood hazard area, design buildings in accordance with American Society of Civil Engineers Standard 24-05 (ASCE 24) or local floodplain management entity. If the project includes construction of a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for post flood recovery, design the facility to be protected and operable at the floodwater levels specified in ASCE 24, or at the water levels represented by a 0.2% annual chance (500-year) flood, whichever is higher. For the purpose of this requirement, critical facilities include, but are not limited to, hospitals, emergency operations centers, building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

## Key Definitions

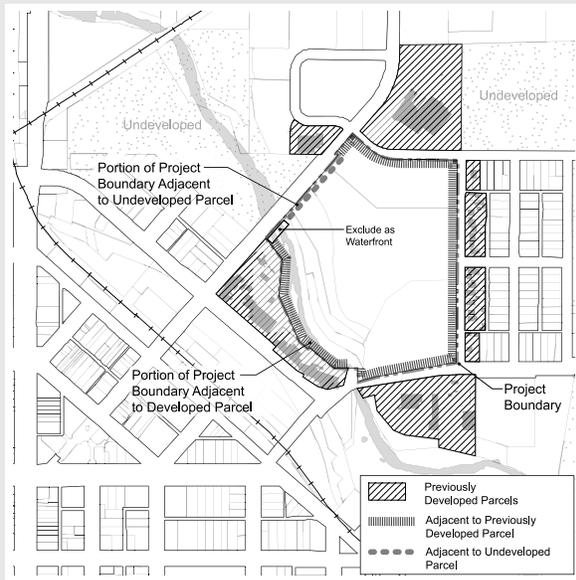
For the meanings of other terms used in the requirements, refer to the Glossary.

infill site a site that meets any of the following four conditions:

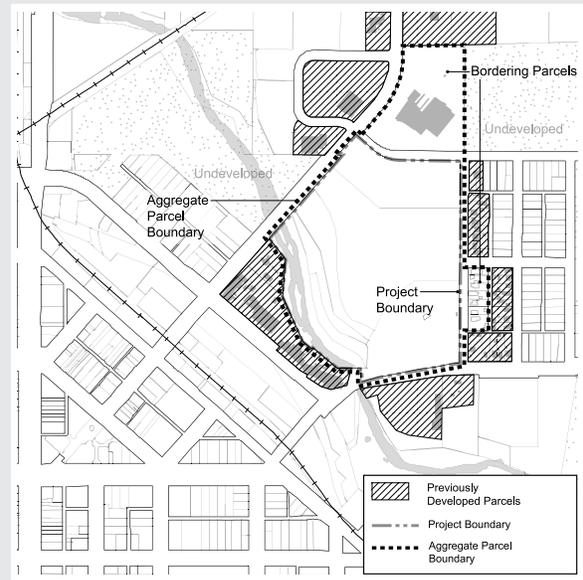
- At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

**(a).** *Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels*



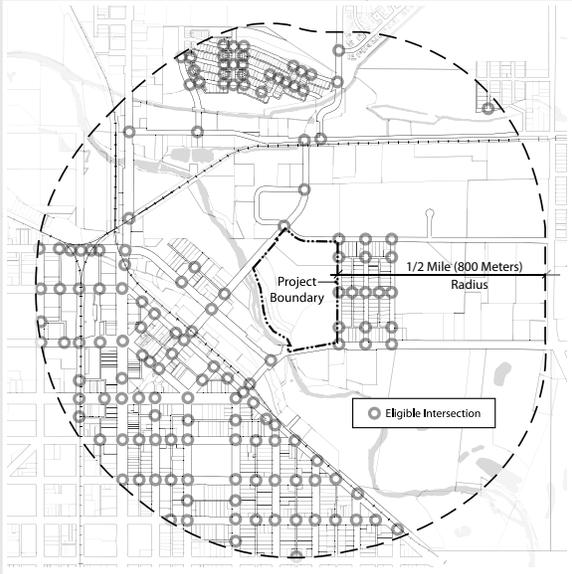
**(b).** *Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels*



**(c).** Infill project site based on minimum 75% of land area within 1/2 mile (800 meters) of project boundary being previously developed



**(d).** Infill project site based on minimum 140 intersections/sq.mi. (54 intersections/square kilometer) within 1/2 mile (800 meters) of project boundary



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## SLL Credit 1: Preferred Locations

### 1–10 points

#### Intent

To encourage development within existing cities, suburbs, and towns to reduce adverse environmental and public health effects associated with sprawl. To reduce development pressure beyond the limits of existing development. To conserve natural and financial resources required for construction and maintenance of infrastructure.

#### Requirements

Achieve any combination of requirements in the following three options:

##### *OPTION 1. Location Type*

Locate the project in one of the following locations:

- a. A previously developed site that is not an adjacent site or infill site (1 point).
- b. An adjacent site that is also a previously developed site (2 points).
- c. An infill site that is not a previously developed site (3 points).
- d. An infill site that is also a previously developed site (5 points).

AND/OR

##### *OPTION 2. Connectivity*

Locate the project in an area that has existing connectivity within 1/2 mile (800 meters) of the project boundary, as listed to Table 1.

**Table 1.** *Points for connectivity within 1/2 mile (800 meters) of project*

Intersections per square mile	Intersections per square kilometer	Points
$\geq 200$ and $< 250$	$\geq 78$ and $< 97$	1
$\geq 250$ and $< 300$	$\geq 97$ and $< 116$	2
$\geq 300$ and $< 350$	$\geq 116$ and $< 135$	3
$\geq 350$ and $< 400$	$\geq 135$ and $< 154$	4
$\geq 400$	$\geq 154$	5

Intersections within the site may be counted if the intersections were not constructed or funded by the developer within the past ten years.

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*AND/OR*

*OPTION 3. Designated High-Priority Locations*

Achieve the following (3 points):

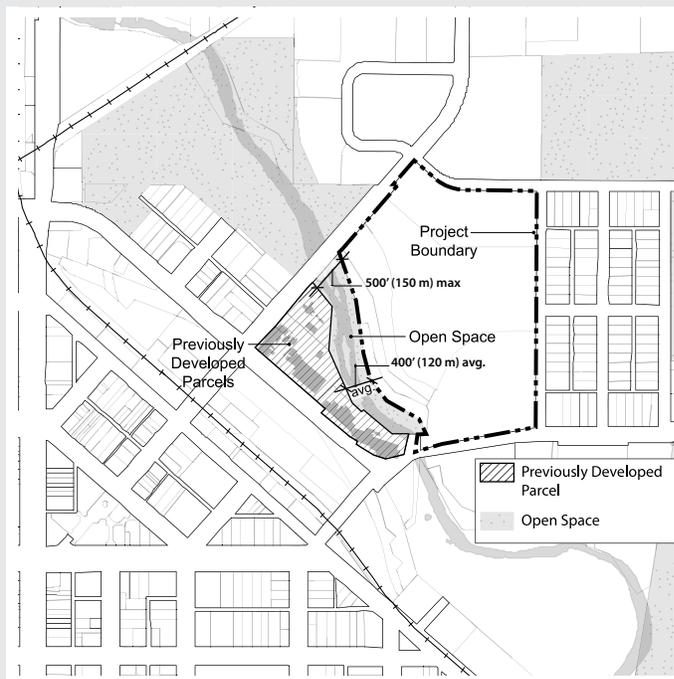
- Earn at least 2 points under NPD Credit 4, Mixed-Income Diverse Communities, Option 2, Affordable Housing.
- In addition, locate the project in one of the following high-priority redevelopment areas: EPA National Priorities List, Federal Empowerment Zone, Federal Enterprise Community, Federal Renewal Community, Department of Justice Weed and Seed Strategy Community, Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program), or the U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA), or a local equivalent program administered at the national level for projects outside the United States.

## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

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 (120 meters) in width and no more than 500 feet (155 meters) 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 (180 meters) 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*



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connectivity the number of publicly accessible intersections per square mile (square kilometer), including any combination of streets, dedicated alleys, transit rights-of-way, and 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 (square kilometer) excludes water bodies, parks larger than 1/2 acre (0.2 hectares), 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.

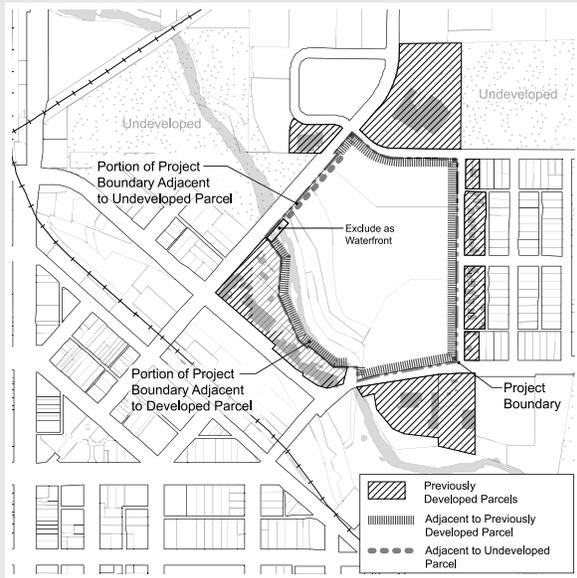
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infill site a site that meets any of the following four conditions:

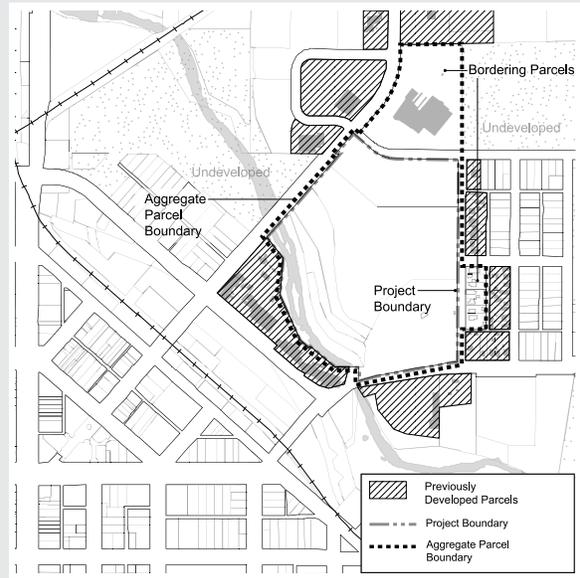
- a. At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- d. The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

**(a).** Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels



**(b).** Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels



**(c).** Infill project site based on minimum 75% of land area within 1/2 mile (800 meters) of project boundary being previously developed



**(d).** Infill project site based on minimum 140 intersections/sq.mi. (54 intersections/square kilometer) within 1/2 mile (800 meters) of project boundary



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## **SLL Credit 2: Brownfields Redevelopment**

### **1–2 points**

#### **Intent**

To encourage the reuse of land by developing sites that are complicated by environmental contamination, thereby reducing pressure on undeveloped land.

#### **Requirements**

##### *OPTION 1. Brownfield Sites (1 point)*

Locate the project on a site, part or all of which is documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment, a local equivalent for projects outside the U.S, or a local Voluntary Cleanup Program), or on a site defined as a brownfield by a local, state, or national government agency; and remediate site contamination such that the controlling government authority approves the protective measures and/or cleanup as effective, safe, and appropriate for the future use of the site.

*OR*

##### *OPTION 2. High-Priority Redevelopment Areas (2 points)*

Achieve the requirements in Option 1;

*AND*

Locate the project in one of the following high-priority redevelopment areas: EPA National Priorities List, Federal Empowerment Zone, Federal Enterprise Community, Federal Renewal Community, Department of Justice Weed and Seed Strategy Community, Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program), or the U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA), or a local equivalent program administered at the national level for projects outside the United States.

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## SLL Credit 3: Locations with Reduced Automobile Dependence

1–7 points

### Intent

To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other adverse environmental and public health effects associated with motor vehicle use.

### Requirements

#### *OPTION 1. Transit-Served Location*

Locate the project on a site with existing transit service such that at least 50% of dwelling units and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile (400 meters) walk distance of bus or streetcar stops, or within a 1/2-mile (800 meters) walk distance of bus rapid transit stops, light or heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2. Both weekday and weekend trip minimums must be met to earn points at a particular threshold.

Projects larger than 125 acres (50.5 hectares) can meet the requirements by locating on a site with existing transit service such that at least 40% of dwelling units and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile (400 meters) walk distance of bus or streetcar stops, or within a 1/2-mile (800 meters) walk distance of bus rapid transit stops, light or heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2 (both weekday and weekend trip minimums must be met to earn points at a particular threshold), as long as the 40% complies with NPD Prerequisite 2 and any portion of the project beyond the 1/4-mile (400 meters) and/or 1/2-mile (800 meters) walk distances meets SLL Prerequisite 1, Option 3-compliant planned transit service.

Projects greater than 500 acres (200 hectares) can meet the requirements by locating on a site with existing transit service such that at least 30% of dwelling units and nonresidential building entrances (inclusive of existing buildings) are within a 1/4-mile (400 meters) walk distance of bus or streetcar stops, or within a 1/2-mile (800 meters) walk distance of bus rapid transit stops, light or heavy rail stations, or ferry terminals, and the transit service at those stops in aggregate meets the minimums listed in Tables 1 and 2 (both weekday and weekend trip minimums must be met to earn points at a particular threshold), as long as the 30% complies with NPD Prerequisite 2 and any portion of the project beyond the 1/4-mile (400 meters) and/or 1/2-mile (800 meters) walk distances meets SLL Prerequisite 1, Option 3-compliant planned transit service.

Projects must meet the requirements for both weekday and weekend trips and provide service every day. Commuter rail must serve more than one metropolitan statistical area (MSA) and/or the area surrounding the core of an MSA (or a local equivalent for projects outside of the U.S.).

**Table 1.** Minimum daily transit service for projects with multiple transit types (bus, streetcar, rail, or ferry)

Weekday trips	Weekend trips	Points
60	40	1
76	50	2
100	65	3
132	85	4
180	130	5
246	150	6
320	200	7

**Table 2.** Minimum daily transit service for projects with commuter rail or ferry service only

Weekday trips	Weekend trips	Points
24	6	1
40	8	2
60	12	3

Projects served by two or more transit routes such that no one route provides more than 60% of the prescribed levels may earn 1 bonus point, up to the maximum 7 points.

Projects where existing transit service is temporarily rerouted outside the required distances for less than 2 years may meet the requirements if the local transit agency has committed to restoring the compliant routes with service at or above the prior level.

OR

**OPTION 2. Metropolitan Planning Organization Location with Low Vehicle Distance Travelled**

Locate the project within a region served by a metropolitan planning organization (MPO) (or a local equivalent for projects outside the U.S.) and within a transportation analysis zone (TAZ) (or a local equivalent for projects outside the U.S.), where either (a) the current annual home-based vehicle distance per capita (if TAZ, or local equivalent for projects outside the U.S., is 100% residential) or (b) the annual non home-based vehicle distance travelled per employee (if TAZ, or local equivalent for projects outside the U.S. is 100% non-residential) does not exceed 90% of the average of the equivalent metropolitan region value. The research must be derived from household or employment transportation surveys conducted by the MPO (or local equivalent for projects outside the U.S.), within ten years of the date of submission for LEED for Neighborhood Development certification. Additional credit may be awarded for increasing levels of performance, as indicated in Table 3. Mixed-use TAZs (or local equivalent for projects outside the U.S.), must use whichever TAZ (or local equivalent for projects outside the U.S.), vehicle distance travelled is greater, either residential per capita or nonresidential per employee.

**Table 3.** *Points for low vehicle distance travelled location*

<b>Percentage of average regional vehicle distance travelled per capita</b>	<b>Points</b>
<i>81-90%</i>	<i>1</i>
<i>71-80%</i>	<i>2</i>
<i>61-70%</i>	<i>3</i>
<i>51-60%</i>	<i>4</i>
<i>41-50%</i>	<i>5</i>
<i>31-40%</i>	<i>6</i>
<i>30% or less</i>	<i>7</i>
<i>vehicle distance travelled</i>	

Points earned under Options 1 and 2 may not be combined.

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## SLL Credit 4: Bicycle Network and Storage

### 1 point

#### Intent

To promote bicycling and transportation efficiency, including reduced vehicle distance travelled. To support public health by encouraging utilitarian and recreational physical activity.

#### Requirements

##### *BICYCLE NETWORK*

Design and/or locate the project to meet at least one of the three requirements below:

- a. An existing bicycle network of at least 5 continuous miles in length is within 1/4-mile (400 meters) bicycling distance of the project boundary.
- b. If the project is 100% residential, an existing bicycle network begins within 1/4-mile (400 meters) bicycling distance of the project boundary and connects to a school or employment center within 3 miles' (4 800 meters) bicycling distance.
- c. An existing bicycle network within 1/4-mile (400 meters) bicycling distance of the project boundary connects to at least ten diverse uses (see Appendix) within 3 miles' (4 800 meters) bicycling distance from the project boundary.

AND

##### *BICYCLE STORAGE*

Provide bicycle parking and storage capacity to new buildings as follows:

- a. Multiunit residential. Provide at least one secure, enclosed bicycle storage space per occupant for 30% of the planned occupancy but no fewer than one per unit. Provide secure visitor bicycle racks (or equivalent) on-site, with at least one bicycle space per ten dwelling units but no fewer than four spaces per project site.
- b. Retail. Provide at least one secure, enclosed bicycle storage space per new retail worker for 10% of retail worker planned occupancy. Provide visitor or customer bicycle racks (or equivalent) on-site, with at least one bicycle space per 5,000 square feet (465 square meters) of retail space, but no fewer than one bicycle space per business or four bicycle spaces per project site, whichever is greater. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.
- c. Nonresidential other than retail. Provide at least one secure, enclosed bicycle storage space per new occupant for 10% of planned occupancy. Provide visitor bicycle racks (or equivalent) on-site with at least one bicycle space per 10,000 square feet (930 square meters) of new commercial nonretail space but not fewer than four bicycle spaces per building. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

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Secure, enclosed bicycle storage areas must be locked or secured and easily accessible to residents and/or workers. Provide informational signage on using the storage facilities.

Visitors' and customers' bicycle racks must be clearly visible from a main entry, located within 100 feet (30 meters) of the door, served with night lighting, and protected from damage from nearby vehicles. If the building has multiple main entries, bicycle racks must be proportionally dispersed within 100 feet (30 meters) of each. Any alternative to bicycle racks must ensure bikes will be stored safely and access to these bikes must be convenient for visitors and customers.

Shower and changing facility requirements may be met by providing the equivalent of free access to on-site health club shower facilities, if the health club can be accessed without going outside. Provide informational signage on using the shower facilities.

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## SLL Credit 5: Housing and Jobs Proximity

### 1–3 points

#### Intent

To encourage balanced communities with a diversity of uses and employment opportunities.

#### Requirements

##### *OPTION 1. Project with Affordable Residential Component (3 points)*

Include a residential component equaling at least 30% of the project's total building floor area (exclusive of parking structures), and locate and/or design the project such that the geographic center (or boundary if the project exceeds 500 acres / 200 hectares) is within 1/2-mile (800 meters) walk distance of existing full-time-equivalent jobs whose number is equal to or greater than the number of dwelling units in the project; and satisfy the requirements necessary to earn at least one point under NPD Credit 4, Mixed-Income Diverse Communities, Option 2, Affordable Housing.

OR

##### *OPTION 2. Project With Residential Component (2 points)*

Include a residential component equaling at least 30% of the project's total building floor area (exclusive of parking structures), and locate and/or design the project such that the geographic center (or boundary if the project exceeds 500 acres /200 hectares) is within 1/2-mile (800 meters) walk distance of existing full-time-equivalent jobs whose number is equal to or greater than the number of dwelling units in the project.

OR

##### *OPTION 3. Infill Project with Nonresidential Component (1 point)*

Include a nonresidential component equaling at least 30% of the project's total building floor area (exclusive of parking structures), and locate on an infill site whose geographic center (or boundary if the project exceeds 500 acres /200 hectares) is within 1/2-mile (800 meters) walk distance of an existing rail transit, ferry, or tram stop and within 1/2-mile (800 meters) walk distance of existing dwelling units whose number is equal to or greater than 50% of the number of new full-time-equivalent jobs created as part of the project.

