

BEYOND

SMART CITIES

LOCATION AND TRANSPORTATION - GREEN BUILDING TECHNOLOGY TRAINING PROGRAM

FOR GREEN BUILDING AND SUSTAINABILITY SPECIALISTS

KRISHNAJI PAWAR, LEED AP BD+C, GSAS CGP, ISO 14001:2015, GCP

GREEN BUILDING SPECIALIST CURRICULUM

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REDUCED PARKING FOOTPRINT - CREDIT

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LEARNING OBJECTIVES

Intent of Reduced Parking Footprint - Credit

Behind the intent

Step by Step Guidance

Requirements

Required Documentation

Connection to Ongoing Performance

Terms and Definitions

LT- CR (1) - DESIGN

INTENT

To minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff.

POTENTIAL TECHNOLOGIES & STRATEGIES

Parking demand can be reduced by locating projects in high-density, mixed-use areas or in places well served by transit, or by instituting transportation demand management strategies, such as providing preferred parking for carpools. To complement the use of these alternative modes or vehicle-sharing arrangements, vehicular parking itself can be limited by designing fewer spaces. This credit uses the Transportation Planning Handbook base ratios as a baseline against which reductions in parking supply can be compared.

REDUCED PARKING FOOTPRINT

REQUIREMENTS

Do not exceed the minimum local code requirements for parking capacity. Provide parking capacity that is a percentage reduction below the base ratios recommended by the Parking Consultants Council, as shown in the Institute of Transportation Engineers' Transportation Planning Handbook, 3rd edition, Tables 1B-2 through 1B-4.

IMPLEMENTATION

REQUIRED DOCUMENTATION

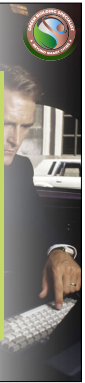
Documentation	All Projects
Site plan indicating parking area and preferred parking spaces	X
Calculations demonstrating threshold achievement	X
Drawings or photographs of signage or pavement markings indicating required ratios of preferred parking spaces	X

BEHIND THE INTENT

Inefficient parking systems result in increased congestion and carbon emissions, lost productivity and economic opportunities, and unnecessary paved areas. For example, the United States has roughly two to three times more parking spaces than people. Parking lots' concrete and asphalt cover approximately 2,000 to 6,000 square miles (5,180 to 15,000 square kilometers)^{1,2,3} comprising about 35% of the surface area in the average U.S. residential neighborhood and 50% to 70% of the average nonresidential area.⁴

The impervious surface of most parking spaces has environmental and financial downsides. Runoff from impervious surfaces can overwhelm municipal stormwater systems and flushes contaminants into waterways. Dark-colored parking lot surfaces trap heat, raising ambient air temperatures, which in turn necessitate more energy for cooling. Parking is also expensive, costing landowners and developers an average of about \$15,000 per space in the U.S.⁵

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STEP-BY-STEP GUIDANCE

STEP 1. DETERMINE LOCAL CODE REQUIREMENTS

Identify the minimum amount of parking required by local code. Confirm that the project's maximum allowable parking is less than or equal to minimum code requirements.

- In some cases, local codes do not establish minimum thresholds. Projects located in areas without a code minimum automatically meet this requirement.
- Projects with no associated off-street parking automatically achieve credit compliance; no calculations or preferred parking spaces are required.

STEP 2. CALCULATE BASE RATIOS AND BASELINE PARKING CAPACITY

Based on the project's space use type(s) and size, determine the parking capacity base ratio using the Transportation Planning Handbook (see *Further Explanation, Base Ratios*). ➡

For projects with multiple space types, calculate and separately track the base ratio for each use. Use the equations provided in the reference table to determine the baseline parking capacity for each space type, and compute the total project baseline capacity.

STEP 3. IDENTIFY APPROPRIATE CASE

Case 2 is appropriate for projects that expect to earn at least 1 point in either LT Credit Surrounding Density and Diverse Uses or LT Credit Access to Quality Transportation. Otherwise, use Case 1.



STEP-BY-STEP GUIDANCE +

STEP 4. ESTIMATE PARKING DEMAND

Estimate how many cars are likely to drive to and from the project, and determine whether this number is less than the local code minimum and the capacity calculated from the base ratios.

The Institute of Transportation Engineers' Trip Generation Handbook provides estimates for the number of car trips generated by building type.

STEP 5. DEVELOP AND IMPLEMENT STRATEGIES TO REDUCE PARKING DEMAND

Design the project to reduce parking demand. Consider both new and existing parking. Based on estimated demand, if significant reductions are likely to be necessary, consider implementing multiple strategies for a cumulative effect.