## Key Definitions

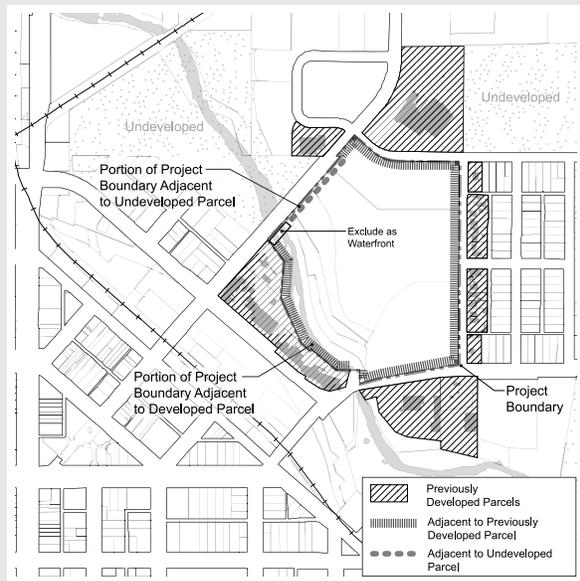
For the meanings of other terms used in the requirements, refer to the Glossary.

infill site a site that meets any of the following four conditions:

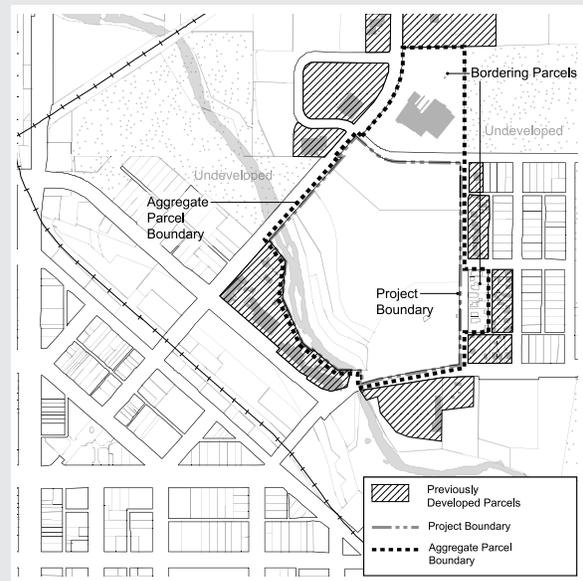
- At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

**(a).** *Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels*



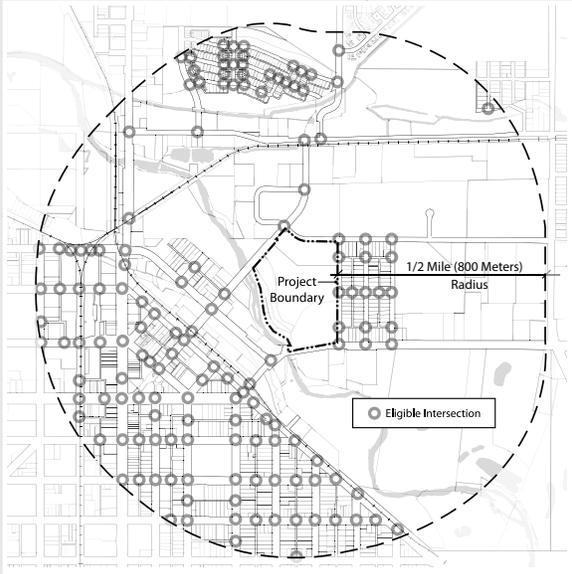
**(b).** *Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels*



**(c).** Infill project site based on minimum 75% of land area within 1/2 mile (800 meters) of project boundary being previously developed



**(d).** Infill project site based on minimum 140 intersections/sq.mi. (54 intersections/square kilometer) within 1/2 mile (800 meters) of project boundary



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## SLL Credit 6: Steep Slope Protection

### 1 point

#### Intent

To minimize erosion to protect habitat and reduce stress on natural water systems by preserving steep slopes in a natural, vegetated state.

#### Requirements

##### FOR ALL PROJECTS

All options apply to existing natural or constructed slopes. Portions of project sites with slopes up to 20 feet (6 meters) in elevation, measured from toe (a distinct break between a 40% slope and lesser slopes) to top, that are more than 30 feet (9 meters) in any direction from another slope greater than 15% are exempt from the requirements, although more restrictive local regulations may apply.

##### OPTION 1. No Disturbance of Slopes Over 15%

Locate on a site that has no existing slopes greater than 15%, or avoid disturbing portions of the site that have existing slopes greater than 15%.

OR

##### OPTION 2. Previously Developed Sites with Slopes Over 15%

On portions of previously developed sites with existing slopes greater than 15%, restore the slope area with native plants or noninvasive adapted plants according to Table 1.

**Table 1.** Required restoration area of slope

Slope	Restoration
> 40%	100%
26% to 40%	60%
< 15% to 25%	40%

In addition, develop covenants, conditions, and restrictions (CC&R); development agreements; or other binding documents that will protect the specified steep slope areas in perpetuity. Comply with the requirements of Option 3 on any slope over 15% that has not been previously developed.

OR

##### OPTION 3. Sites Other than Previously Developed Sites with Slopes Over 15%

On sites that are not previously developed sites, protect existing slopes over 15% as follows:

- a. Do not disturb slopes greater than 40% and do not disturb portions of the project site within 50 feet (15 meters) horizontally of the top of the slope and 75 feet (23 meters) horizontally from the toe of the slope.
- b. Limit development to no more than 40% of slopes between 25% and 40% and to no more than 60% of

slopes between 15% and 25%.

- c. Locate development such that the percentage of the development footprint that is on existing slopes less than 15% is greater than the percentage of buildable land that has existing slopes less than 15%.
- d. Develop CC&R, development agreements, or other binding documents that will protect steep slopes in perpetuity.

## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in density calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An applicant may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

- a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

*AND*

- b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a water body or areas outside the project boundary that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

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## SLL Credit 7: Site Design for Habitat or Wetland and Water Body Conservation

### 1 point

#### Intent

To conserve native plants, wildlife habitat, wetlands, and water bodies.

#### Requirements

##### *OPTION 1. Sites without Significant Habitat or Wetlands and Water Bodies*

Locate the project on a site that does not have significant habitat, as defined in Option 2 of this credit, or land within 100 feet (30 meters) of such habitat, and fulfill the requirements of Options 1 or 2(a) under SLL Prerequisite 3, Wetland and Water Body Conservation.

OR

##### *OPTION 2. Sites with Significant Habitat*

Work with both the state's Natural Heritage Program and the state fish and wildlife agency, or local equivalent for projects outside the U.S., to delineate identified significant habitat on the site. Do not disturb significant habitat or portions of the site within an appropriate buffer around the habitat. The geographic extent of the habitat and buffer must be identified by a qualified biologist, a conservation organization, or the appropriate state, regional, or local agency. Protect significant habitat and its identified buffers from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust, conservation organization, or relevant government agency (a deed covenant is not sufficient to meet this requirement).

Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that habitat is maintained in preproject condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies.

Significant habitat for this credit includes the following:

- a. Habitat for species that are listed or are candidates for listing under state or federal endangered species acts, habitat for species of special concern in the state, and/or habitat for those species and/or ecological communities classified as GH, G1, G2, G3, and/or S1 and S2 species by NatureServe (local equivalent standards for threatened and endangered species may be used by projects outside the U.S. if the site area is not covered by NatureServe data).
- b. Locally or regionally significant habitat of any size, or patches of predominantly native vegetation at least 150 acres (60 hectares) (even if part of the area lies outside the project boundary).
- c. Habitat flagged for conservation under a regional or state conservation or green infrastructure plan.

OR

##### *OPTION 3. Sites with Wetlands and Water Bodies*

Design the project to conserve 100% of all water bodies, wetlands, land within 100 feet (30 meters) of water

bodies, and land within 50 feet (15 meters) of wetlands on the site. Using a qualified biologist, conduct an assessment, or compile existing assessments, showing the extent to which those water bodies and/or wetlands perform the following functions: (1) water quality maintenance, (2) wildlife habitat protection, and (3) hydrologic function maintenance, including flood protection. Assign appropriate buffers [not less than 100 feet (30 meters) for water bodies and 50 feet (15 meters) for wetlands, based on the functions provided, contiguous soils and slopes, and contiguous land uses. Do not disturb wetlands, water bodies, or their buffers, and protect them from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust, conservation organization, or relevant government agency (a deed covenant is not sufficient to meet this requirement).

Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that habitat is maintained in preproject condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a).

#### *FOR ALL PROJECTS*

The following features are not considered wetlands, water bodies, or buffer land that must be protected:

- a. Previously developed land.
- b. Man-made water bodies (such as industrial mining pits, concrete-lined canals, or stormwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge.
- c. Man-made linear wetlands that result from the interruption of natural drainages by existing rights-of-way.
- d. Wetlands that were created incidentally by human activity and have been rated “poor” for all measured wetland functions. Wetland quality assessment must be performed by a qualified biologist using a method that is accepted by local, state or regional permitting agencies.

### **Key Definitions**

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre (0.4 hectares); previous development on lots larger than 1 acre (0.4 hectares) is defined as the development footprint and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

## **SLL Credit 8: Restoration of Habitat or Wetlands and Water Bodies**

**1 point**

### **Intent**

To restore native plants, wildlife habitat, wetlands, and water bodies that have been harmed by previous human activities.

### **Requirements**

Using only native plants, restore predevelopment native ecological communities, water bodies, or wetlands on the project site in an area equal to or greater than 10% of the development footprint. Work with a qualified biologist to ensure that restored areas will have the native species assemblages, hydrology, and other habitat characteristics that likely occurred in predevelopment conditions. Protect such areas from development in perpetuity by donating or selling the land, or a conservation easement on the land, to an accredited land trust or relevant public agency (a deed covenant is not sufficient to meet this requirement). Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that restored areas are maintained for a minimum of three years after the project is built out or the restoration is completed, whichever is later. The requirement for identifying ongoing management activities may also be met by earning SLL Credit 9, Long-Term Conservation Management of Wetlands and Water Bodies. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a) of SLL Credit 7, Site Design for Habitat or Wetland and Water Body Conservation.

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## **SLL Credit 9: Long-Term Conservation Management of Habitat or Wetlands and Water Bodies**

**1 point**

### **Intent**

To conserve native plants, wildlife habitat, wetlands, and water bodies.

### **Requirements**

Create and commit to implementing a long-term (at least ten-year) management plan for new or existing on-site native habitats, water bodies, and/or wetlands and their buffers, and create a guaranteed funding source for management. Involve a qualified biologist or a professional from a natural resources agency or natural resources consulting firm in writing the management plan and conducting or evaluating the ongoing management. The plan must include biological objectives consistent with habitat and/or water resource conservation, and it must identify (1) procedures, including personnel to carry them out, for maintaining the conservation areas; (2) estimated implementation costs and funding sources; and (3) threats that the project poses for habitat and/or water resources within conservation areas (e.g., introduction of exotic species, intrusion of residents in habitat areas) and measures to substantially reduce those threats. The project does not meet the requirements if it has negative effects on habitat for species identified in Option 2(a) of SLL Credit 7, Site Design for Habitat or Wetland and Water Body Conservation.

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# NEIGHBORHOOD PATTERN AND DESIGN

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## **NPD Prerequisite 1: Walkable Streets**

### **Required**

#### **Intent**

To promote transportation efficiency, including reduced vehicle distance traveled. To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.

#### **Requirements**

Design and build the project to achieve all of the following:

- a. For 90% of new building frontage, a principal functional entry on the front façade faces a public space, such as a street, square, park, paseo, or plaza, but not a parking lot, and is connected to sidewalks or equivalent provisions for walking. The square, park, or plaza must be at least 50 feet (15 meters) wide at a point perpendicular to each entry.
- b. At least 15% of existing and new street frontage within and bordering the project has a minimum building-height-to-street-width ratio of 1:3 (i.e., a minimum of 1 foot (300 millimeters) of building height for every 3 feet or 900 millimeters of street width).
  - Nonmotorized rights-of-way may be counted toward the 15% requirement, but 100% of such spaces must have a minimum building-height-to-street-width ratio of 1:1.
  - Projects with bordering street frontage must meet only their proportional share of the height-to-width ratio (i.e., only on the project side of the street).
  - Street frontage is measured in linear feet (meters).
  - Building height is measured to eaves or the top of the roof for a flat-roof structure, and street width is measured façade to façade. For building frontages with multiple heights, use the weighted average height of all frontage segments based on each segment's height weighted by the segment's share of total building width.
  - Alleys and driveways are excluded.
- c. Continuous sidewalks or equivalent all-weather provisions for walking are provided along both sides of 90% of streets or frontage within the project, including the project side of streets bordering the project. New sidewalks, whether adjacent to streets or not, must be at least 8 feet (2.5 meters) wide on retail or mixed-use blocks and at least 4 feet (1.2 meters) wide on all other blocks. Equivalent provisions for walking include woonerfs and all-weather-surface footpaths. Alleys, driveways, and reconstructed existing sidewalks are excluded from these calculations.
- d. No more than 20% of the street frontages within the project are faced directly by garage and service bay openings.

Projects in a designated historic district subject to review by a local historic preservation entity are exempt from (b), (c), and (d) if approval for compliance is not granted by the review body. Projects in historic districts listed in or eligible for listing in a state register or the National Register of Historic Places (or a local equivalent for projects outside the U.S.) that are subject to review by a state historic preservation office or the National Park Service (or a local equivalent for projects outside the U.S.) are exempt from (b), (c), and (d) if approval for compliance is not granted. If the public space is a square, park, or plaza, it must be at least 50 feet (15 meters) deep, measured at a point perpendicular to each entry.

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## **NPD Prerequisite 2: Compact Development**

### **Required**

#### **Intent**

To conserve land. To promote livability, walkability, and transportation efficiency, including reduced vehicle distance traveled. To leverage and support transit investments. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.

#### **Requirements**

##### *OPTION 1. Projects in Transit Corridors*

For projects with existing and/or planned transit service (i.e., service with the funding commitments specified in SLL Prerequisite 1, Smart Location) that meets or exceeds the 2-point threshold in SLL Credit 3, Locations with Reduced Automobile Dependence, Option 1, build at the following densities, based on the walk distances to the transit service specified in SLL Credit 3:

- a. For residential components located within the walk distances: 12 or more dwelling units per acre (30 DU/hectare) of buildable land available for residential uses.
- b. For residential components falling outside the walk distances: 7 or more dwelling units per acre (17.5 DU/hectare) of buildable land available for residential uses.
- c. For nonresidential components located within the walk distances: 0.80 floor-area ratio (FAR) or greater of buildable land available for nonresidential uses.
- d. or nonresidential components falling outside the walk distances: 0.50 FAR or greater of buildable land available for nonresidential uses.

If the project location is served by a transit agency that has specified guidelines for minimum service densities that are greater than the densities required by this prerequisite, the project must achieve those service densities instead.

*OR*

##### *OPTION 2. All Other Projects*

Build any residential components of the project at a density of 7 dwelling units per acre (17.5 DU/hectare) of buildable land available for residential uses.

*AND*

Build any nonresidential components of the project at a density of 0.50 FAR or greater of buildable land available for nonresidential uses.

##### *FOR ALL PROJECTS*

Density calculations include all planned and existing buildings within the project boundary, excluding those portions of parking structures devoted exclusively to parking.

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The specified density must be achieved within five years of the date that the first building of any type is occupied.

If one component of the project, residential or nonresidential, meets the minimum density requirement but the other component does not, include only the qualifying density. Use that component's dwelling units or nonresidential floor area in the numerator and the total buildable land area in the denominator. If the resulting density meets the minimum requirement, the prerequisite is achieved.

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## **NPD Prerequisite 3: Connected and Open Community**

### **Required**

#### **Intent**

To promote projects that have high levels of internal connectivity and are well connected to the community at large. To encourage development within existing communities that promote transportation efficiency through multimodal transportation. To improve public health by encouraging daily physical activity.

#### **Requirements**

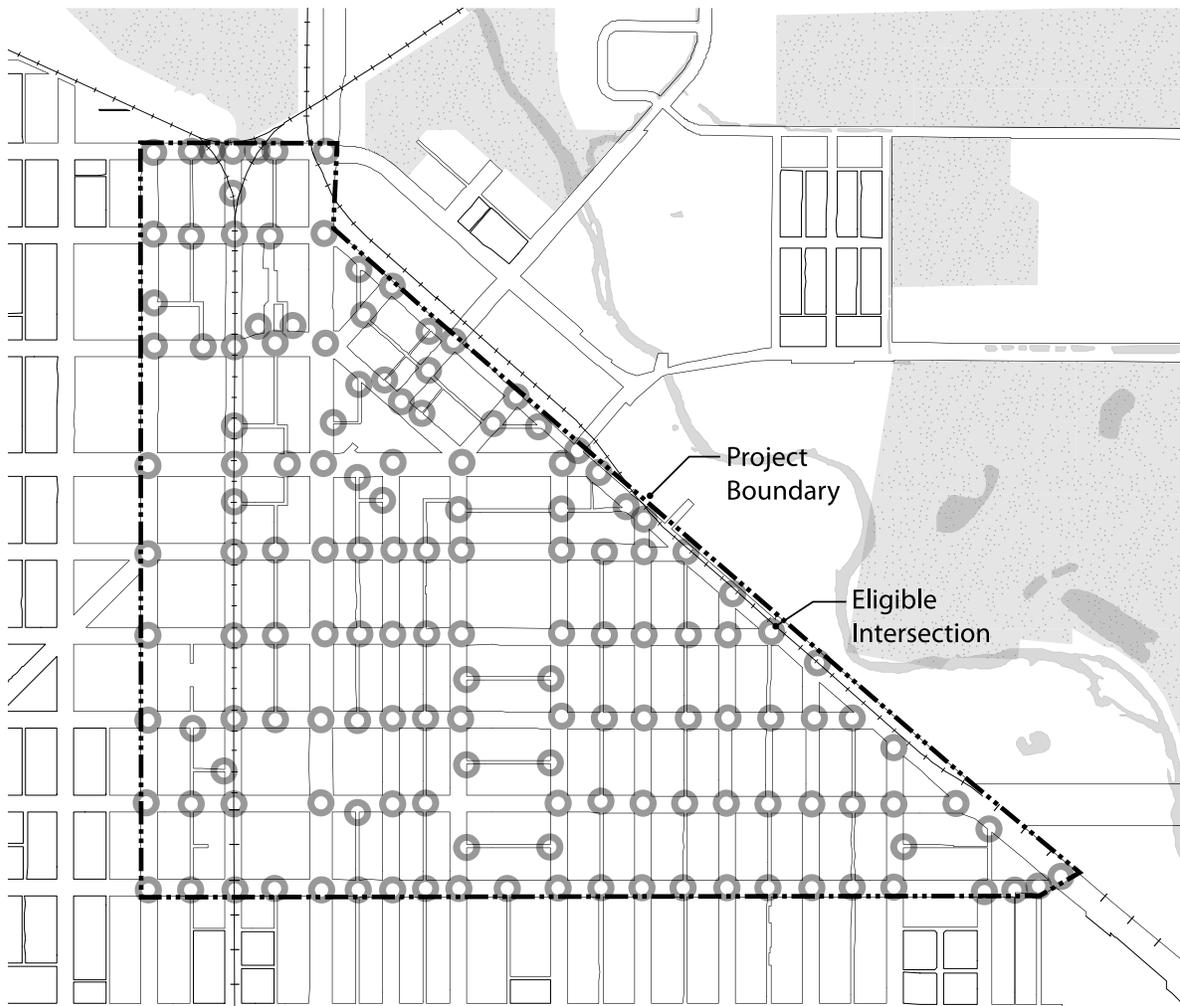
##### *OPTION 1. Projects with Internal Streets*

Design and build the project such that its internal connectivity is at least 140 intersections per square mile (54 intersections/square kilometer). All streets and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses and military bases where gates are used for security purposes.