- Choose a project site that maximizes the opportunities for building occupants to travel via transit, walking, bicycle, and other modes that reduce off-street parking demand.
- Integrate transportation demand management (TDM) strategies to reduce parking demand (see *Further Explanation, TDM Strategies*). ↗

Incorporate the selected strategies into the project design.

- Projects that do not provide additional parking must meet the credit requirements for the existing parking.
- If the project's parking capacity falls below the local code minimum design thresholds, work with the municipality to secure zoning variances. Referencing the requirements of this LEED credit may prove helpful in discussion with local governments.



STEP-BY-STEP GUIDANCE

STEP 6. DETERMINE PROJECT'S REDUCED PARKING CAPACITY

Compute the project's total parking capacity, including both new and existing spaces, and ensure that it does not exceed the local code minimum.

- Use Equation 1 to determine whether the project complies with the credit requirements for the appropriate case, based on the designed capacity and the baseline capacity determined using the base ratio method for each space type (see *Further Explanation, Example*). ↗
- If the project type does not fit any base ratio category or if the tenant is not yet known, select the best approximation and provide a narrative justifying this selection.

EQUATION 1. Percentage of parking capacity reduction

$$\text{Parking reduction} = (\text{Total baseline capacity} - \text{Total provided capacity}) / \text{Total baseline capacity} \times 100$$

- Include pooled parking used by the project building (as a proportionate share of total pooled parking; see *LT Overview, Total Vehicle Parking Capacity*) and any parking used by the project both inside and outside the project boundary, as indicated in the credit requirements.
- Exclude fleet and inventory vehicles and parking in public rights-of-way, as indicated in the credit requirements.

STEP 7. PROVIDE CARPOOL PARKING

Based on the project's reduced parking capacity design, reserve at least 5% as preferred parking for car-pools (see *LT Overview, Preferred Parking*).



REQUIREMENTS

Option 1. No Parking or Reduce Parking (1 point)

Do not exceed the minimum local code requirements for parking capacity.

Provide parking capacity that is a 30% reduction below the base ratios for parking spaces, by building type, found in Appendix A, Table 1, Base Ratios for Parking. Alternatively, projects may demonstrate baseline and reduced parking capacity using calculations for the most appropriate land use found in the Institute of Transportation Engineers (ITE) *Parking Generation Manual*, 2nd Edition or a comparable and current resource applied by a qualified transportation engineer or planner.

Projects with no off-street parking meet the requirements.

OR

Option 2. Carshare (1 point)

Provide dedicated parking for carshare vehicles. Provide carshare vehicle parking space(s) for at least 1% of total parking spaces, rounded up. If the project has fewer than 100 parking spaces, provide one carshare vehicle parking space.

Establish an agreement between the project and carshare company guaranteeing that new or existing carshare vehicle space(s) will be dedicated for a minimum of two years from the certificate of building occupancy.

Existing carshare vehicles located in nearby on- or off-street parking areas do not contribute to credit achievement.

OR

Option 3. Unbundling Parking (1 point)

Sell parking separately from all property sales or leases. For owner-occupied projects, do not provide free or subsidized parking for employees.

Implement a daily parking fee at a cost equal to or greater than the daily roundtrip cost of municipal public transit.

For All Projects The credit calculations must include all existing and new off-street parking spaces that are leased or owned by the project, including parking that is outside the project boundary but is used by the project. On-street parking in public rights-of-way is excluded from these calculations.



CONNECTION TO ONGOING PERFORMANCE

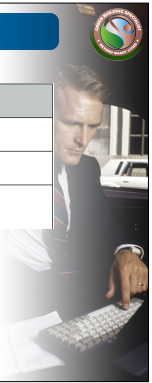
LEED Q+M LT Prerequisite Transportation Performance

Earning this credit will help improve a project's transportation performance score.



REQUIRED DOCUMENTATION

Documentation	All Projects
Site plan indicating parking areas and preferred parking spaces	X
Calculations demonstrating threshold achievement	X
Drawings or photographs of signage or pavement markings indicating reserved status of preferred parking areas	X



REFERENCED STANDARDS

Institute of Transportation Engineers, Transportation Planning Handbook, 3rd edition, Tables 18-2 through 18-4: ite.org



TERMS AND DEFINITIONS

Preferred parking the parking spots closest to the main entrance of a building (exclusive of spaces designated for handicapped persons). For employee parking, it refers to the spots that are closest to the entrance used by employees.

Off street parking any indoor or outdoor facility or area for vehicle parking that is not located on the streets, such as garages, lots, and driveways.

Carshare refers to short-term car rental services intended to reduce the necessity for private vehicle ownership, are generally priced by the hour (or fraction of an hour), and have automated pick-up/drop-off processes for program subscribers.



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