##### *AND*

Design and build the project with at least one through-street and/or nonmotorized right-of-way intersecting or terminating at the project boundary at least every 800 feet (245 meters), or at existing abutting street intervals and intersections, whichever is the shorter distance. Nonmotorized rights-of-way may count for no more than 20% of the total. This does not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes over 15%, wetlands and water bodies, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

**Figure 1.** Project site design with 140 eligible intersections per square mile (54 intersections/square kilometer) on streets that are not gated

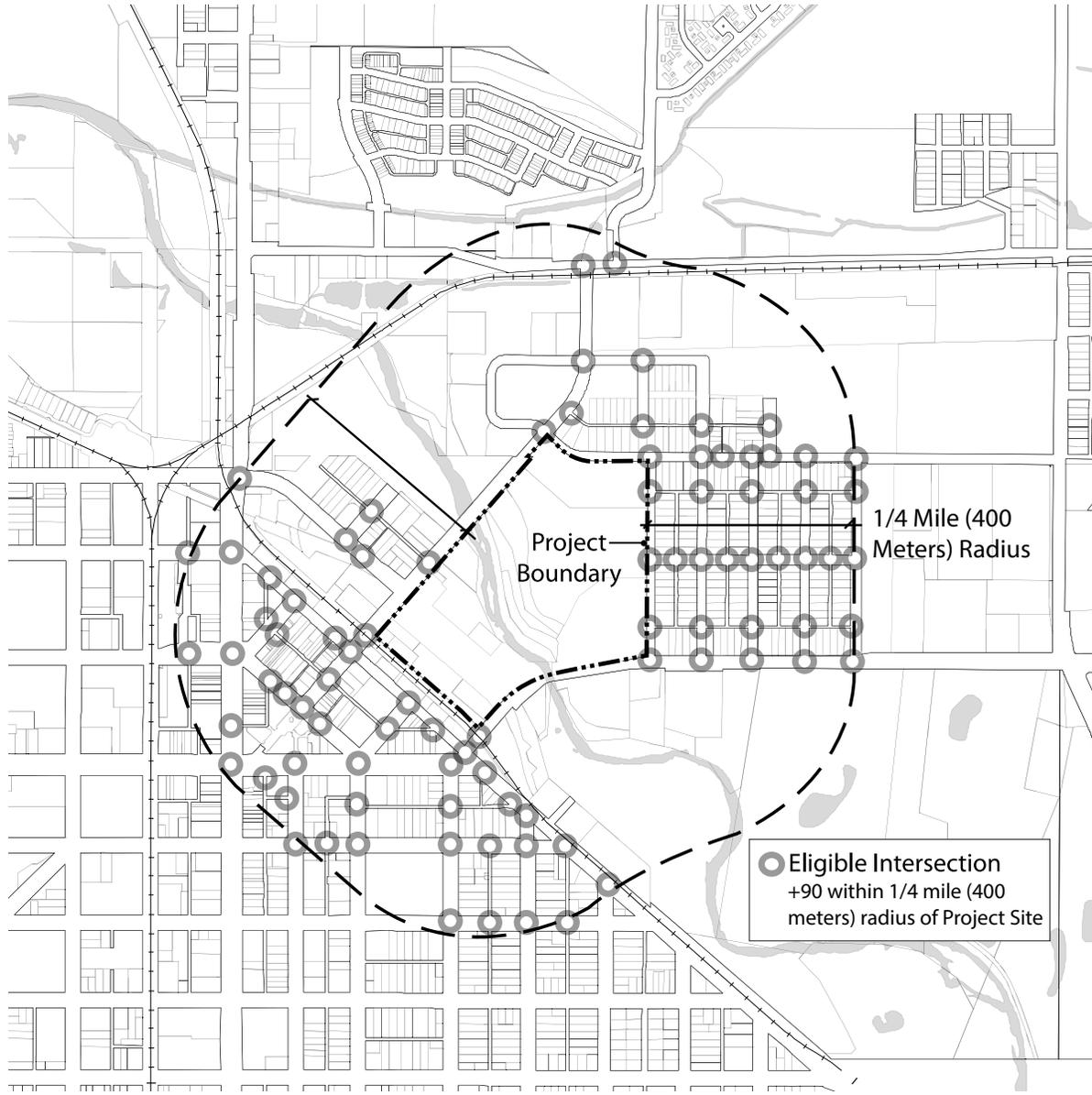


OR

**OPTION 2. Projects without Internal Streets**

Locate the project such that the connectivity of the existing streets within 1/4 mile (400 meters) of the project boundary is at least 90 intersections per square mile (35 intersections/square kilometer). All streets and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses and military bases where gates are used for security purposes.

**Figure 2.** Project site with at least 90 eligible intersections per square (35 intersections/square kilometer) mile within 1/4 mile (400 meters) of project boundary



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## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

connectivity the number of publicly accessible intersections per square mile (square kilometer), including any combination of streets, dedicated alleys, transit rights-of-way, and 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 (square kilometer) excludes water bodies, parks larger than 1/2 acre (0.2 hectares), 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.

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## NPD Credit 1: Walkable Streets

### 1–12 points

#### Intent

To promote transportation efficiency, including reduced vehicle distance traveled. To promote walking by providing safe, appealing, and comfortable street environments that support public health by reducing pedestrian injuries and encouraging daily physical activity.

#### Requirements

A project may earn a maximum of 12 points according to the schedule in Table 1:

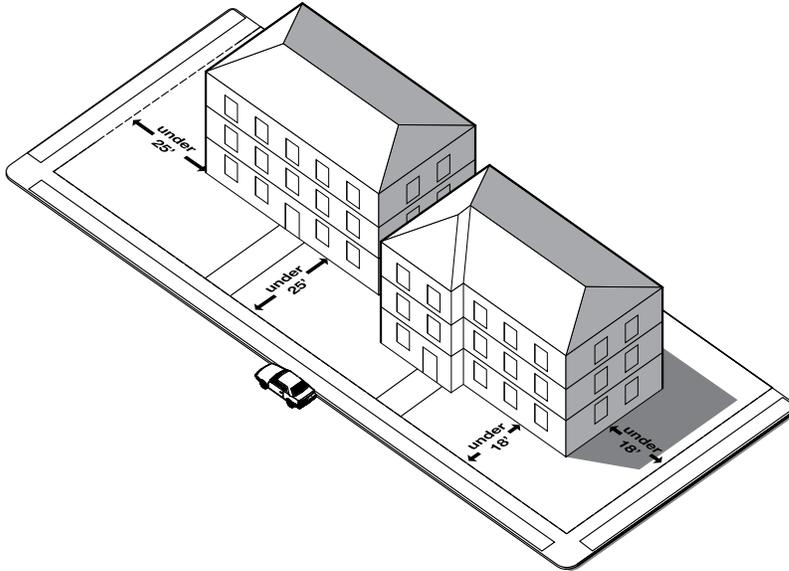
**Table 1.** *Points for walkable street features*

Items achieved	Points
2–3	1
4–5	2
6–7	3
8–9	4
10	7
11	8
12	9
13	10
14	11
15–16	12

#### *Façades and Entries*

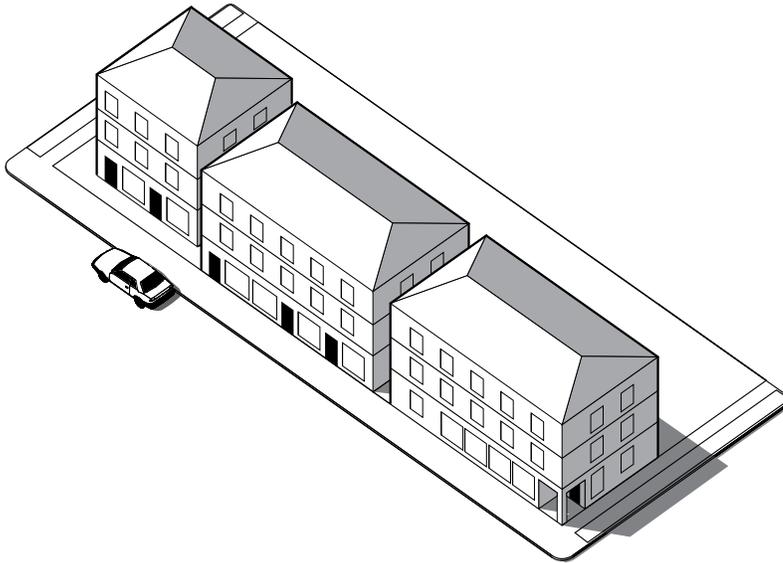
- a. At least 80% of the total linear feet of street-facing building façades in the project is no more than 25 feet (8 meters) from the property line.
- b. At least 50% of the total linear feet of street-facing building façades in the project is no more than 18 feet (5.5 meters) from the property line.

**Figure 1.** Minimal street-facing building façade setbacks



- c. At least 50% of the total linear feet of mixed-use and nonresidential street-facing building façades in the project is within 1 foot (300 millimeters) of a sidewalk or equivalent provision for walking.
- d. Functional entries to the building occur at an average of 75 feet (23 meters) or less along nonresidential or mixed-use buildings or blocks.

**Figure 2.** Functional building entries at minimum average distances along blocks



- e. Functional entries to the building occur at an average of 30 feet (9 meters) or less along nonresidential or mixed-use buildings or blocks (items d and e are cumulative).

### Ground-Level Use and Parking

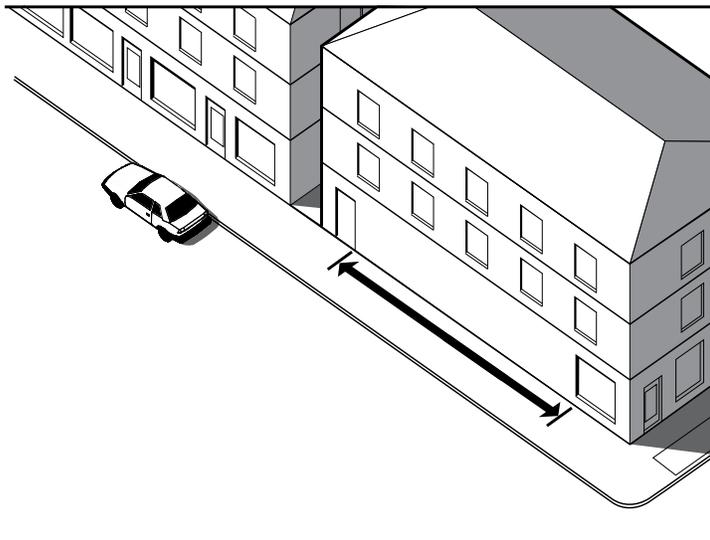
- f. All ground-level retail, service, and trade uses that face a public space have clear glass on at least 60% of their façades between 3 and 8 feet (1 and 2.5 meters) above grade.

**Figure 3.** Ground-level retail and service uses with minimum amounts of clear glass façades



- g. If a façade extends along a sidewalk, no more than 40% of its length or 50 feet (15 meters), whichever is less, is blank (without doors or windows).

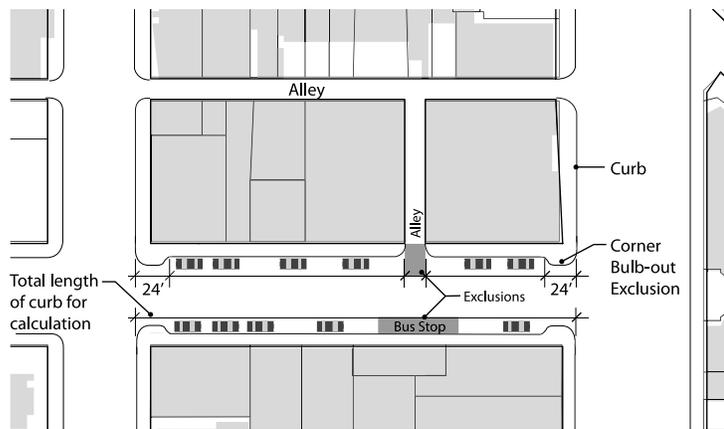
**Figure 4.** Limits on length of blank walls along sidewalks



- h. Any ground-level retail, service, or trade windows must be kept visible (unshuttered) at night; this must be stipulated in covenants, conditions, and restrictions (CC&R) or other binding documents.
- i. On-street parking is provided on a minimum of 70% of both sides of all new and existing streets, including the project side of bordering streets. The percentage of on-street parking is calculated by dividing the length of street designated for parking by the total length of the curb along each street,

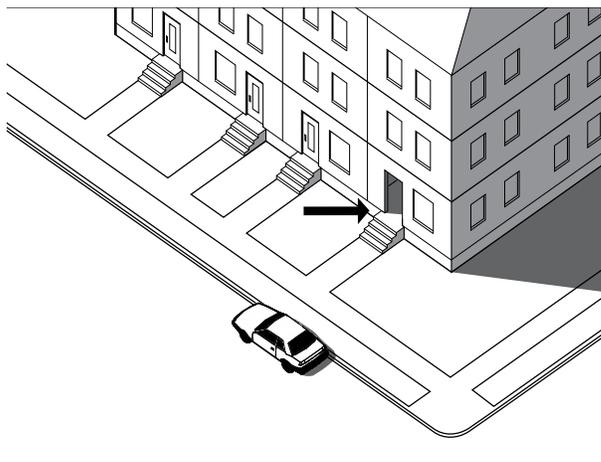
including curb cuts, driveways, and intersection radii. Space within the parking lane that is occupied by corner bulb-outs (within 24 feet or 7 meters of an intersection), transit stops, and motorcycle or bicycle parking may be counted as designated for parking in this calculation. Woonerfs are not considered streets for this subsection.

**Figure 5.** *On-street parking requirements*



- j. Continuous sidewalks or equivalent provisions for walking are available along both sides of all streets within the project, including the project side of streets bordering the project. New sidewalks, whether adjacent to streets or not, must be at least 10 feet (3 meters) wide on retail or mixed-use blocks and at least 5 feet (1.5 meters) wide on all other blocks. Equivalent provisions for walking include woonerfs and all-weather-surface footpaths at least 5 feet (1.5 meters) wide. Note that these requirements specify wider sidewalks than required by NPD Prerequisite 1, Walkable Streets.
- k. If the project has ground-floor dwelling units, the principal floor of at least 50% of those units must have an elevated finished floor no less than 24 inches (600 millimeters) above the sidewalk grade. Below-grade basement spaces and/or accessory dwelling units are exempt from this requirement.

**Figure 6.** *Minimal above-grade entrance requirements*



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- l. In nonresidential or mixed-use projects, 50% or more of the total number of office buildings include ground-floor retail along 60% of the length of the street-level façade; 100% of mixed-use buildings include ground-floor retail, live-work spaces, and/or ground-floor dwelling units along at least 60% of the street-level façade; and all businesses and/or other community services on the ground floor are accessible directly from sidewalks along a public space, such as a street, square, paseo, or plaza, but not a parking lot.
- m. At least 40% of all street frontage within the project has a minimum building-height-to-street-width ratio of 1:3 (i.e., a minimum of 1 foot or 300 millimeters of building height for every 3 feet or 900 millimeters of street width).
- Nonmotorized rights-of-way may be counted toward the 40% requirement, but 100% of such spaces must have a minimum 1:1 ratio of building height to street width.
  - Projects with bordering street frontage must meet only their proportional share of the height-to-width ratio (i.e., only on the project side of the street).
  - Street frontage is measured in linear feet.
  - Building height is measured to eaves or the top of the roof for a flat-roof structure, and street width is measured façade to façade. For building frontages with multiple heights, use the weighted average height of all frontage segments based on each segment's height weighted by the segment's share of total building width.
  - Alleys and driveways are excluded.

*Design Speeds for Safe Pedestrian and Bicycle Travel*

- n. 75% of residential-only streets within the project are designed for a target speed of no more than 20 mph (30 km/h). (existing streets may be exempted from calculations).
- o. 70% of nonresidential and/or mixed-use streets within the project are designed for a target speed of no more than 25 mph (40 km/h). A multiway boulevard, with travel lanes separated from access lanes by medians, may apply this requirement to its outer access lanes only (through-lanes are exempt), provided pedestrian crosswalks are installed across the boulevard at intervals no greater than 800 feet (245 meters). (existing streets may be exempted from calculations).

*Sidewalk Intrusions*

- p. At-grade crossings with driveways account for no more than 10% of the length of sidewalks within the project.

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## NPD Credit 2: Compact Development

### 1–6 points

#### Intent

To encourage development in existing areas to conserve land and protect farmland and wildlife habitat. To promote livability, walkability, and transportation efficiency, including reduced vehicle distance traveled. To improve public health encouraging daily physical activity associated with alternative modes of transportation and compact development.

#### Requirements

Design and build the project such that residential and nonresidential components achieve the densities per acre (hectare) of buildable land listed in Table 1 (excluding those portions of parking structures devoted to parking).

**Table 1.** Points for density per acre (hectare) of buildable land

Residential density (DU/acre)	Residential density (DU/hectare)	Nonresidential density (FAR)	Points
> 10 and ≤ 13	> 25 and ≤ 32	> 0.75 and ≤ 1.0	1
> 13 and ≤ 18	> 32 and ≤ 45	> 1.0 and ≤ 1.25	2
> 18 and ≤ 25	> 45 and ≤ 62	> 1.25 and ≤ 1.75	3
> 25 and ≤ 38	> 62 and ≤ 94	> 1.75 and ≤ 2.25	4
> 38 and ≤ 63	> 94 and ≤ 156	> 2.25 and ≤ 3.0	5
> 63	> 156	> 3.0	6

*DU = dwelling unit; FAR = floor-area ratio.*

The specified densities must be achieved within five years of the date that the first building of any type is occupied.

The scoring of a mixed-use project is calculated with a weighted average, according to the following steps.

1. Determine the total floor area of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the floor area.
3. Determine the density of each component as measured in dwelling units per acre (hectare) and floor-area ratio, respectively.
4. Referring to Table 1, find the appropriate points for the densities of the residential and nonresidential components.
5. If the points are different, multiply the point value of the residential component by its percentage of the total floor area and multiply the point value of the nonresidential component by its percentage.
6. Add the two scores.

## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in density calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An applicant may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

- a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

*AND*

- b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a water body or areas outside the project boundary that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.

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## NPD Credit 3: Mixed-Use Neighborhood Centers

### 1–4 points

#### Intent

To cluster diverse land uses in accessible neighborhood and regional centers to encourage daily walking, biking, and transit use, reduce vehicle distance traveled and automobile dependence, and support car-free living.

#### Requirements

##### FOR ALL PROJECTS

Locate and/or design the project such that 50% of its dwelling units are within a 1/4-mile (400 meters) walk distance of the number of diverse uses (see Appendix) in Table 1, including at least one use from each of the four categories. For projects with no dwellings, 50% of dwelling units within 1/4 mile (400 meters) of the project boundary must be within a 1/4-mile (400 meters) walk distance of the number of diverse uses specified in Table 1, including at least one food retail store and at least one establishment from each of two other categories. Establishments may be inside or outside the project and may be existing or planned diverse uses

The specified number of diverse uses must be in place by the time of occupancy according to the percentages indicated in Table 1 (exclusive of portions of parking structures devoted to parking):

**Table 1.** Points for diverse uses within 1/4-mile (400 meters) walk distance, by time of occupancy

Diverse uses	Percentage occupancy of total floor area	Points
4–6	20%	1
7–10	30%	2
11–18	40%	3
≥ 19	50%	4

Per neighborhood center, the following restrictions apply:

- A single establishment may not be counted in two categories or as two types of diverse use (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).
- 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.
- Only two establishments of a single type may be counted (e.g., if five restaurants are within the required distance, only two may be counted).

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**FOR PROJECTS 40 ACRES (16 HECTARES) OR GREATER**

Cluster diverse uses into neighborhood centers as follows:

**Table 2.** *Points for clustering of diverse uses*

Diverse uses	Minimum uses per neighborhood center	Points
4-6	3	1
7-10	5	2
11-18	7	3
≥ 19	9	4

Within each neighborhood center, the principal entries of the establishments must be within a 300-foot (90 meters) walk distance from a single common point that represents the center of the cluster (1 or 2 points) or within a 400-foot (120 meters) walk distance (3 or 4 points).

Also, projects with multiple centers must determine points earned based on the number of uses in the centers weighted by the percentage of total dwelling units within a 1/4-mile (400 meters) walk distance from each center's common point.

**AND**

**FOR PROJECTS WITH REGIONAL-SERVING RETAIL OF 150,000 OR MORE SQUARE FEET (13,935 square meters)**

Projects with retail uses totaling 150,000 or more square feet (13,935 square meters), if they have at least one retail establishment totaling 75,000 or more square feet (6,970 square meters), must also earn a minimum of 1 point under SLL Credit 3, Reduced Automobile Dependence, Option 1, Transit-Served Location (planned transit service can be counted), and for every additional 50,000 square feet (4,600 square meters) of retail above 150,000 square feet (13,935 square meters), must earn 1 additional point under SLL Credit 3.

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 floor area.
- 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 floor area.
- 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 floor area.

*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 floor area.

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## NPD Credit 4: Mixed-Income Diverse Communities

### 1–7 points

#### Intent

To promote socially equitable and engaging communities by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community.

#### Requirements

Meet the requirements of one or more options below.

##### *OPTION 1. Diversity of Housing Types*

Include a sufficient variety of housing sizes and types in the project such that the total variety of planned and existing housing within the project achieves a Simpson Diversity Index score greater than 0.5, using the housing categories below. Projects of less than 125 acres (50.5 hectares) may calculate the Simpson Diversity Index for the area within 1/4 mile (400 meters) of the project's geographic center. The Simpson Diversity Index calculates the probability that any two randomly selected dwelling units in a project will be of a different type.

$$\text{Score} = 1 - \sum (n/N)^2$$

where  $n$  = the total number of dwelling units in a single category, and  $N$  = the total number of dwelling units in all categories.

**Table 1.** *Points for housing diversity*

Simpson Diversity Index score	Points
> 0.5 to < 0.6	1
≥ 0.6 to < 0.7	2
≥ 0.7	3

Housing categories are defined according to the dwelling unit's net area, exclusive of any garage, as listed in Table 2.

**Table 2. Housing categories**

Type	Square feet	Square meters
<i>Detached residential, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Detached residential, small</i>	<i>≤ 1,250</i>	<i>≤ 115</i>
<i>Duplex or townhouse, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Duplex or townhouse, small</i>	<i>≤ 1,250</i>	<i>≤ 115</i>
<i>Dwelling unit in multiunit building with no elevator, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Dwelling unit in multiunit building with no elevator, medium</i>	<i>&gt; 750 to ≤ 1,250</i>	<i>&gt; 70 to ≤ 115</i>
<i>Dwelling unit in multiunit building with no elevator, small</i>	<i>≤ 750</i>	<i>≤ 70</i>
<i>Dwelling unit in multiunit building with elevator, 4 stories or fewer, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Dwelling unit in multiunit building with elevator, 4 stories or fewer, medium</i>	<i>&gt; 750 to ≤ 1,250</i>	<i>&gt; 70 to ≤ 115</i>
<i>Dwelling unit in multiunit building with elevator, 4 stories or fewer, small</i>	<i>≤ 750</i>	<i>≤ 70</i>
<i>Dwelling unit in multiunit building with elevator, 5 to 8 stories, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Dwelling unit in multiunit building with elevator, 5 to 8 stories, medium</i>	<i>&gt; 750 to ≤ 1,250</i>	<i>&gt; 70 to ≤ 115</i>
<i>Dwelling unit in multiunit building with elevator, 5 to 8 stories, small</i>	<i>≤ 750</i>	<i>≤ 70</i>
<i>Dwelling unit in multiunit building with elevator, 9 stories or more, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Dwelling unit in multiunit building with elevator, 9 stories or more, medium</i>	<i>&gt; 750 to ≤ 1,250</i>	<i>&gt; 70 to ≤ 115</i>
<i>Dwelling unit in multiunit building with elevator, 9 stories or more, small</i>	<i>≤ 750</i>	<i>≤ 70</i>
<i>Live-work space, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Live-work space, small</i>	<i>≤ 1,250</i>	<i>≤ 115</i>
<i>Accessory dwelling unit, large</i>	<i>&gt; 1,250</i>	<i>&gt; 115</i>
<i>Accessory dwelling unit, small</i>	<i>≤ 1,250</i>	<i>≤ 115</i>

For the purposes of this credit, townhouse and live-work units may have individual ground-level entrances and/or be within a multiunit or mixed-use building. Double counting is prohibited; each dwelling may be classified in only one category. The number of stories in a building is inclusive of the ground floor regardless of its use.

AND/OR

*OPTION 2. Affordable Housing*

Include a proportion of new rental and/or for-sale dwelling units priced for households earning below the area median income (AMI). Rental units must be maintained at affordable levels for a minimum of 15 years. Existing dwelling units are exempt from requirement calculations. A maximum of 3 points may be earned by meeting any combination of thresholds in Table 3.

**Table 3.** *Points for affordable housing*

Rental dwelling units				For-sale dwelling units			
Priced up to 60% AMI		Priced up to 80% AMI		Priced up to 100% AMI		Priced up to 120% AMI	
Percentage of total rental units	Points	Percentage of total rental units	Points	Percentage of total for-sale units	Points	Percentage of total for-sale units	Points
5	1	10	1	5	1	8	1
10	2	15	2	10	2	12	2
15	3	25	3	15	3	--	--

*AMI = area median income.*

AND/OR

**OPTION 3. Mixed-Income Diverse Communities**

A project may earn 1 additional point by earning at least 2 points in Option 1 and at least 2 points in Option 2 (at least one of which must be for providing housing at or below 100% AMI).

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## **NPD Credit 5: Reduced Parking Footprint**

### **1 point**

#### **Intent**

To design parking to increase the pedestrian orientation of projects and minimize the adverse environmental effects of parking facilities. To reduce public health risks by encouraging daily physical activity associated with walking and bicycling.

#### **Requirements**

For new nonresidential buildings and multiunit residential buildings, either do not build new off-street parking lots, or locate all new off-street surface parking lots at the side or rear of buildings, leaving building frontages facing streets free of surface parking lots.

#### *AND*

Use no more than 20% of the total development footprint area for all new off-street surface parking facilities, with no individual surface parking lot larger than 2 acres (0.8 hectares). For the purposes of this credit, surface parking facilities include ground-level garages unless they are under habitable building space. Underground or multistory parking facilities can be used to provide additional capacity, and on-street parking spaces are exempt from this limitation.

#### *AND*

Provide bicycle parking and storage capacity to new buildings as follows:

- a. Multiunit residential. Provide at least one secure, enclosed bicycle storage space per occupant for 30% of the planned occupancy but no fewer than one per unit. Provide secure visitor bicycle racks (or equivalent) on-site, with at least one bicycle space per ten dwelling units but no fewer than four spaces per project site.
- b. Retail. Provide at least one secure, enclosed bicycle storage space per new retail worker for 10% of retail worker planned occupancy. Provide visitor or customer bicycle racks on-site, with at least one bicycle space per 5,000 square feet (465 square meters) of retail space, but no fewer than one bicycle space per business or four bicycle spaces per project site, whichever is greater. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.
- c. Nonresidential other than retail. Provide at least one secure, enclosed bicycle storage space per new occupant for 10% of planned occupancy. Provide visitor bicycle racks (or equivalent) on-site with at least one bicycle space per 10,000 square feet (930 square meters) of new commercial nonretail space but not fewer than four bicycle spaces per building. Provide at least one on-site shower with changing facility for any development with 100 or more new workers and at least one additional on-site shower with changing facility for every 150 new workers thereafter.

Secure, enclosed bicycle storage areas must be locked and easily accessible to residents and/or workers. Provide informational signage on using the storage facilities.

Visitors' and customers' bicycle racks (or equivalent) must be clearly visible from a main entry, located within 100 feet (30 meters) of the door, served with night lighting, and protected from damage from nearby vehicles. If the building has multiple main entries, bicycle racks (or equivalent) must be proportionally dispersed within 100 feet (30 meters) of each.

Shower and changing facility requirements may be met by providing the equivalent of free access to on-site health club shower facilities, if the health club can be accessed without going outside. Provide informational signage on using the shower facilities.

*AND*

Provide carpool and/or shared-use vehicle parking spaces equivalent to 10% of the total automobile parking for each nonresidential and mixed-use building on the site. Signage indicating such parking spots must be provided, and the parking spots must be within 200 feet (60 meters) of entrances to the buildings served.

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## NPD Credit 6: Street Network

1–2 points

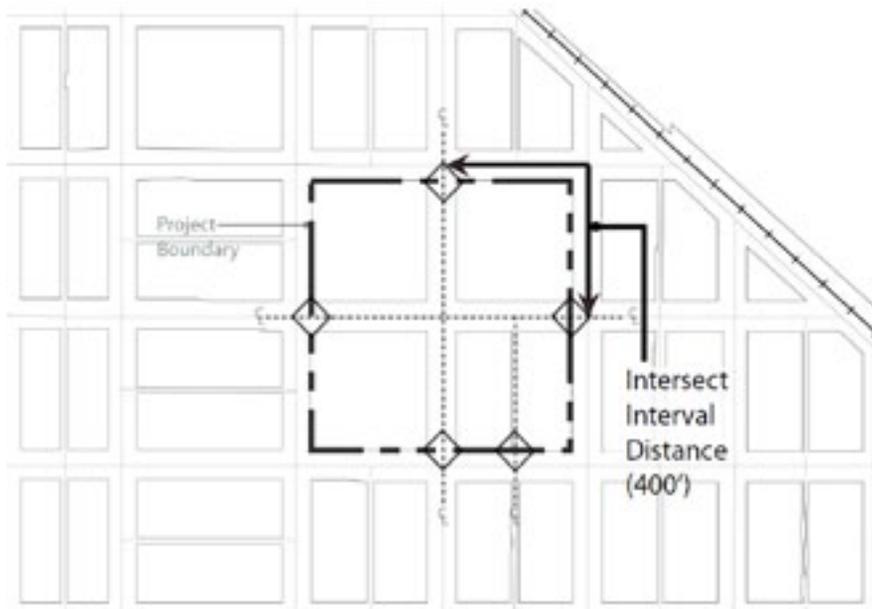
### Intent

To promote projects that have high levels of internal connectivity and are well connected to the community at large. To encourage development within existing communities, thereby conserving land and promoting multimodal transportation. To improve public health by encouraging daily physical activity and reducing the negative effects of motor vehicle emissions.

### Requirements

Design and/or locate the project such that a through-street and/or nonmotorized right-of-way intersects or terminates at the project boundary at least every 400 feet (120 meters) or at existing abutting street intervals and intersections, whichever is the shorter distance. Include a pedestrian or bicycle through-connection in at least 90% of any new culs-de-sac. This does not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes over 15%, wetlands and water bodies, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

**Figure 1.** Project site with right-of-way intersects on project boundary at least every 400 feet (120 meters)



**AND**

Locate and/or design the project such that its internal connectivity and/or the connectivity within a 1/4-mile (400 meters) distance of the project boundary falls within one of the ranges listed in Table 1.

**Table 1.** *Points for connectivity*

Street intersections per square mile	Street intersections per square kilometer	Points
> 300 and ≤ 400	> 116 and ≤ 154	1
> 400	> 154	2

All streets and sidewalks that are counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses, and military bases where gates are used for security purposes.

**Key Definitions**

For the meanings of other terms used in the requirements, refer to the Glossary.

connectivity the number of publicly accessible intersections per square mile (square kilometer), including any combination of streets, dedicated alleys, transit rights-of-way, and 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 (square kilometer) excludes water bodies, parks larger than 1/2 acre (0.2 hectares), 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.

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## **NPD Credit 7: Transit Facilities**

### **1 point**

#### **Intent**

To encourage transit use and reduce driving by providing safe, convenient, and comfortable transit waiting areas and safe and secure bicycle storage facilities for transit users.

#### **Requirements**

Work with the transit agency or agencies serving the project to identify transit stop locations within and/or bordering the project boundary where transit agency-approved shelters and any other agency-required improvements, including bicycle racks, will be installed no later than construction of 50% of total project floor area. At those locations, install approved shelters and any required improvements, or provide funding to the transit agency for their installation. Shelters must be covered, be at least partially enclosed to buffer wind and rain, and have seating and illumination. Any required bicycle racks must have a two-point support system for locking the frame and wheels and be securely affixed to the ground or a building. Any alternative to bicycle racks must ensure bikes will be stored safely and access to these bikes must be convenient for visitors and customers.

#### *AND*

Work with the transit agency or agencies serving the project to identify locations within and bordering the project boundary where the agency determines that transit stops will be warranted within two years of project completion, either because of increased ridership on existing service resulting from the project or because of planned future transit. At those locations, reserve space for transit shelters and any required improvements, including bicycle racks. In lieu of or in addition to new stops, this requirement can be satisfied with a commitment from the transit agency to provide increased service to the transit stops that will have been installed at the time of 50% build-out.

#### *AND*

Work with the transit agency or agencies serving the project to provide kiosks, bulletin boards, and/or signs that display transit schedules and route information at each public transit stop within and bordering the project.

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## **NPD Credit 8: Transportation Demand Management**

### **1–2 points**

#### **Intent**

To reduce energy consumption, pollution from motor vehicles, and adverse public health effects by encouraging multimodal travel.

#### **Requirements**

##### *FOR ALL PROJECTS*

Earn one point for every two options achieved below, for a maximum of two points. For the purposes of this credit, existing buildings and their occupants are exempt from the requirements.

##### *OPTION 1. TDM Program*

Create and implement a comprehensive transportation demand management (TDM) program for the project that reduces weekday peak-period motor vehicle trips by at least 20% compared with a baseline case, and fund the program for a minimum of three years following build-out of the project. The TDM program must be prepared by a qualified transportation professional. Any trip reduction effects of Options 2, 3, 4, or 5 may not be included in calculating the 20% threshold.

*OR*

##### *OPTION 2. Transit Passes*

Provide transit passes valid for at least one year, subsidized to be half of regular price or cheaper, to each occupant locating within the project during the first three years of project occupancy (or longer). Publicize the availability of subsidized transit passes are available to project occupants;

*OR*

##### *OPTION 3. Developer-Sponsored Transit*

Provide year-round, developer-sponsored private transit service (with vans, shuttles, buses) from at least one central point in the project to other major transit facilities, and/or other destinations such as a retail or employment center, with service no less frequent than 45 daily weekday trips and 30 daily weekend trips. The service must begin by the time the project total floor area is 20% occupied and must be guaranteed for at least three years beyond project build-out. Twenty percent occupancy is defined as residents living in 20% of the dwelling units and/or employees working in 20% of the total nonresidential floor area.

Provide transit stop shelters and bicycle racks adequate to meet projected demand but no less than one shelter and one bicycle rack at each transit stop. Shelters must be covered, be at least partially enclosed to buffer wind and rain, and have seating and illumination. Bicycle racks must have a two-point support system for locking the frame and wheels and must be securely affixed to the ground or a building. Any alternative to bicycle racks must ensure bikes will be stored safely and access to these bikes must be convenient for visitors and customers.

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OR

*OPTION 4. Vehicle Sharing*

Locate the project such that 50% of the dwelling units and nonresidential building entrances are within a 1/4 mile (400 meters) walk distance of at least one vehicle in a vehicle-sharing program. For each vehicle, dedicate one parking space accessible to vehicle-sharing members. Through signage and other means, publicize to project occupants the availability and benefits of the vehicle-sharing program. If the project has more than 100 dwelling units and/or employees and has a minimum transit service of 60 daily weekday trips and 40 daily weekend trips, at least one additional vehicle and parking space for every 100 dwelling units and/or employees must be available. If the project has more than 100 dwelling units and/or employees but does not have transit service at the frequencies specified above, at least one additional vehicle and parking space for every 200 dwelling units and/or employees must be available. Where new vehicle locations are created, a vehicle sharing program must begin by the time the project total floor area is 20% occupied; commit to providing vehicles to the locations for at least two years. Twenty percent occupancy is defined as residents living in 20% of the project dwelling units and/or employees working in 20% of the total nonresidential floor area of the project.

OR

*OPTION 5. Unbundling of Parking*

For 90% of multiunit residential units and/or nonresidential floor area, the associated parking spaces are sold or rented separately from the dwelling units and/or nonresidential floor area.

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## **NPD Credit 9: Access to Civic and Public Space**

**1 point**

### **Intent**

To improve physical and mental health and social capital by providing a variety of open spaces close to work and home to facilitate social networking, civic engagement, physical activity, and time spent outdoors.

### **Requirements**

Locate and/or design the project such that a civic or passive-use space, such as a square, park, or plaza, at least 1/6 acre (675 square meters) in area lies within a 1/4-mile (400 meters) walk distance of 90% of planned and existing dwelling units and nonresidential building entrances. Spaces less than 1 acre (0.4 hectares) must have a proportion no narrower than 1 unit of width to 4 units of length.

### *AND*

For projects larger than 7 acres (2.8 hectares), locate and/or design the project such that the median size of civic or passive-use spaces within and/or contiguous to the project is at least 1/2 acre (0.2 hectares).

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## **NPD Credit 10: Access to Recreation Facilities**

**1 point**

### **Intent**

To improve physical and mental health and social capital by providing a variety of recreational facilities close to work and home to facilitate physical activity and social networking.

### **Requirements**

Locate and/or design the project so that a publicly accessible outdoor recreation facility at least 1 acre (0.4 hectares) in area, or a publicly accessible indoor recreational facility of at least 25,000 square feet (2,325 square meters), lies within a 1/2-mile (800 meters) walk distance of 90% of new and existing dwelling units and nonresidential building entrances. Outdoor recreation facilities must consist of physical improvements and may include "tot lots," swimming pools, and sports fields, such as baseball diamonds.

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## NPD Credit 11: Visitability and Universal Design

### 1 point

#### Intent

To enable the widest spectrum of people, regardless of age or ability, to more easily participate in community life by increasing the proportion of areas usable by people of diverse abilities.

#### Requirements

##### *OPTION 1. Projects with Dwelling Units*

For each new project dwelling unit of the following residential building types, design to the applicable requirements specified:

Single dwelling unit buildings. Design a minimum of 20% of the dwelling units (and not less than one) in accordance with ICC/ANSI A117.1, Type C, VISIBLE Unit, each of which has an open-space plan for primary functions (an area for cooking, eating, and social gathering), as well as a sleeping area and a full bathroom.

Multiunit building with two or three dwelling units. Design a minimum of 20% of the dwelling units (and not less than one) in accordance with ICC/ANSI A117.1, Type C, VISIBLE Unit, each of which has a kitchen, dining area, living area, full bathroom, and bedroom on the accessible level. If a project has both attached and detached single dwelling unit buildings, the requirements apply to each type separately. Similarly, if a project has both 2- and 3- dwelling unit buildings, the requirements apply to each type.

Multiunit buildings with four or more dwelling units. This category includes mixed-use buildings with dwelling units. Design a minimum of 20% of the dwelling units (and not less than one) to incorporate the universal design requirements stated below, or comply with Option 2. Choose at least one of the following three strategies for universal design:

- a. Throughout the home, include at least five of the following universal design features to facilitate universal function, access, and user ability:
  - Easy-to-grip lever door handles.
  - Easy-to-grip cabinet and drawer loop handles.
  - Easy-to-grip locking mechanisms on doors and windows.
  - Easy-to-grip single-lever faucet handles.
  - Easy-touch rocker or hands-free switches.
  - Motion-detector lighting at entrance, in hallways and stairwells, and in closets, and motion-detector light switches in garages, utility spaces, and basements.
  - Large, high-contrast print for controls, signals, and the house or unit numbers.
  - A built-in shelf, bench, or table with knee space below, located outside the entry door with weather protection overhead, such as porch or stoop with roof, awning, or other overhead covering.
  - A minimum 32-inch (800 millimeters) clear door opening width for all doorways.

- 
- Tread at the entrance, on stairs, and other areas where slipping is common, with color contrast difference between stair treads and risers.
  - Interior floor surfaces (e.g., low-pile carpets, hard-surface flooring) that provide easy passage for a wheelchair or walker, with color contrast between floor surfaces and trim. No carpet is permitted in a kitchen, bathroom, or other wet areas of the dwelling unit.

*OR*

- b. On the main floor of the home (or on another floor, if an elevator or stair lift is provided), provide a kitchen with hard-surface flooring, plumbing with single-lever controls, a 5-foot (1.5 meters) turning radius, and at least four of the following universal design features to facilitate universal function, access, and usability:
- Variable-height (28- to 42-inch or 700 millimeters to 1100 millimeters) or adjustable work surfaces, such as countertops, sinks, and/or cooktops.
  - Clear knee space under sink and cooktops (this requirement can be met by installing removable base cabinets or fold-back or self-storing doors), cooktops and ranges with front or side-mounted controls, and wall-mounted ovens at a height to accommodate a seated adult.
  - A toe kick area at the base of lower cabinets with a minimum height of 9 inches (230 millimeters), and full-extension drawers and shelves in at least half (by volume) of the cabinets.
  - Contrasting color treatment between countertops, front edges, and floor.
  - Adjustable-height shelves in wall cabinets.
  - Glare-free task lighting to illuminate work areas without too much reflectivity.

*OR*

- c. On the main floor of the building (or on another floor, if an elevator or stair lift is provided), include all of the following:

In at least one accessible bedroom,

- Size the room to accommodate a twin bed with a 5-foot (1.5 meters) turning radius around the bed.
- Install a clothes closet with a 32-inch (800 millimeters) clear opening with adjustable-height closet rods and shelves.

In at least one full bathroom on the same floor as the bedroom,

- Provide adequate maneuvering space with a 30-by-48-inch (750 by 1200 millimeters) clear floor space at each fixture.
- Center the toilet 18 inches (450 millimeters) from any side wall, cabinet, or tub, and allow a 3-foot (900 millimeters) clear space in front.
- Install broad blocking in walls around toilet, tub, and/or shower for future placement and relocation of grab bars
- Provide knee space under the lavatory (this requirement may be met by installing removable base cabinets or fold-back or self-storing doors).

- Install a long mirror whose bottom is no more than 36 inches above the finished floor and whose top is at least 72 inches (1800 millimeters) high.

In addition, all bathrooms must have hard-surface flooring, all plumbing fixtures must have single-lever controls, and tubs or showers must have hand-held shower heads.

*OR*

*OPTION 2. Projects with Noncompliant Public Rights-of-Way or Accessible Travel Routes*

For projects with only nonresidential components, or residential components that are not within the scope of Option 1, but have public rights-of-way or other publicly accessible travel routes within the project that are not in compliance with Americans with Disabilities Act (for private sector and local and state government facilities) or the Architectural Barriers Act (for federally funded facilities), design, construct, and/or retrofit 100% of the rights-of-way and/or travel routes in accordance with the ADA-ABA Accessibility Guidelines, as applicable.

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## **NPD Credit 12: Community Outreach and Involvement**

### **1–2 points**

#### **Intent**

To encourage responsiveness to community needs by involving the people who live or work in the community in project design and planning and in decisions about how it should be improved or how it should change over time.

#### **Requirements**

##### *OPTION 1. Community Outreach (1 point)*

Meet with adjacent property owners, residents, business owners, and workers; local planning and community development officials; and any current residents or workers at the project site to solicit and document their input on the proposed project prior to commencing a design.

*AND*

Work directly with community associations and/or the local government to advertise an open community meeting, other than an official public hearing, to generate comments on project design from the beginning.

*AND*

Host an open community meeting, other than an official public hearing, to solicit and document public input on the proposed project at the beginning of project design.

*AND*

Modify the project's conceptual design as a direct result of community input, or if modifications are not made, explain why community input did not generate design modifications.

*AND*

Establish ongoing means for communication between the developer and the community throughout the design and construction phases and, in cases where the developer maintains any control during the postconstruction phase.

*OR*

##### *OPTION 2. Charrette (2 points)*

Comply with Option 1 and conduct a design charrette or interactive workshop of at least two days and open to the public that includes, at a minimum, participation by a representative group of nearby property owners, residents, business owners, and workers in the preparation of conceptual project plans and drawings.

*OR*

##### *OPTION 3. Local Endorsement Pursuant to Evaluation Program (2 points)*

Comply with Option 1 and obtain an endorsement from an ongoing local or regional nongovernmental program that systematically reviews and endorses smart growth development projects under a rating and/or jury system.

## NPD Credit 13: Local Food Production

### 1 point

#### Intent

To promote community-based food production, improve nutrition through increased access to fresh produce, support preservation of small farms producing a wide variety of crops, reduce the negative environmental effects of large-scale industrialized agriculture, and support local economic development that increases the economic value and production of farmlands and community gardens.

#### Requirements

##### FOR ALL PROJECTS

Establish covenants, conditions, and restrictions (CC&R) or other forms of deed restrictions which state that the growing of produce is not prohibited in project areas, including greenhouses, any portion of residential front, rear, or side yards; or balconies, patios, or rooftops. Greenhouses but not gardens may be prohibited in front yards that face the street.

#### AND

##### OPTION 1. Neighborhood Farms and Gardens

Dedicate permanent and viable growing space and/or related facilities (such as greenhouses) within the project according to the areas specified in Table 1 (exclusive of existing dwellings). Provide solar access, fencing, watering systems, garden bed enhancements (such as raised beds), secure storage space for tools, and pedestrian access for these spaces. Ensure that the spaces are owned and managed by an entity that includes occupants of the project in its decision making, such as a community group, homeowners' association, or public body.

**Table 1.** Minimum garden space, by project density

Project density (DU/acre)	Project density (DU/hectare)	Growing space (sf/DU)	Growing space (sqm/DU)
> 7 and ≤ 14	> 17.5 and ≤ 35	200	18.5
> 14 and ≤ 22	> 35 and ≤ 55	100	9
> 22 and ≤ 28	> 55 and ≤ 69	80	7.5
> 28 and ≤ 35	> 69 and ≤ 86.5	70	6.5
> 35	> 86.5	60	5.5
<i>DU = dwelling unit; sf = square feet.</i>			

Established community gardens outside the project boundary but within a 1/2 mile (800 meters) walk distance of the project's geographic center can satisfy this option if the garden otherwise meets all of the option requirements.

OR

*OPTION 2. Community-Supported Agriculture*

Purchase shares in a community-supported agriculture (CSA) program located within 150 miles (240 kilometers) of the project site for at least 80% of dwelling units within the project (exclusive of existing dwelling units) for two years, beginning with each dwelling unit's occupancy until the 80% threshold is reached. Shares must be delivered to a point within 1/2 mile (800 meters) of the project's geographic center on a regular schedule not less than twice per month at least four months of the year.

OR

*OPTION 3. Proximity To Farmers' Market*

Locate the project's geographic center within a 1/2-mile (800 meters) walk distance of an existing or planned farmers' market that is open or will operate at least once weekly for at least five months annually. Farmers' market vendors may sell only items grown within 150 miles (240 kilometers) of the project site. A planned farmers' market must have firm commitments from farmers and vendors that the market will meet all the above requirements and be in full operation by the time of 50% occupancy of the project's total floor area.

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## **NPD Credit 14: Tree-Lined and Shaded Streets**

### **1–2 points**

#### **Intent**

To encourage walking, bicycling, and transit use and discourage excessive motoring speeds. To reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings.

#### **Requirements**

##### *OPTION 1. Tree-Lined Streets (1 point)*

Design and build the project to provide street trees on both sides of at least 60% of new and existing streets within the project and on the project side of bordering streets, between the vehicle travel way and walkway, at intervals averaging no more than 40 feet (12 meters) (excluding driveways and utility vaults).

*AND/OR*

##### *OPTION 2. Shaded Streets (1 point)*

Trees or other structures provide shade over at least 40% of the length of sidewalks on streets within or contiguous to the project. Trees must provide shade within ten years of landscape installation. Use the estimated crown diameter (the width of the shade if the sun is directly above the tree) to calculate the shaded area.

*AND*

##### *FOR ALL PROJECTS INVOLVING STREET TREE PLANTINGS*

Obtain a registered landscape architect's determination that planting details are appropriate to growing healthy trees, taking into account tree species, root medium, and width and soil volume of planter strips or wells, and that the selected tree species are not considered invasive in the project context according to USDA or the state agricultural extension service.

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## **NPD Credit 15: Neighborhood Schools**

### **1 point**

#### **Intent**

To promote community interaction and engagement by integrating schools into the neighborhood. To support students' health by encouraging walking and bicycling to school.

#### **Requirements**

Include in the project a residential component that constitutes at least 30% of the project's total building floor area, and locate or design the project such that at least 50% of the dwelling units are within a 1/2-mile (800 meters) walk distance of an existing or new elementary or middle school building entrance or within a 1-mile (1600 meters) walk distance of an existing or new high school building entrance. For any new school, the school district or equivalent organization must commit in a legally binding warrant that the school will be open by the time of occupancy of 50% of the project dwelling units.

Streets within and/or bordering the project boundary that lead from dwelling units to the school site must have a complete network of sidewalks on both sides and either bicycle lanes or traffic control and/or calming measures. If the school is planned as part of the project, it must be designed such that pedestrians and cyclists can easily reach building entrances without crossing bus zones, parking entrances, and student drop-off areas.

#### *AND*

New school campuses must not exceed the following:

- High schools, 15 acres (6 hectares).
- Middle schools, 10 acres (4 hectares).
- Elementary schools, 5 acres (2 hectares).

Schools combining grade levels from more than one category may use the grade level with the higher allowable land area.

Facilities on the school site for which there is a formal joint-use agreement with another entity, such as athletic facilities, playgrounds, and multipurpose spaces in buildings, may be deducted from the total site area of the school.

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# GREEN INFRASTRUCTURE AND BUILDINGS

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## **GIB Prerequisite 1: Certified Green Building**

### **Required**

#### **Intent**

To encourage the design, construction, and retrofit of buildings that utilize green building practices.

#### **Requirements**

Design, construct, or retrofit one whole building within the project to be certified through LEED for New Construction, LEED for Existing Buildings: Operations & Maintenance, LEED for Homes, LEED for Schools, LEED for Retail: New Construction, or LEED for Core and Shell (with at least 75% of the floor area certified under LEED for Commercial Interiors or LEED for Retail: Commercial Interiors), or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065.

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## GIB Prerequisite 2: Minimum Building Energy Efficiency

### Required

#### Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and adverse environmental effects from energy production and consumption.

#### Requirements

The following requirement applies to 90% of the building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and multiunit residential buildings four stories or more constructed as part of the project or undergoing major renovations as part of the project.

New buildings must demonstrate an average 10% improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007, with errata but without addenda (or a USGBC-approved equivalent standard for projects outside the United States). Buildings undergoing major renovations must demonstrate an average 5% improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007. For projects outside the United States, consult ANSI/ASHRAE/IESNA Standard 90.1–2007, Appendixes B and D, to determine the appropriate climate zone.

Projects must document building energy efficiency using one or a combination of the following:

- a. Produce a LEED-compliant energy model following the methodology outlined in the LEED rating system appropriate to each building's scope, including demonstration by a whole building project computer simulation using the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1–2007 (or a USGBC-approved equivalent standard for projects outside the United States.) Appendix G requires that the energy analysis done for the building performance rating method include all energy costs associated with the building project. Projects in California may use Title 24–2005, Part 6, in place of ANSI/ASHRAE/IESNA Standard 90.1–2007. For projects outside the United States, consult ANSI/ASHRAE/IESNA Standard 90.1–2007, Appendixes B and D, to determine the appropriate climate zone.
- b. Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide listed below, appropriate to each building's scope. Comply with all applicable criteria as established in the guide for the climate zone in which the project is located.
  - ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004 (office occupancy buildings less than 20,000 square feet or 1,800 square meters).
  - ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006 (retail occupancy buildings less than 20,000 square feet or 1,800 square meters).
  - ASHRAE Advanced Energy Design Guide for Small Warehouses and Self-Storage Buildings 2008 (warehouse or self-storage occupancy less than 50,000 square feet or 4,600 square meters).
  - ASHRAE Advanced Energy Design Guide for K–12 School Buildings (K–12 school occupancy less than 200,000 square feet or 18,600 square meters).
- c. For buildings less than 100,000 square feet (9,300 square meters), comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute, as follows:

- Comply with Section 1, Design Process Strategies, and Section 2, Core Performance Requirements, of the Core Performance Guide.
- Health care, warehouse and laboratory projects are ineligible for this path.

If method (a) is used for all of the floor area evaluated in this prerequisite, the total percentage improvement is calculated as a sum of energy costs for each building compared with a baseline. If any combination of methods (a), (b), and (c) is used, the total percentage improvement is calculated as a weighted average based on building floor area. In determining the weighted average, buildings pursuing (a) will be credited at the percentage value determined by the energy model. Buildings pursuing (b) or (c) will be credited at 12% better than ANSI/ASHRAE/IESNA Standard 90.1–2007 (or a USGBC-approved equivalent standard for projects outside the U.S.) for new buildings and 8% better for existing building renovations.

*AND*

For new single-family residential buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must meet ENERGY STAR or equivalent criteria. Projects may demonstrate compliance with ENERGY STAR criteria through the prescriptive requirements of a Builder Option Package, the Home Energy Rating System (HERS) index (or a USGBC approved equivalent for projects outside the U.S.), or a combination of the two.

Project teams wishing to use ASHRAE-approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all LEED credits.

## GIB Prerequisite 3: Minimum Building Water Efficiency

### Required

#### Intent

To reduce effects on natural water resources and reduce burdens on community water supply and wastewater systems.

#### Requirements

For nonresidential buildings, mixed-use buildings, and multifamily residential buildings four stories or more:

Indoor water usage in new buildings and buildings undergoing major renovations as part of the project must be an average 20% less than in baseline buildings. The baseline usage is based on the requirements of the United States Energy Policy Act of 1992 and subsequent rulings by the Department of Energy, the requirements of the Energy Policy Act of 2005, and the fixture performance standards in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code as to fixture performance. Calculations are based on estimated occupant usage and include only the following fixtures and fixture fittings (as applicable to the project scope): water closets (toilets), urinals, lavatory faucets, showers, kitchen sink faucets, and prerinse spray valves.

The water efficiency threshold is calculated as a weighted average of water usage for the buildings constructed as part of the project based on their conditioned area. Projects may also follow the LEED for Multiple Buildings and On-Campus Building Application Guide alternative calculation methodology to show compliance with this prerequisite.

**Table 1.** National efficiency baselines

Commercial fixtures, fittings, or appliances	Baseline water usage
Commercial toilet	1.6 gpf <sup>1</sup> (6 lpf) Except blow-out fixtures, 3.5 gpf (13.2 lpf)
Commercial urinal	1.0 gpf (4 lpf)
Commercial lavatory (restroom) faucet	2.2 gpm at 60 psi (8.5 lpm) at 4 bar (58 psi), private applications only (hotel-motel guest rooms, hospital patient rooms) 0.5 gpm at 60 psi <sup>2</sup> (2 lpm) at 4 bar (58 psi) all others except private applications 0.25 gallons per cycle for metering faucets (1 liter per cycle)
Commercial prerinse spray valve (for food service applications)	Flow rate ≤ 1.6 gpm (6 lpm) (no pressure specified; no performance requirement)

<sup>1</sup> EPA 1992 standard for toilets applies to both commercial and residential models.  
<sup>2</sup> In addition to EPA requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (2 lpm) at 4 bar (58 psi) (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code.

Residential Fixtures, Fittings, and Appliances	Baseline water usage
Residential toilet	1.6 gpf <sup>3</sup> (6 lpf <sup>3</sup> )
Residential lavatory (bathroom) faucet	2.2 gpm at 60 psi (8.5 lpm) at 4 bar ( 58 psi)
Residential kitchen faucet	
Residential showerhead	2.5 gpm at 80 psi per shower stall <sup>4</sup> (9.5 lpm) at 5.5 bar (80 psi)
<p><i>gpf = gallons per flush; psi = pounds per square inch.</i>  <i>Source: Adapted from information developed and summarized by the U.S. EPA Office of Water.</i>  <sup>3</sup> EPAAct 1992 standard for toilets applies to both commercial and residential models.  <sup>4</sup> Residential shower compartment (stall) in dwelling units: The total allowable flow rate from all flowing showerheads at any given time, including rain systems, waterfalls, bodysprays, bodyspas, and jets, shall be limited to the allowable showerhead flow rate as specified above (2.5-gpm or 9.5 lpm ) per shower compartment, where the floor area of the shower compartment is less than 2,500 sq.in. (1,600,000 sq. mm). For each increment of 2,500 sq.in. (1,600,000 sq. mm). of floor area thereafter or part thereof, an additional showerhead with total allowable flow rate from all flowing devices equal to or less than the allowable flow rate as specified above shall be allowed. Exception: Showers that emit recirculated non-potable water originating from within the shower compartment while operating are allowed to exceed the maximum as long as the total potable water flow does not exceed the flow rate as specified above.</p>	

The following fixtures, fittings, and appliances are outside the scope of the water use reduction calculation:

- a. Commercial steam cookers.
- b. Commercial dishwashers.
- c. Automatic commercial ice makers.
- d. Commercial (family-sized) clothes washers.
- e. Residential clothes washers.
- f. Standard and compact residential dishwashers.

**AND**

For new single-family residential buildings and new multiunit residential buildings three stories or fewer, 90% of buildings must use a combination of fixtures that would earn 3 points under LEED for Homes 2008 WE Credit 3, Indoor Water Use.

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## **GIB Prerequisite 4: Construction Activity Pollution Prevention**

### **Required**

#### **Intent**

To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust generation.

#### **Requirements**

Create and implement an erosion and sedimentation control plan for all new construction activities associated with the project. The plan must incorporate practices such as phasing, seeding, grading, mulching, filter socks, stabilized site entrances, preservation of existing vegetation, and other best management practices (BMPs) to control erosion and sedimentation in runoff from the entire project site during construction. The plan must list the BMPs employed and describe how they accomplish the following objectives:

- a. Prevent loss of soil during construction by stormwater runoff and/or wind erosion, including but not limited to stockpiling of topsoil for reuse.
- b. Prevent sedimentation of any affected stormwater conveyance systems or receiving streams.
- c. Prevent polluting the air with dust and particulate matter.

The erosion and sedimentation control plan must describe how the project team will do the following:

- a. Preserve vegetation and mark clearing limits.
- b. Establish and delineate construction access.
- c. Control flow rates.
- d. Install sediment controls.
- e. Stabilize soils.
- f. Protect slopes.
- g. Protect drain inlets.
- h. Stabilize channels and outlets.
- i. Control pollutants.
- j. Control dewatering.
- k. Maintain the BMPs.
- l. Manage the erosion and sedimentation control plan.

Select BMPs that are consistent with Green Infrastructure and Low Impact Development (LID) strategies such as the Washington State Department of Ecology's Stormwater Management Manual for Western Washington, Volume II, Construction Stormwater Pollution Prevention (2005 edition), or a local equivalent. Choose BMPs that are the most stringent and appropriate to the project site and region. BMPs must comply with all national, state, and local erosion and sedimentation control regulations.

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## GIB Credit 1: Certified Green Buildings

### 1–5 points

#### Intent

To encourage the design, construction, and retrofit of buildings that utilize green building practices.

#### Requirements

##### *OPTION 1. Projects with 10 or Fewer Habitable Buildings*

Design, construct, or retrofit one building as part of the project, beyond the prerequisite, to be certified under one of the following LEED green building rating systems: LEED for New Construction, LEED for Existing Buildings, LEED for Homes, LEED for Schools, LEED for Retail: New Construction, or LEED for Core & Shell (with at least 75% of the floor area certified under LEED for Commercial Interiors or LEED for Retail: Commercial Interiors) or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065. Additional points (up to 5) may be earned for each additional certified building that is part of the project.

OR

##### *OPTION 2. Projects of All Sizes*

Design, construct, or retrofit a percentage of the total project building floor area, beyond the prerequisite requirement, to be certified under one of the LEED green building rating systems listed above or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have either been accredited by an IAF accreditation body to, or could demonstrate compliance to, ISO 17021 or ISO/IEC Guide 65, and, when subsequently available, ISO/IEC 17065.

**Table 1.** *Points for green building certification*

Percentage of floor area certified	Points
≥ 10% and < 20%	1
≥ 20% and < 30%	2
≥ 30% and < 40%	3
≥ 40% and < 50%	4
≥ 50%	5

AND

#### **FOR ALL PROJECTS**

Detached accessory dwelling units must be counted as separate buildings. Accessory dwellings attached to a main building are not counted separately.

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## GIB Credit 2: Building Energy Efficiency

### 2 points

#### Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and adverse environmental effects from energy production and consumption.

#### Requirements

The following requirement applies to 90% of the building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and multiunit residential buildings four stories or more constructed as part of the project or undergoing major renovations as part of the project.

New buildings must demonstrate an average 18% (1 point) or 26% (2 points) improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007, with errata but without addenda (or a USGBC-approved equivalent standard for projects outside the U.S.). Buildings undergoing major renovations as part of the project must demonstrate an average 14% (1 point) or 22% (2 points) improvement over ANSI/ASHRAE/IESNA Standard 90.1–2007. For projects outside the United States, consult ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendixes B and D, to determine the appropriate climate zone.

Projects must document building energy efficiency using one or a combination of the following:

- a. Produce a LEED-compliant energy model following the methodology outlined in the LEED rating system appropriate to each building's scope, including demonstration by a whole building project computer simulation using the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1–2007. Appendix G requires that the energy analysis done for the building performance rating method include all energy costs associated with the building project. Projects in California may use Title 24–2005, Part 6, in place of ANSI/ASHRAE/IESNA Standard 90.1–2007 (or USGBC approved equivalent standard for projects outside the United States).
- b. Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide listed below, appropriate to each building's scope. Comply with all applicable criteria as established in the guide for the climate zone in which the project is located. For projects outside the United States, consult ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendixes B and D, to determine the appropriate climate zone.
  - ASHRAE Advanced Energy Design Guide for Small Office Buildings 2004 (office occupancy buildings less than 20,000 square feet or 1,800 square meters).
  - ASHRAE Advanced Energy Design Guide for Small Retail Buildings 2006 (retail occupancy buildings less than 20,000 square feet or 1,800 square meters).
  - ASHRAE Advanced Energy Design Guide for Small Warehouses and Self-Storage Buildings 2008 (warehouse or self-storage occupancy less than 50,000 square feet or 4,600 square meters).
  - ASHRAE Advanced Energy Design Guide for K–12 School Buildings (K–12 school occupancy less than 200,000 square feet or 18,600 square meters).

- c. For buildings less than 100,000 square feet (9,300 square meters),, comply with the prescriptive measures identified in the Advanced Buildings™ Core Performance™ Guide developed by the New Buildings Institute, as follows:
- Comply with Section 1, Design Process Strategies, and Section 2, Core Performance Requirements, of the Core Performance Guide.
  - Health care, warehouse and laboratory projects are ineligible for this path.

If method (a) is used for all of the floor area evaluated in this prerequisite, the total percentage improvement is calculated as a sum of energy costs for each building compared with a baseline. If any combination of methods (a), (b), and (c) is used, the total percentage improvement is calculated as a weighted average based on building floor area. In determining the weighted average, buildings pursuing (a) will be credited at the percentage value determined by the energy model. Buildings pursuing (b) or (c) will be credited at 12% better than ANSI/ASHRAE/IESNA Standard 90.1–2007 (or USGBC- approved equivalent standard for projects outside the United States) for new buildings and 8% better for existing building renovations.

*AND*

For new single-family residential buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must achieve a Home Energy Rating System (HERS) index (or a USGBC approved equivalent) score of at least 75.

Project teams wishing to use ASHRAE-approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all LEED credits.

## GIB Credit 3: Building Water Efficiency

### 1 point

#### Intent

To reduce effects on natural water resources and reduce burdens on community water supply and wastewater systems.

#### Requirements

For nonresidential buildings, mixed-use buildings, and multifamily residential buildings four stories or more:

Indoor water usage in new buildings and buildings undergoing major renovations as part of the project must be an average 40% less than in baseline buildings. The baseline usage is based on the requirements of the Energy Policy Act of 1992 and subsequent rulings by the Department of Energy, the requirements of the United States Energy Policy Act of 2005, and the fixture performance standards in the 2006 editions of the Uniform Plumbing Code or International Plumbing Code as to fixture performance. Calculations are based on estimated occupant usage and include only the following fixtures and fixture fittings (as applicable to the project scope): water closets (toilets), urinals, lavatory faucets, showers, kitchen sink faucets, and prerinse spray valves.

The water efficiency threshold is calculated as a weighted average of water usage for the buildings constructed as part of the project based on their conditioned area. Projects may also follow the LEED for Multiple Buildings and On-Campus Building Application Guide alternative calculation methodology to show compliance with this credit.

**Table 1.** National efficiency baselines

Commercial fixtures, fittings, or appliances	Baseline water usage
Commercial toilet	1.6 gpf1 (6 lpf1) Except blow-out fixtures, 3.5 gpf (13.2 lpf)
Commercial urinal	1.0 gpf (4 lpf)
Commercial lavatory (restroom) faucet	2.2 gpm at 60 psi, private applications only (8.5 lpm 4 bar ( 58 psi), (hotel-motel guest rooms, hospital patient rooms) 0.5 gpm at 60 psi <sup>2</sup> all others except private applications (2 lpm) at 4 bar (58 psi) 0.25 gallons per cycle for metering faucets (1 liter per cycle)
Commercial prerinse spray valve (for food service applications)	Flow rate $\leq$ 1.6 gpm (6 lpm) (no pressure specified; no performance requirement)

<sup>1</sup> EPAAct 1992 standard for toilets applies to both commercial and residential models.  
<sup>2</sup> In addition to EPAAct requirements, the American Society of Mechanical Engineers standard for public lavatory faucets is 0.5 gpm at 60 psi (2 lpm) at 4 bar (58 psi) (ASME A112.18.1-2005). This maximum has been incorporated into the national Uniform Plumbing Code and the International Plumbing Code.

Residential Fixtures, Fittings, and Appliances	Baseline water usage
Residential toilet	1.6 gpf3 ((6 lpf3)
Residential lavatory (bathroom) faucet	2.2 gpm at 60 psi (8.5 lpm) at 4 bar ( 58 psi)
Residential kitchen faucet	
Residential showerhead	2.5 gpm at 80 psi per shower stall <sup>4</sup> (9.5 lpm) at 5.5 bar (80 psi)
<p><i>gpf = gallons per flush; psi = pounds per square inch.</i>  <i>Source: Adapted from information developed and summarized by the U.S. EPA Office of Water.</i>  <sup>3</sup> EPAAct 1992 standard for toilets applies to both commercial and residential models.  <sup>4</sup> Residential shower compartment (stall) in dwelling units: The total allowable flow rate from all flowing showerheads at any given time, including rain systems, waterfalls, bodysprays, bodyspas, and jets, shall be limited to the allowable showerhead flow rate as specified above (2.5-gpm or 9.5 lpm) per shower compartment, where the floor area of the shower compartment is less than 2,500 sq.in (1,600,000 sq. mm). For each increment of 2,500 sq.in. (1,600,000 sq. mm). of floor area thereafter or part thereof, an additional showerhead with total allowable flow rate from all flowing devices equal to or less than the allowable flow rate as specified above shall be allowed. Exception: Showers that emit recirculated non-potable water originating from within the shower compartment while operating are allowed to exceed the maximum as long as the total potable water flow does not exceed the flow rate as specified above.</p>	

The following fixtures, fittings, and appliances are outside the scope of the water use reduction calculation:

- a. Commercial steam cookers.
- b. Commercial dishwashers.
- c. Automatic commercial ice makers.
- d. Commercial (family-sized) clothes washers.
- e. Residential clothes washers.
- f. Standard and compact residential dishwashers.

**AND**

For new single-family residential buildings and new multiunit residential buildings three stories or fewer, 90% of buildings must use a combination of fixtures that would earn 5 points under LEED for Homes 2008 WE Credit 3, Indoor Water Use.

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## **GIB Credit 4: Water-Efficient Landscaping**

### **1 point**

#### **Intent**

To limit or eliminate the use of potable water and other natural surface or subsurface water resources on project sites, for landscape irrigation.

#### **Requirements**

Reduce water consumption for outdoor landscape irrigation by 50% from a calculated baseline for the site's peak watering month. Reductions may be attributed to any combination of the following strategies, among others:

- a. Plant species, plant density, and microclimate factor.
- b. Irrigation efficiency.
- c. Use of captured rainwater.
- d. Use of recycled wastewater.
- e. Use of water treated and conveyed by a government agency specifically for nonpotable uses.
- f. Use of other nonpotable water sources, such as stormwater, air-conditioning condensate, and foundation drain water.

Projects with no new or existing landscape irrigation requirements automatically meet the credit requirements.

Groundwater seepage that is pumped away from the immediate vicinity of buildings slabs and foundations can be used for landscape irrigation and meet the intent of this credit. However, it must be demonstrated that doing so does not affect site stormwater management systems.

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## **GIB Credit 5: Existing Building Reuse**

### **1 point**

#### **Intent**

To extend the life cycle of existing building stock to conserve resources, reduce waste, and reduce adverse environmental effects of new buildings related to materials manufacturing and transport.

#### **Requirements**

Reuse the existing habitable building stock, achieving the greater of the following two benchmarks (based on surface area):

- a. 50% of one existing building structure (including structural floor and roof decking) and envelope (including exterior skin and framing but excluding window assemblies and nonstructural roofing material).
- b. 20% of the total existing building stock (including structure and envelope, as defined above).

Hazardous materials that are remediated as a part of the project scope must be excluded from the calculations.

*AND*

#### *FOR ALL PROJECTS*

Do not demolish any historic buildings or contributing buildings in a historic district, or portions thereof, or alter any cultural landscapes as part of the project.

An exception is granted only if such action has been approved by an appropriate review body. For buildings listed locally, approval must be granted by the local historic preservation review board, or equivalent.

For buildings listed in a state register or in the National Register of Historic Places (or a local equivalent for projects outside the U.S.) approval must appear in a programmatic agreement with the State Historic Preservation Office (or a local equivalent for projects outside the U.S.).

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## **GIB Credit 6: Historic Resource Preservation and Adaptive Use**

### **1 point**

#### **Intent**

To encourage the preservation and adaptive use of historic buildings and cultural landscapes that represent significant embodied energy and cultural value, in a manner that preserves historic materials and character-defining features.

#### **Requirements**

To achieve this credit, at least one historic building or cultural landscape must be present on the project site.

Do not demolish any historic buildings, or portions thereof, or alter any cultural landscapes as part of the project.

An exception is granted only if such action has been approved by an appropriate review body. For buildings or landscapes listed locally, approval must be granted by the local historic preservation review board, or equivalent. For buildings or landscapes listed in a state register or in the National Register of Historic Places (or a local equivalent for projects outside the U.S.), approval must appear in a programmatic agreement with the State Historic Preservation Office or National Park Service (or local equivalent for projects outside the U.S.).

If any cultural landscapes or historic buildings in the project site are to be rehabilitated, restored, or preserved, rehabilitate in accordance with local review, or national standards for rehabilitation, whichever is more restrictive, using one of the following approaches:

- a. Obtain approval, in the form of a "certificate of appropriateness," from a locally appointed historic preservation commission or architectural review board for any exterior alterations or additions.
- b. If government funds are used for the project, obtain confirmation from a national historic preservation office or the National Park Service (or local equivalent for projects outside the U.S.) that the rehabilitation satisfies the Secretary of the Interior's Standards for Rehabilitation (or local equivalent for projects outside the U.S.).
- c. If a building or site is listed in or determined eligible for the National Register of Historic Places (or local equivalent for projects outside the U.S.), but is not subject to national or local board review, include on the project team a preservation professional who meets U.S. federal, or accepted national, qualifications for historic architect and attests to conformance to the Secretary of the Interior's Standards for the Treatment of Historic Properties (or local equivalent for projects outside the U.S.)

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## GIB Credit 7: Minimized Site Disturbance in Design and Construction

### 1 point

#### Intent

To preserve existing noninvasive trees, native plants, and pervious surfaces.

#### Requirements

##### *OPTION 1. Development Footprint on Previously Developed Land*

Locate 100% of the development footprint on areas that are previously developed and for which 100% of the construction impact zone is previously developed.

OR

##### *OPTION 2. Undeveloped Portion of Project Left Undisturbed*

Depending on the density of the project, do not develop or disturb a portion of the land that has not been previously developed on the site, exclusive of any land preserved by codified law or a prerequisite of LEED for Neighborhood Development; or exempt areas designated as nonbuildable in land-use comprehensive plans and stipulate in covenants, conditions, and restrictions (CC&R) or other binding documents that the undisturbed area will be protected from development in perpetuity. Densities and minimum percentages are as follows (mixed-use projects must use the lowest applicable density or calculate a weighted average per the methodology in NPD Credit 2, Compact Development):

**Table 1.** Minimum undeveloped area, by project density

Residential density (DU/acre)	Residential density (DU/hectare)	Nonresidential density (FAR)	Minimum area left undisturbed
< 15	< 37	< .50	20%
15 – 21	37 - 52	.50 – 1.0	15%
> 21	> 52	> 1.0	10%

*DU = dwelling unit; FAR = floor-area ratio.*

For portions of the site that are not previously developed, identify construction impact zones that limit disturbance to a minimum of 40 feet (12 meters) beyond the building perimeter; 10 feet (3 meters) beyond surface walkways, patios, surface parking and utilities less than 12 inches (300 millimeters) in diameter; 15 feet (4.5 meters) beyond street curbs and main utility branch trenches; and 25 feet (8 meters) beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater retention facilities, and playing fields) that require additional staging areas to limit compaction in the constructed zone.

AND

#### FOR ALL PROJECTS

Survey the site to identify the following:

- a. Trees in good or excellent condition, as determined by an arborist certified by the International Society of Arboriculture (ISA).

- b. Any heritage or champion trees of special importance to the community because of their age, size, type, historical association, or horticultural value, as defined by a government forester.
- c. All trees larger than 6 inches (150 millimeters) in diameter at breast height (dbh, 4 feet 6 inches [1.4 meters] above ground).
- d. Any invasive tree species present on the site, and whether those trees threaten the health of other trees to be preserved on the site, as determined by an ISA-certified arborist.

Preserve the following trees that are also identified as in good or excellent condition:

- a. All heritage or champion trees and trees whose dbh exceeds 50% of the state champion dbh for the species.
- b. A minimum of 75% of all noninvasive trees (including the above) larger than 18 inches (450 millimeters) dbh.
- c. A minimum of 25% of all noninvasive trees (including the above) larger than 12 inches (300 millimeters) dbh if deciduous, and 6 inches (150 millimeters) dbh if coniferous.

Tree condition ratings must be based on assessment by an ISA-certified arborist using ISA-approved assessment measures.

Develop a plan, in consultation with and approved by an ISA-certified arborist, for the health of the trees, including fertilization and pruning, and for their protection during construction. The plan must include protective fencing located 1 foot (300 millimeters) for each 1-inch (25 millimeter) caliper from the trunk or at the tree drip line, whichever is larger, and specify that if trenching or other disturbance is necessary within the protected zone, this work must be done by hand. If disturbance includes a permanent excavation of 3 feet (900 millimeters) or deeper, the excavation must start from a point not closer than 15 feet (4.5 meters) from the tree's drip line. If an ISA-certified arborist has determined that any trees to be preserved are threatened by invasive vegetation, develop a plan to reduce the invasive vegetation to the maximum extent possible. Stipulate in CC&R or other binding documents that the undisturbed area of the preserved trees will be protected from development in perpetuity.

## Key Definitions

For the meanings of other terms used in the requirements, refer to the Glossary.

previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre (0.4 hectares); previous development on lots larger than 1 acre (0.4 hectares) is defined as the development footprint and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

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## GIB Credit 8: Stormwater Management

### 1–4 points

#### Intent

To reduce pollution and hydrologic instability from stormwater, reduce flooding, promote aquifer recharge, and improve water quality by emulating natural hydrologic conditions.

#### Requirements

Implement a comprehensive stormwater management plan for the project that retains on-site, through infiltration, evapotranspiration, and/or reuse, the rainfall volumes listed in Table 1. Rainfall volume is based on the project's development footprint, any other areas that have been graded so as to be effectively impervious, and any pollution-generating pervious surfaces, such as landscaping, that will receive treatments of fertilizers or pesticides.

The percentile rainfall event (Table 1) is the total rainfall on a given day in the record that is greater than or equal to X percent of all rainfall events over a 20- to 40+-year period. For example, a 95th percentile event in a particular region might be 1.5 inches (40 millimeters), which would then be the volume to retain. To determine the volume to be retained, projects may use NOAA's published national rainfall data, run an approved stormwater model, or independently gather local rain gauge data and rank rainfall events. One hundred percent of the water volume from rainfall events up to the X percentile event must not be discharged to surface waters unless the harvested and reused runoff is authorized for discharge or allowed to be discharged into sanitary treatment systems.

**Table 1.** *Points for retaining stormwater on-site*

Percentile rainfall event (determines total volume from development footprint to be retained)	Points
<i>80th percentile</i>	<i>1</i>
<i>85th percentile</i>	<i>2</i>
<i>90th percentile</i>	<i>3</i>
<i>95th percentile</i>	<i>4</i>

Projects that earn at least 2 points under this credit may earn 1 additional point by meeting one of the following site characteristics:

- a. The project is located on a previously developed site (1 point).
- b. The project is located on a site that meets the definition of brownfield in SLL Credit 2, Brownfields Redevelopment (1 point).
- c. The project is designed to be transit ready by achieving the following (1 point):
  - At least 2 points under NPD Credit 1, Walkable Streets.
  - At least 2 points under NPD Credit 2, Compact Development.
  - At least 2 points under NPD Credit 3, Mixed-Use Neighborhood Centers.

Select BMPs that are consistent with Green Infrastructure and Low Impact Development (LID) strategies such as the Washington State Department of Ecology's Stormwater management Manual for Western Washington, Volume, Runoff Treatment (2005 edition) or a local equivalent. Choose BMPs that are the most stringent and appropriate to the project site and region. BMPs must also comply with all national, state, and local regulations.

For stormwater reuse systems not on a combined stormwater and sewer system, the total water reused for indoor use must not exceed 90% of the average annual rainfall.

Stormwater BMPs (except cisterns) must be designed to drain down within 72 hours.

## GIB Credit 9: Heat Island Reduction

1 point

### Intent

To reduce heat islands to minimize effects on the microclimate and human and wildlife habitat.

### Requirements

#### OPTION 1. Nonroof Measures

Use any combination of the following strategies for 50% of the nonroof site hardscape (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways):

- Provide shade from open structures, such as those supporting solar photovoltaic panels, canopied walkways, and vine pergolas, all with a solar reflectance index (SRI) of at least 29.
- Use paving materials with an SRI of at least 29.
- Install an open-grid pavement system that is at least 50% pervious.
- Provide shade from tree canopy (within ten years of landscape installation).

OR

#### OPTION 2. High-Reflectance and Vegetated Roofs

Use roofing materials that have an SRI equal to or greater than the values in Table 1 for a minimum of 75% of the roof area of all new buildings within the project; or install a vegetated (“green”) roof for at least 50% of the roof area of all new buildings within the project. Combinations of SRI-compliant and vegetated roofs can be used provided they satisfy the equation in Option 3.

**Table 1.** Minimum solar reflectance index value, by roof slope

Roof slope	SRI
Low ( $\leq 2:12$ )	78
Steep ( $> 2:12$ )	29

OR

#### OPTION 3. Mixed Nonroof and Roof Measures

Use any of the strategies listed under Options 1 and 2 that in combination meet the following criterion:

$\frac{\text{Area of Nonroof Measures}}{0.5}$	+	$\frac{\text{Area of SRI Roof}}{0.75}$	+	$\frac{\text{Area of Vegetated Roof}}{0.5}$	$\geq$	$\frac{\text{Total Site Hardscape Area}}{\text{Total Roof Area}}$
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## GIB Credit 10: Solar Orientation

### 1 point

#### Intent

To encourage energy efficiency by creating optimum conditions for the use of passive and active solar strategies.

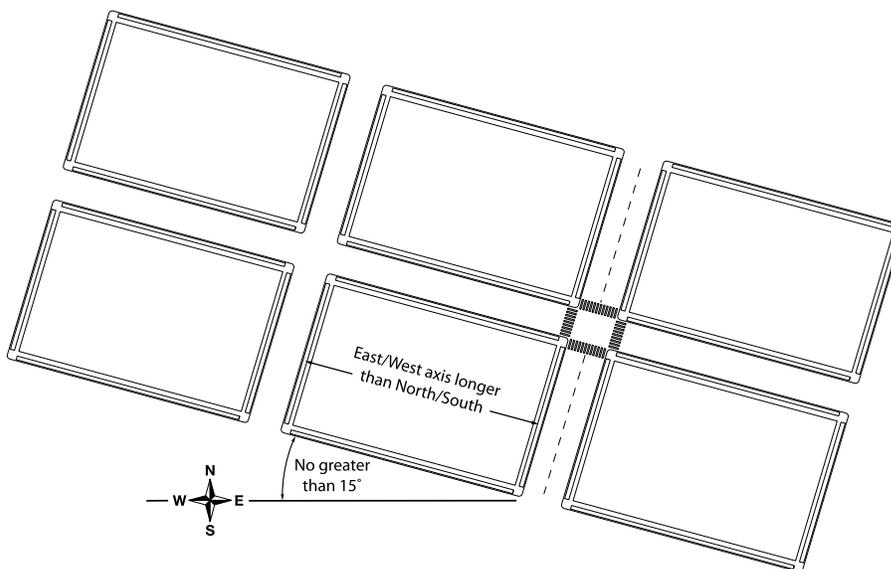
#### Requirements

*OPTION 1. Block Orientation (For Projects Earning at Least 2 Points Under NPD Credit 2, Compact Development)*

Locate the project on existing blocks or design and orient the project such that 75% or more of the blocks have one axis within plus or minus 15 degrees of geographical east-west, and the east-west lengths of those blocks are at least as long as the north-south lengths of the blocks.

Earn at least 2 points under NPD Credit 2, Compact Development.

**Figure 1.** Solar-oriented blocks with east-west lengths equal to or greater than north-south lengths, and east-west axis within 15 degrees of geographic east-west



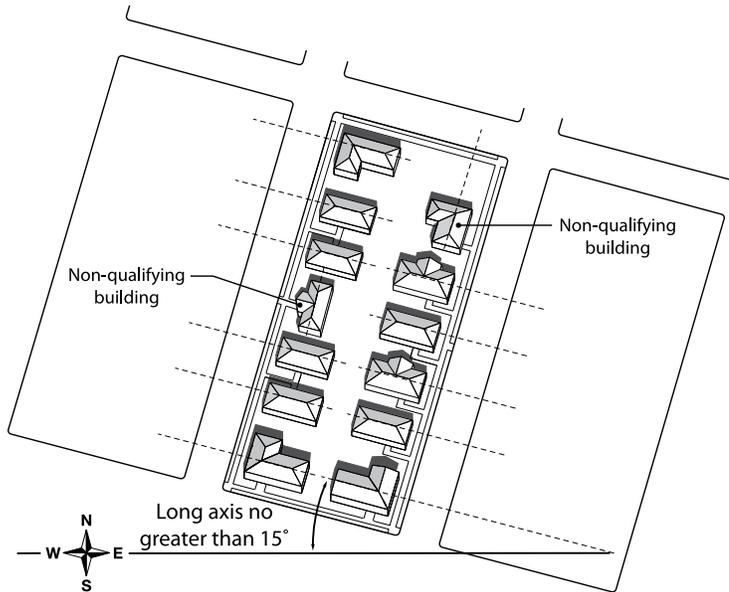
OR

*OPTION 2. Building Orientation (Available For All Projects)*

Design and orient 75% or more of the project's total building floor area (excluding existing buildings) such that one axis of each qualifying building is at least 1.5 times longer than the other, and the longer axis is within 15 degrees of geographical east-west. The length-to-width ratio applies only to walls enclosing conditioned spaces; walls enclosing unconditioned spaces, such as garages, arcades, or porches, cannot contribute to credit achievement. The surface area of equator-facing vertical surfaces and slopes of roofs of buildings counting toward credit achievement must not be more than 25% shaded at the time of initial

occupancy, measured at noon on the winter solstice.

**Figure 2.** Solar-oriented buildings with longer axis (at least 1.5 times length of other axis) within 15 degrees of geographic east-west



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## GIB Credit 11: On-Site Renewable Energy Sources

### 1–3 points

#### Intent

To encourage on-site renewable energy production to reduce the adverse environmental and economic effects associated with fossil fuel energy production and use.

#### Requirements

Incorporate on-site nonpolluting renewable energy generation, such as solar, wind, geothermal, small-scale or micro hydroelectric, and/or biomass, with production capacity of at least 5% of the project's annual electrical and thermal energy cost (exclusive of existing buildings), as points are awarded as listed in Table 1.

**Table 1.** *Points for on-site renewable energy generation*

Percentage of annual electrical and thermal energy cost	Points
5%	1
12.5%	2
20%	3

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## **GIB Credit 12: District Heating and Cooling**

**2 points**

### **Intent**

To encourage the development of energy-efficient neighborhoods by employing district heating and cooling strategies that reduce energy use and adverse energy-related environmental effects.

### **Requirements**

Incorporate a district heating and/or cooling system for space conditioning and/or water heating of new buildings (at least two buildings total) such that at least 80% of the project's annual heating and/or cooling consumption is provided by the district plant. Single-family residential buildings and existing buildings of any type may be excluded from the calculation.

Each system component that is addressed by ANSI/ASHRAE/IESNA Standard 90.1–2007 (or a USGBC approved equivalent standard for projects outside of the U.S.) must have an overall efficiency performance at least 10% better than that specified by the standard's prescriptive requirements. Additionally, annual district pumping energy consumption that exceeds 2.5% of the annual thermal energy output of the heating and cooling plant (with 1 kWh of electricity equal to 3,413 Btus) must be offset by increases in the component's efficiency beyond the specified 10% improvement. Combined heat and power (CHP) district systems can achieve this credit by demonstrating equivalent performance.

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## **GIB Credit 13: Infrastructure Energy Efficiency**

**1 point**

### **Intent**

To reduce adverse environmental effects from energy used for operating public infrastructure.

### **Requirements**

Design, purchase, or work with the municipality to install all new infrastructure, including but not limited to traffic lights, street lights, and water and wastewater pumps, to achieve a 15% annual energy reduction below an estimated baseline energy use for this infrastructure. The baseline is calculated with the assumed use of lowest first-cost infrastructure items.

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## GIB Credit 14: Wastewater Management

### 1–2 points

#### Intent

To reduce pollution from wastewater and encourage water reuse.

#### Requirements

Design and construct the project to retain on-site at least 25% of the average annual wastewater generated by the project (exclusive of existing buildings), and reuse that wastewater to replace potable water. An additional point may be awarded for retaining and reusing 50%. Provide on-site treatment to a quality required by state and local regulations for the proposed reuse. The percentage of wastewater diverted and reused is calculated by determining the total wastewater flow using the design case after the GIB Prerequisite 3 calculations, and determining how much of that volume is reused on-site.

**Table 1.** *Points for reusing wastewater*

Percentage of wastewater reused	Points
25%	1
50%	2

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## **GIB Credit 15: Recycled Content in Infrastructure**

**1 point**

### **Intent**

To use recycled and reclaimed materials to reduce the adverse environmental effects of extracting and processing virgin materials.

### **Requirements**

Use materials for new infrastructure such that the sum of postconsumer recycled content, on-site reused materials, and one-half of the preconsumer recycled content constitutes at least 50% of the total mass of infrastructure materials.

Count materials in all of the following infrastructure items as applicable to the project:

- a. Roadways, parking lots, sidewalks, unit paving, and curbs.
- b. Water retention tanks and vaults.
- c. Base and subbase materials for the above.
- d. Stormwater, sanitary sewer, steam energy distribution, and water piping.

Recycled content is defined in accordance with ISO/IEC 14021, Environmental labels and declaration, Self-declared environmental claims (Type II environmental labeling).

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## **GIB Credit 16: Solid Waste Management Infrastructure**

### **1 point**

#### **Intent**

To reduce the volume of waste deposited in landfills. To promote the proper disposal of hazardous wastes.

#### **Requirements**

Meet at least four of the following five requirements and publicize their availability and benefits:

- a. Include as part of the project at least one recycling or reuse station, available to all project occupants, dedicated to the separation, collection, and storage of materials for recycling; or locate the project in a local government jurisdiction that provides recycling services. The recyclable materials must include, at a minimum, paper, corrugated cardboard, glass, plastics and metals.
- b. Include as part of the project at least one drop-off point, available to all project occupants, for potentially hazardous office or household wastes; or locate the project in a local government jurisdiction that provides collection services. Examples of potentially hazardous wastes include paints, solvents, oil, and batteries. If a plan for postcollection disposal or use does not exist, establish one.
- c. Include as part of the project at least one compost station or location, available to all project occupants, dedicated to the collection and composting of food and yard wastes; or locate the project in a local government jurisdiction that provides composting services. If a plan for postcollection use does not exist, establish one.
- d. On every mixed-use or nonresidential block or at least every 800 feet (245 meters), whichever is shorter, include recycling containers adjacent to other receptacles or recycling containers integrated into the design of the receptacle.
- e. Recycle and/or salvage at least 50% of nonhazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and specifies whether the materials will be stored on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume but must be consistent throughout.

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## **GIB Credit 17: Light Pollution Reduction**

### **1 point**

#### **Intent**

To minimize light trespass from project sites, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce adverse effects on wildlife environments.

#### **Requirements**

“Shared areas” of a project are spaces and facilities dedicated to common use (publicly or privately owned).

In residential areas, at least 50% of the external luminaires must have fixture-integrated lighting controls that use motion sensors to reduce light levels by at least 50% when no activity has been detected for 15 minutes.

#### *AND*

In all shared areas, install automatic controls that turn off exterior lighting when sufficient daylight is available and when the lighting is not required during nighttime hours; these lights must meet the total exterior lighting power allowance requirements in Table 3.

#### *AND*

Document which lighting zone or zones (Table 1) describe the project, and for all shared areas, follow the requirements in Table 2. If two or more different zones border the project, use the most stringent uplight requirements, and use light trespass requirements for the adjacent zone. Roadway lighting that is part of the project must meet the requirements for the appropriate zone.

For illuminance generated from a single luminaire placed at the intersection of a private vehicular driveway and public roadway accessing the site, project teams may use the centerline of the public roadway as the site boundary for a length of two times the driveway width centered at the centerline of the driveway when complying with the trespass requirements.

Compliance with the light trespass requirements may alternatively be met by using only luminaires that comply with Table 4 ratings for backlight and glare.

#### *AND*

Stipulate covenants, conditions, and restrictions (CC&R) or other binding documents to require continued adherence to the requirements.

**Table 1. Lighting zones**

<b>Zone</b>	<b>Definition</b>
LZ0	Undeveloped areas within national parks, state parks, forest land and rural areas and sites immediately adjacent to areas officially recognized as ecologically sensitive by the local zoning authority.
LZ1	Developed areas within national parks, state parks, forest land and rural areas.
LZ2	Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use, and residential mixed-use areas.
LZ3	All other areas not included in LZ0, LZ1, LZ2, or LZ4 (including commercial-industrial and high-density residential).
LZ4	High-activity commercial districts in major metropolitan areas (as designated by local jurisdiction, such as local zoning authority).

**Table 2. Allowable light trespass and uplight, by lighting zone**

<b>Lighting zone</b>	<b>Maximum horizontal and vertical illuminance (fc) at site boundary</b>	<b>Maximum horizontal and vertical illuminance (fc) at specified distance beyond site boundary</b>	<b>Maximum horizontal and vertical illuminance (lux) at specified distance beyond site boundary</b>	<b>Maximum percentage of fixture lumens emitted above 90° or higher from nadir (straight down)</b>
LZ0	0	0 at 0 ft.	0 at 0 mm	0%
LZ1	0.01	.01 at 0 ft.	.1 at 3 mm	0%
LZ2*	0.10	.02 at 10 ft.	.2 at 3 m	1%
LZ3*	0.20	.05 at 15 ft.	.5 at 4.5 m	2%
LZ4*	0.60	.05 at 15 ft.	.5 at 4.5 m	5%

*fc = footcandle.*  
*\* In LZ2, LZ3, and LZ4, for project boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the project boundary.*

**Table 3. Allowable lighting power densities, by lighting zone**

	Lighting zone				
	LZ0	LZ1	LZ2	LZ3	LZ4
All exterior improved areas (except those listed below)	0.04 W/sf (0.43 w/sq. m)	0.04 W/sf (0.43 w/sq. m)	0.06 W/sf (0.64 w/sq. m)	0.10 W/sf (1.07 w/sq.m)	0.13 W/sf (1.39 w/sq. m)
Walkways	0.7 W/lf (2.3 W/m)	0.7 W/lf (2.3 W/m)	0.7 W/lf (2.3 W/m)	0.8 W/lf (2.6 W/m)	1.0 W/lf (3.2 W/m)
Landscaping	No allowance	0.04 W/sf (0.43 W/sq.m)	0.05 W/sf (0.53 W/sq.m)	0.05 W/sf (0.53 W/sq.m)	0.05 W/sf (0.53 W/sq.m)
Entrance door (per linear foot of doorway)	20W/lf (66 W/m)	20W/lf (66 W/m)	20W/lf (66 W/m)	30W/lf (100 W/m)	30W/lf (100 W/m)
Entry canopy	0.25 W/sf (2.7 W/sq.m)	0.25 W/sf (2.7 W/sq.m)	0.25 W/sf (2.7 W/sq.m)	0.40 W/sf (4.3 W/sq.m)	0.40 W/sf (4.3 W/sq.m)
Illuminated building façade	No allowance	No allowance	2.5W/lf (8.2 W/m)	3.75W/lf (12.3 W/m)	5.0W/lf (16.4 W/m)

*sf = square feet; lf = linear feet.*  
*Note: The total exterior lighting power density allowance for all shared exterior applications is the sum of the specified allowances for individual illuminated areas. The following lighting is exempted when its controls meet the above requirements and are independent of the controls for nonexempt lighting:*

- Specialized signal, directional, and marker lighting associated with transportation.
- Advertising and directional signage.
- Lighting integral to equipment or instrumentation and installed by its manufacturer.
- Lighting for theatrical purposes, including performance, stage, film, and video.
- Lighting for athletic playing fields.
- Temporary lighting (installed for no more than 30 days and then removed for at least 30 days).
- Lighting for industrial production, material handling, transportation sites, and associated storage areas.
- Theme elements in theme or amusement parks.
- Lighting to highlight features of public monuments and registered historic buildings or landmark structures.

**Alternative method for meeting light trespass requirements in Table 2**

A luminaire may be used if it is rated as follows according to the lighting zone of the site. If the luminaire is installed in other than the intended manner, the rating must account for the actual photometric geometry. An exception applies if at least 98% of a luminaire’s emitted lumens are intercepted by man-made structures within the project. In either case, luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field are not permitted.

**Table 4. Allowable backlight and glare, by lighting zone**

	Lighting zone				
	LZ0	LZ1	LZ2	LZ3	LZ4
Backlight luminaire rating					
> 2 mounting heights from property line	B0	B1	B2	B3	B4
1 to 2 mounting heights from property line and properly oriented*	B0	B1	B2	B3	B3
0.5 to 1 mounting height to property line and properly oriented*	B0	B0	B1	B2	B2
< 0.5 mounting height to property line adjacent to street and properly oriented*	B0	B0	B1	B2	B2
< 0.5 mounting height to property line and properly oriented*	B0	B0	B0	B1	B2
Glare luminaire rating	G0	G1	G2	G3	G4

\* The luminaire must be mounted with backlight toward the property line.  
*Note: Backlight and glare ratings are defined based on specific lumen limits for IESNA TM-15-07 solid angles, Addendum A.*

# INNOVATION AND DESIGN PROCESS

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## **IDP Credit 1: Innovation and Exemplary Performance**

**1–5 points**

### **Intent**

To encourage exemplary performance above the requirements set by the LEED for Neighborhood Development Rating System and/or innovative performance in green building, smart growth, or new urbanist categories not specifically addressed by the LEED for Neighborhood Development Rating System.

### **Requirements**

In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach and strategies that might be used to meet the requirements.

One point is awarded for each IDP Credit 1 earned, up to a total of 5. No more than 3 exemplary performance credits will be awarded in the Innovation and Design Process category.

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## **IDP Credit 2: LEED Accredited Professional**

**1 point**

### **Intent**

To support the integrated planning and design required for a LEED for Neighborhood Development project and to streamline the application and certification process.

### **Requirements**

At least one principal member of the project team must be a LEED Accredited Professional.

*OR*

At least one principal member of the project design team must be a professional who is credentialed in smart growth as determined by the Natural Resources Defense Council in consultation with Smart Growth America.

*OR*

At least one principal member of the project design team must be a professional who is credentialed in new urbanism as determined by the Congress for the New Urbanism.

Note: A separate LEED Accredited Professional exam track for professionals wanting to specialize in the LEED for Neighborhood Development Rating System will be available in early 2010; this IDP credit can be achieved if a principal member of the project design team is accredited as a result of passing the exam.

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# REGIONAL PRIORITY CREDIT

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## **RPC Credit 1: Regional Priority**

### **1–4 points**

#### **Intent**

To encourage strategies that address geographically specific environmental, social equity, and public health priorities.

#### **Requirements**

Earn up to four of the six Regional Priority credits. These credits have been identified by subject matter experts representing the U.S. Green Building Council (regional councils and chapters), the Congress for the New Urbanism (chapters and membership in regions without chapters), and Smart Growth America (members of Smart Growth America's State and Local Caucus or their designees) as having additional regional importance for the project's location. A database of Regional Priority credits and their geographic applicability will be available on the USGBC website, [www.usgbc.org](http://www.usgbc.org).

One point is awarded for each Regional Priority credit earned, up to a maximum of 4. Non-U.S. projects are not eligible for Regional Priority credits.

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# APPENDIX. DIVERSE USES

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## **Food Retail**

Supermarket  
Other food store with produce

## **Community-Serving Retail**

Clothing store or department store selling clothes  
Convenience store  
Farmer's market  
Hardware store  
Pharmacy  
Other retail

## **Services**

Bank  
Gym, health club, exercise studio  
Hair care  
Laundry, dry cleaner  
Restaurant, café, diner (excluding establishments with only drive-throughs)

## **Civic and Community Facilities**

Adult or senior care (licensed)  
Child care (licensed)  
Community or recreation center  
Cultural arts facility (museum, performing arts)  
Educational facility (including K–12 school, university, adult education center, vocational school, community college)  
Family entertainment venue (theater, sports)  
Government office that serves public on-site  
Place of worship  
Medical clinic or office that treats patients  
Police or fire station  
Post office  
Public library  
Public park  
Social services center

Adapted from Criterion Planners, INDEX neighborhood completeness indicator, 2005.

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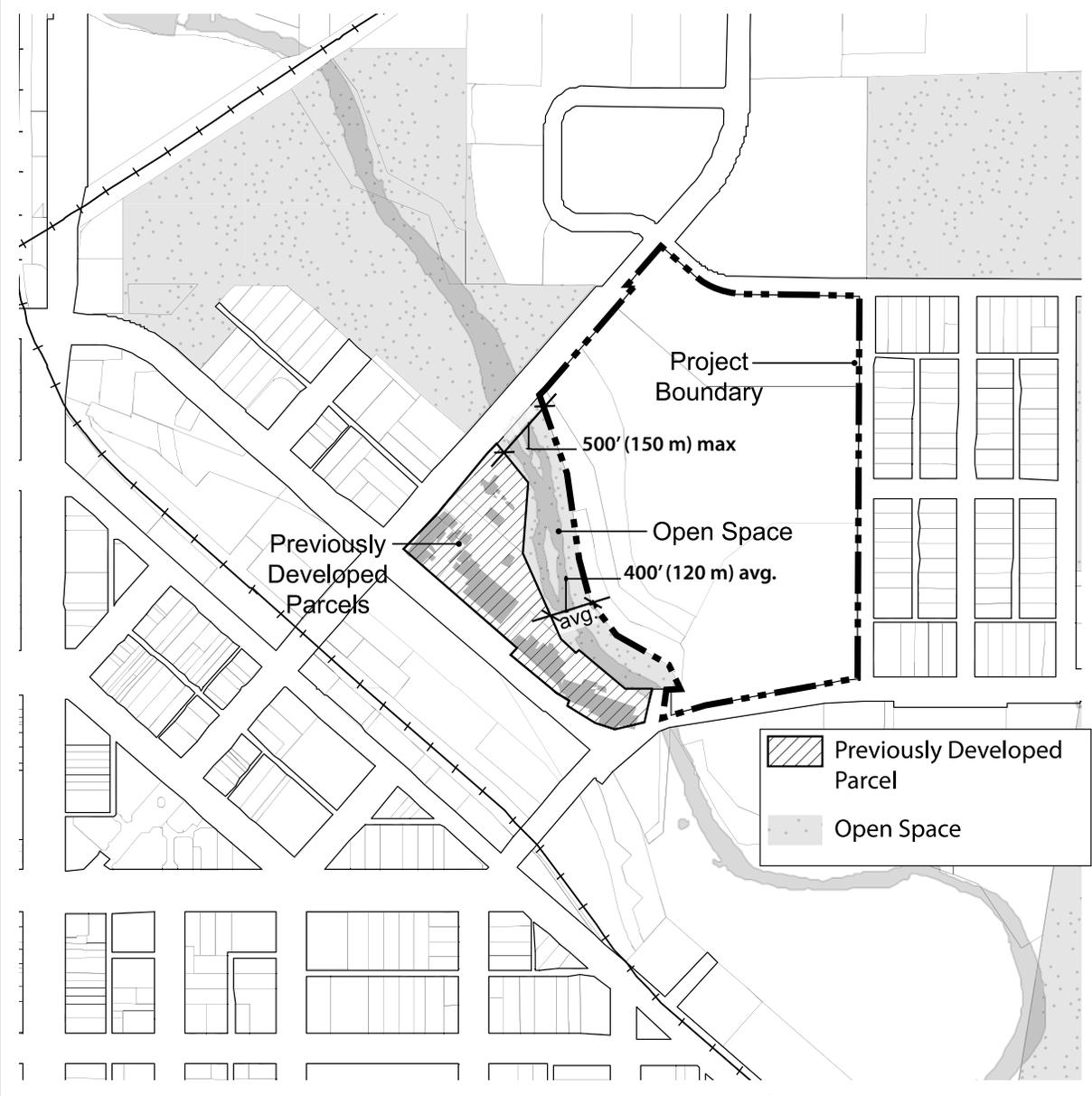
# GLOSSARY

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## 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 (120 meters) in width and no more than 500 feet (155 meters) 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 (180 meters) 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



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buildable land the portion of the site where construction can occur, including land voluntarily set aside and not constructed upon. When used in density calculations, buildable land excludes public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites. An applicant may exclude additional land not exceeding 15% of the buildable land base defined above, provided the following conditions are present:

- a. The land is protected from residential and nonresidential construction by easement, deed restriction, or other enforceable legal instrument.

*AND*

- b. Either 25% or more of the boundary of each contiguous parcel proposed for exclusion borders a water body or areas outside the project boundary that are protected by codified law; or ownership of, or management authority over, the exclusion area is transferred to a public entity.
- 

connectivity the number of publicly accessible intersections per square mile (square kilometer), including any combination of streets, dedicated alleys, transit rights-of-way, and 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 (square kilometer) excludes water bodies, parks larger than 1/2 acre (0.2 hectares), 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.

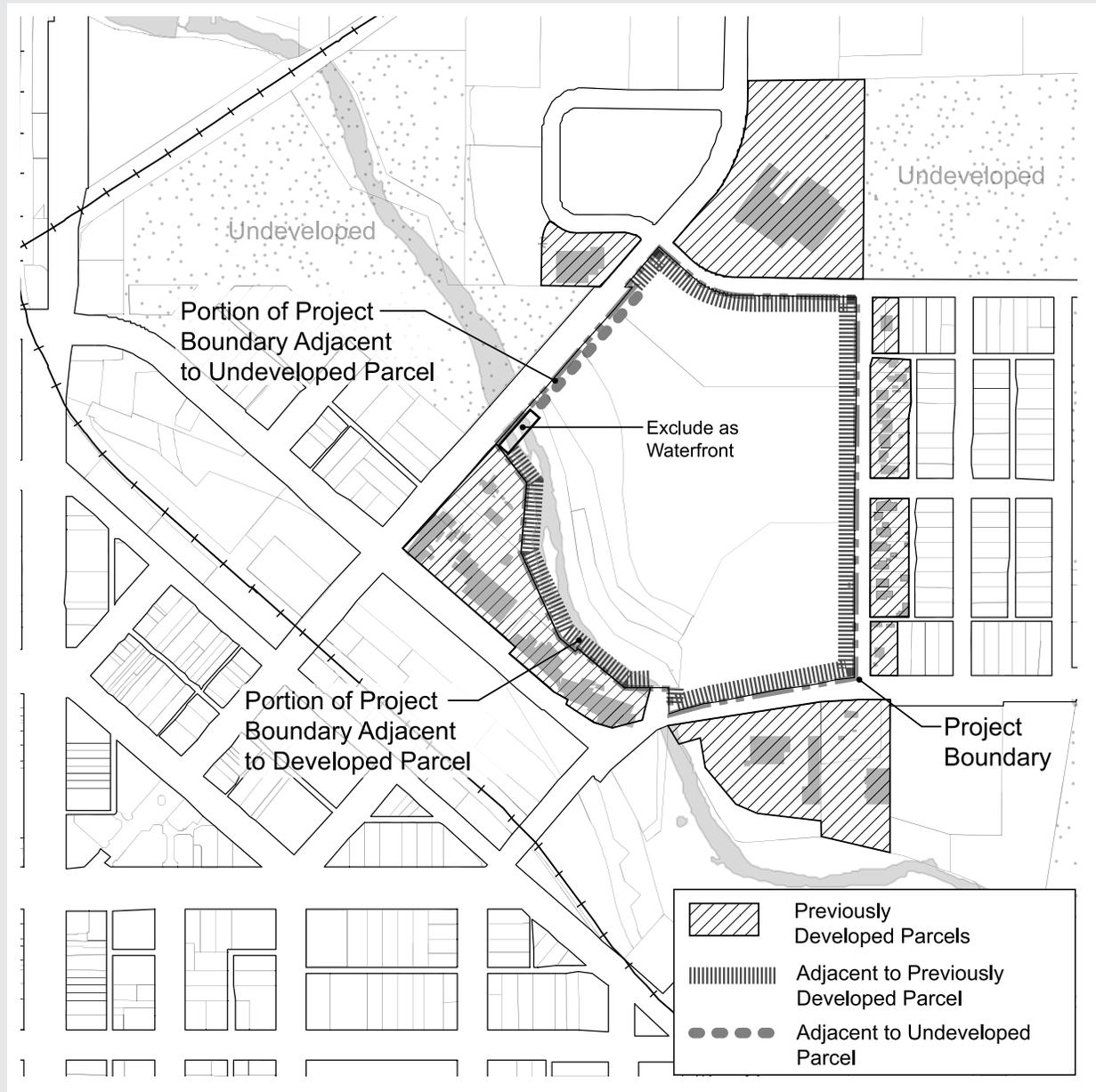
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infill site a site that meets any of the following four conditions:

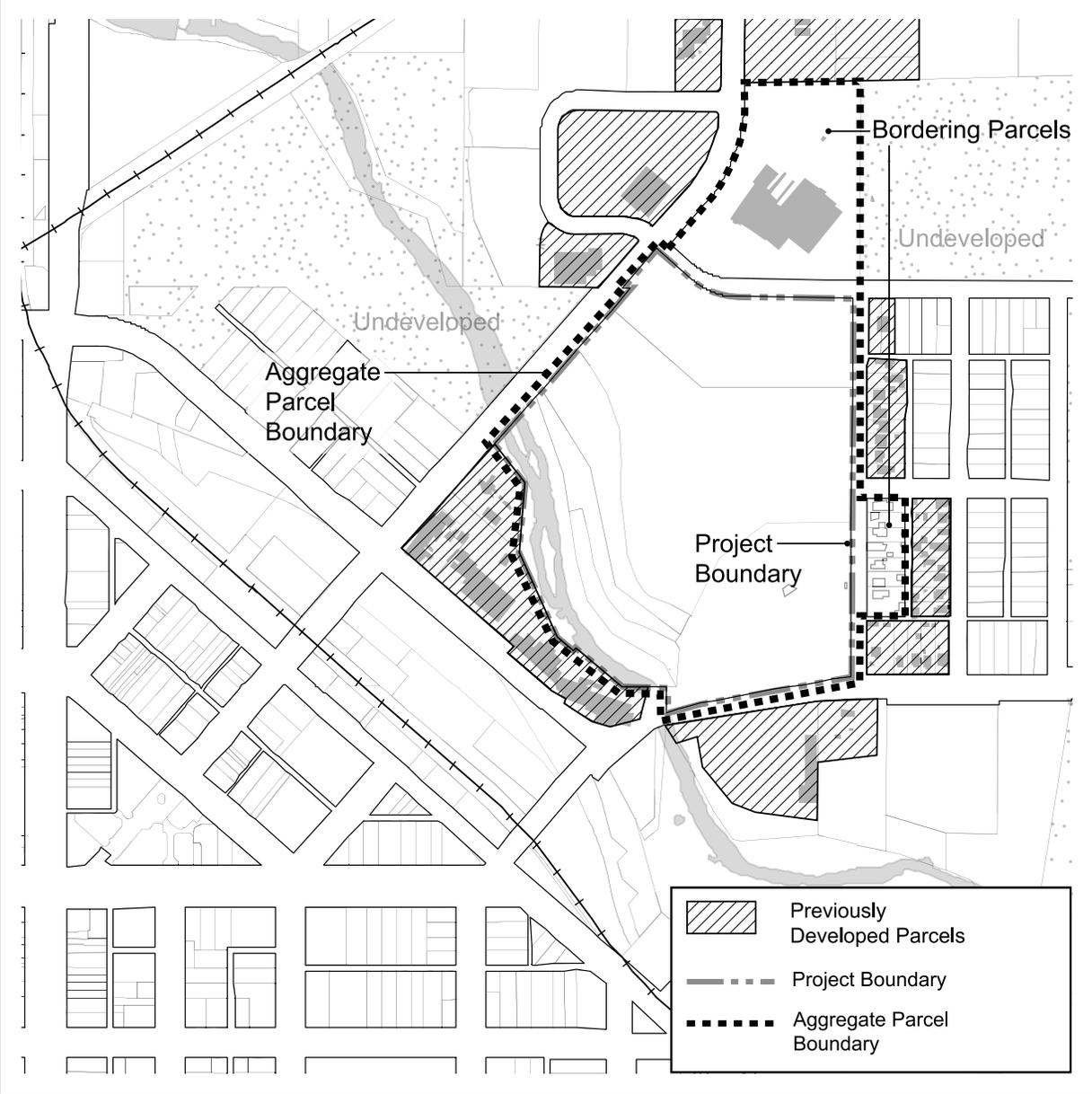
- a. At least 75% of its boundary borders parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- b. The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is 75% bounded by parcels that individually are at least 50% previously developed, and that in aggregate are at least 75% previously developed.
- c. At least 75% of the land area, exclusive of rights-of-way, within a 1/2 mile (800 meters) distance from the project boundary is previously developed.
- d. The lands within a 1/2 mile (800 meters) distance from the project boundary have a preproject connectivity of at least 140 intersections per square mile (54 intersections/ square kilometer).

A street or other right-of-way does not constitute previously developed land; it is the status of property on the other side or right-of-way of the street that matters. For conditions (a) and (b) above, any fraction of the perimeter that borders waterfront other than a stream is excluded from the calculation.

(a). Infill project site based on minimum 75% of perimeter adjacent to previously developed parcels



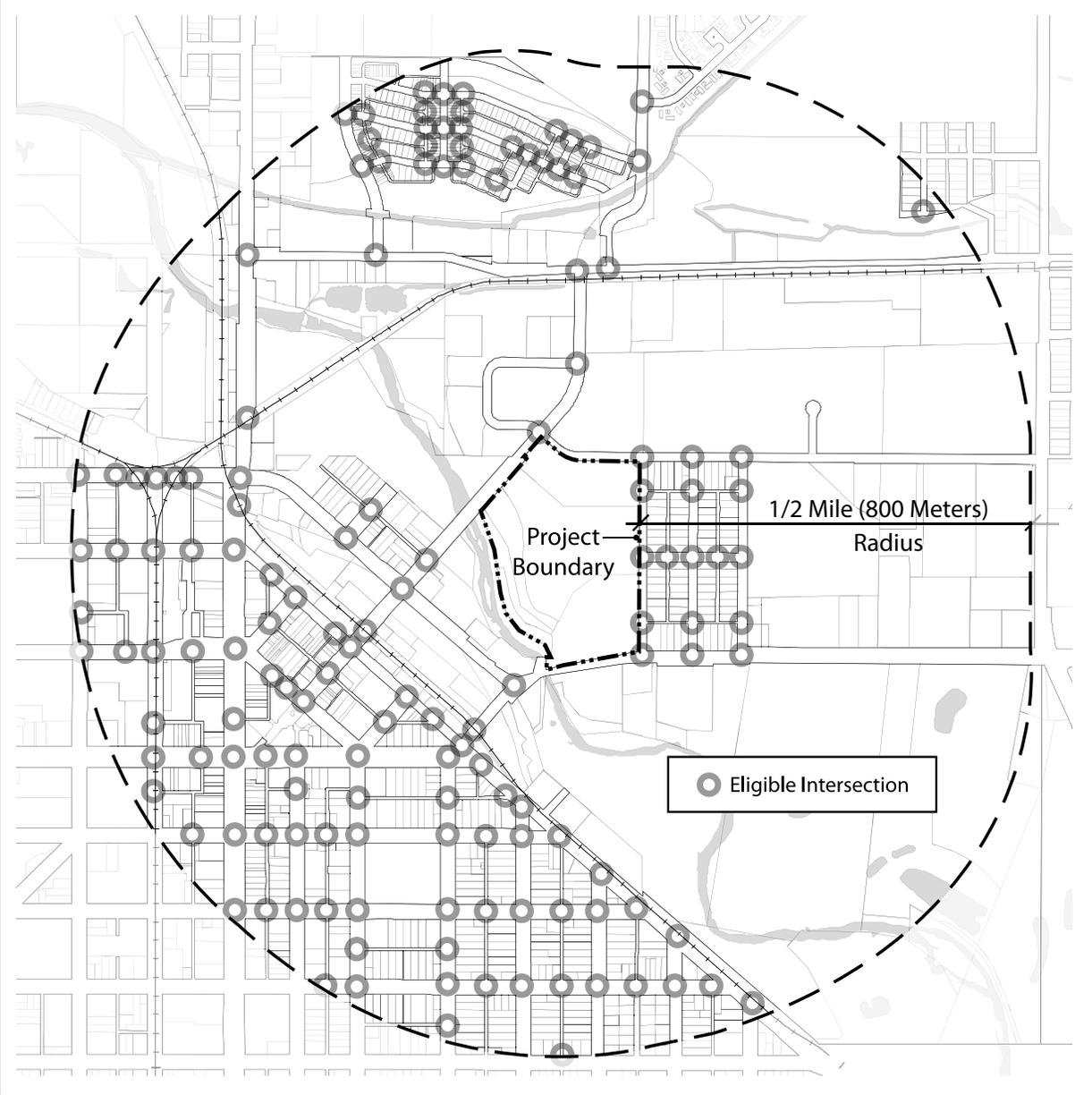
**(b).** *Infill project site based on minimum 75% adjacent to previously developed parcels using project boundary and selected bordering parcels*



**(c).** Infill project site based on minimum 75% of land area within 1/2 mile (800 meters) of project boundary being previously developed



**(d).** Infill project site based on minimum 140 intersections/sq.mi. (54 int./sq km) within 1/2 mile (800 meters) of project boundary



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previously developed altered by paving, construction, and/or land use that would typically have required regulatory permitting to have been initiated (alterations may exist now or in the past). Previously developed land includes a platted lot on which a building was constructed if the lot is no more than 1 acre (0.4 hectares); previous development on lots larger than 1 acre (0.4 hectares) is defined as the development footprint and land alterations associated with the footprint. Land that is not previously developed and altered landscapes resulting from current or historical clearing or filling, agricultural or forestry use, or preserved natural area use are considered undeveloped land. The date of previous development permit issuance constitutes the date of previous development, but permit issuance in itself does not constitute previous development.

# ADDITIONAL DEFINITIONS

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**accessory dwelling unit** a subordinate dwelling unit that is attached to a principal building or contained in a separate structure on the same property as the principal unit.

**adapted (or introduced) plant** a species that reliably grows well in a given habitat with minimal attention from humans in the form of winter protection, pest protection, water irrigation, or fertilization once its root systems are established in the soil. Adapted plants are low maintenance but not invasive.

**alley** a publicly accessible right-of-way, generally located midblock, that can accommodate slow-speed motor vehicles, as well as bicycles and pedestrians. An alley provides access to the side or rear of abutting properties for loading, parking, and other service functions, minimizing the need for these functions to be located along streets. It may be publicly dedicated or privately owned and deeded in perpetuity for general public use.

**applicant** the entity that prepares the LEED-ND project submission and is responsible for project implementation. An applicant may be the developer or another cooperating entity.

**area median income** the median income of a county as determined by the U.S. Department of Housing and Urban Development.

**bicycle network** a continuous network consisting of any combination of physically designated in-street bicycle lanes at least 5 feet (1.5 meters) wide, off-street bicycle paths or trails at least 8 feet (2.5 meters) wide for a two-way path and at least 5 feet (1.5 meters) wide for a one-way path, and/or streets designed for a target speed of 25 miles per hour or slower.

**block land** bounded by the project boundary, transportation or utility rights-of-way that may be publicly dedicated or privately owned and deeded in perpetuity for general public use, waterfront, and/or comparable land division features.

**brownfield real property**, the expansion, redevelopment, or reuse of which may be complicated by the presence or possible presence of a hazardous substance, pollutant, or contaminate.

**build-out** the time at which all habitable buildings on the project are complete and ready for occupancy.

**bus rapid transit** an enhanced bus system that operates on exclusive bus lanes or other transit rights-of-way; it is designed to combine the flexibility of buses with the efficiency of rail.

**community-supported agriculture (CSA)** a farm operation for which a community of individuals pledges support so that the farmland becomes, either legally or informally, the community's farm. The growers and consumers provide mutual support, sharing the risks and benefits of food production. Consumers receive portions of the farm's harvest throughout the growing season.

**construction impact zone** the project's development footprint plus the areas around the improvement where construction crews, equipment, and/or materials are staged and moved during construction.

**covenants, conditions, and restrictions** limitations that may be placed on a property and its use and are made a condition of holding title or lease.

**cul-de-sac** a street segment that terminates without intersecting another street segment.

**cultural landscape** an officially designated geographic area that includes both cultural and natural resources

associated with a historic event, activity, or person or that exhibits other significant cultural or aesthetic values.

density the amount of building structures constructed on the project site, measured for residential buildings as dwelling units per acre of buildable land available for residential uses, and for non-residential buildings as the floor-area ratio of buildable land area available for nonresidential uses. In both cases, structured parking is excluded.

developer a public and/or private entity that controls a majority of the project's buildable land and is committed to making a majority of the investments required for the project implementation described in the LEED-ND submission.

development footprint the total land area of a project site covered by buildings, streets, parking areas, and other typically impermeable surfaces constructed as part of the project.

dwelling unit living quarters intended for long-term occupancy that provide facilities for cooking, sleeping, and sanitation. This does not include hotel rooms.

employment center a nonresidential area of at least 5 acres (2 hectares) with a job density of at least 50 employees per net acre.

existing present on the date of submission of LEED-ND certification documents; similarly, an element or condition that exists is present on the date that LEED-ND certification documents are submitted.

floor-area ratio (FAR) the density of nonresidential land use, exclusive of parking, measured as the total nonresidential building floor area divided by the total buildable land area available for nonresidential structures. For example, on a site with 10,000 square feet (930 square meters) of buildable land area, an FAR of 1.0 would be 10,000 square feet (930 square meters) of building floor area. On the same site, an FAR of 1.5 would be 15,000 square feet of built floor area; an FAR of 2.0 would be 20,000 built square feet and an FAR of 0.5 would be 5,000 built square feet (465 square meters).

functional entry a building opening designed to be used by pedestrians and open during regular business hours. This does not include any door exclusively designated as an emergency exit, or a garage door not designed as a pedestrian entrance.

graywater untreated wastewater that has not come into contact with toilet waste. Graywater includes used water from bathtubs, showers, bathroom washbasins, and water from clothes washers and laundry tubs. It does not include wastewater from kitchen sinks or dishwashers, unless a graywater definition established by the authority having jurisdiction in the area has precedence.

habitable building a structure intended for living, working, or other types of occupancy. Habitable structures do not include stand-alone garages and utility structures such as pump stations.

heat island thermal gradient differences between developed and undeveloped areas.

historic building a building or structure listed or determined to be eligible as a historic structure or building or structure or as a contributing building or structure in a designated historic district, due to its historic, architectural, engineering, archeological, or cultural significance. The building or structure must be designated as historic by a local historic preservation review board or similar body, be listed in a state register of historic places, be listed in the National Register of Historic Places, or have been determined eligible for listing in the National Register.

historic district a group of buildings, structures, objects, and sites, of varying sizes, that have been designated as historically and architecturally significant and categorized as either contributing or noncontributing.

Home Energy Rating System (HERS) index a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006

International Energy Conservation Code) scores 100, and a net zero energy home scores 0. The lower a home's HERS Index, the more energy efficient it is.

invasive plant either an indigenous or nonindigenous species or strain that is characteristically adaptable, aggressive, has a high reproductive capacity, and tends to overrun the ecosystems it inhabits.

major renovations extensive alteration work in addition to work on the exterior shell of the building and/or primary structural components and/or the core and peripheral MEP and service systems and/or site work. Typically, the extent and nature of the work is such that the primary function space cannot be used for its intended purpose while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied.

metropolitan (metro) and micropolitan (micro) statistical area a geographic entity defined by the U.S. Office of Management and Budget for use by federal statistical agencies in collecting, tabulating, and publishing federal statistics. A metro area contains a core urban area with a population of 50,000 or more, and a micro area contains an urban core with a population between 10,000 and 50,000. Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core. "Core-based statistical area" (CBSA) encompasses both metro and micro areas.

multiunit residential consisting of four or more residential units sharing a common entry.

native (or indigenous) plant a plant species that did or would have occurred on the site or within the subject county prior to the widespread land alterations that accompanied European settlement. Cultivars of native plants may be considered native plants.

park a publicly accessible area that is permanently maintained in a seminatural condition for human recreation and relaxation; it has soil, grass, water, flora, and/or recreation improvements.

paseo a publicly accessible pedestrian path, at least 4 feet (1.2 meters) wide and no more than 12 feet (3.5 meters) wide, that provides shortcuts between buildings and through the block, connecting street frontages to rear parking areas, midblock courtyards, alleys, or other streets. A paseo may be roofed for up to 50% of its length and may be privately owned or publicly dedicated.

planned diverse use a shop, service, or facility that has received a building permit and is under construction at the time of the first certificate of occupancy is issued for any building in the LEED-ND project.

planned occupancy the highest estimate of building occupants based on planned use(s) and industry standards for square foot requirements per employee (see USDOE EIA CBECS survey for suggested default nonresidential occupancies). The minimum planned occupancy for multiunit residential buildings is 1 person for a studio unit, 1.5 persons for a one-bedroom unit, and 1.25 persons per bedroom for a two-bedroom or larger unit.

plaza a publicly accessible gathering space that is integrated into the street network and allows vehicular, bicycle, and/or pedestrian travel. A plaza is generally paved, is spatially defined by building fronts paralleling at least two-thirds of its perimeter, and may be privately owned or publicly dedicated.

postconsumer generated by households or commercial, industrial, or institutional facilities in their role as end-users of a product, which can no longer be used for its intended purpose.

potable water water that meets or exceeds EPA's drinking water quality standards and is approved for human consumption by the state or local authorities having jurisdiction; it may be supplied from wells or municipal water systems.

preconsumer diverted from the waste stream during the manufacturing process. It does not include the reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed

within the same process that generated it.

predevelopment before any development occurred on the site. Predevelopment conditions describe the natural conditions of the site prior to any human alteration, such as development of roads or buildings.

previously developed site a site that, preproject, consisted of at least 75% previously developed land.

preproject before the LEED-ND project was initiated, but not necessarily before any development or disturbance took place. Preproject conditions describe the state of the project site on the date the developer acquired rights to a majority of its buildable land through purchase or option to purchase.

prime soil earth with chemical, hydrographic, and topological properties that make it especially suited to the production of crops, as defined by the U.S. Natural Resources Conservation Service.

project the land, water, and construction that constitutes the project application. A project applicant does not have to own or control all land or water within a project boundary, but all the area within the project boundary must comply with prerequisites and attempted credits.

project boundary the platted property line of the project defining land and water within it. Projects located on publicly owned campuses that do not have internal property lines must delineate a sphere-of-influence line to be used instead. Project site is equivalent to the land and water inside the project boundary. The project must not contain noncontiguous parcels, but parcels can be separated by public rights-of-way. Projects may also have enclaves of nonproject properties that are not subject to the rating system, but such enclaves cannot exceed 2% of the total project area and cannot be described as certified.

school a kindergarten, elementary, or secondary institution for the academic instruction of children.

single-family residential any residential unit other than multiunit residential, including single, duplex, triplex, row house, townhouse and semiattached residential building types.

street a dedicated right-of-way that can accommodate one or more modes of travel, excluding alleys and paseos. A street is suitable for primary entrances and provides access to the front and/or sides of buildings and lots. A street may be privately owned as long as it is deeded in perpetuity for general public use. A street must be an addressable thoroughfare (for mail purposes) under the standards of the applicable regulating authority.

square (also green) a publicly accessible open area for gatherings that is wholly or partially bounded by segments of the street network. A square can be landscaped or landscaped and paved, is spatially defined by building fronts paralleling at least 45% of its perimeter, and may be privately owned or publicly dedicated.

unique soil earth with chemical, hydrographic, and topological properties that make it especially suited to specific crops, as defined by the U.S. Natural Resources Conservation Service.

walk distance the distance that a pedestrian must travel between origins and destinations without obstruction, in a safe and comfortable environment on a continuous network of sidewalks, all-weather-surface footpaths, crosswalks, woonerfs, or equivalent pedestrian facilities.

water body the surface water of a stream (first-order and higher, including intermittent streams), arroyo, river, canal, lake, estuary, bay, or ocean, excluding irrigation ditches

water and wastewater infrastructure publicly owned water and wastewater infrastructure; this excludes septic and mound wastewater treatment systems.

wetland an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas, but exclude irrigation ditches unless delineated as part of an adjacent wetland.

woonerf a street, also known as a home zone, shared zone, or living street, where pedestrians have priority over vehicles and the posted speed limit is no greater than 10 miles per hour. Physical elements within the roadway, such as shared surfaces, plantings, street furniture, parking, and play areas, slow traffic and invite pedestrians to use the entire right-of-way.

vehicle distance traveled the number of miles or kilometers driven by motorists in a specified time period, such as a day or a year, in absolute or per capita terms.