

Chapter 3.45

DESIGN STANDARDS FOR PARKING LOTS

The Department of Public Works and Utilities is assigned responsibility for administration of these design standards.

Section 1. GENERAL

This standard shall apply to all parking lots located within the zoning jurisdiction of the City of Lincoln.

Title 28, Code of Federal Regulations, Part 36 (ADA Accessibility Guidelines), Title 156, Nebraska Administrative Code - Nebraska Accessibility Requirements; and the City of Lincoln, Nebraska Design Standards for Screening and Landscaping, Drainage Criteria Manual and Design Standards for Driveway Design and Location, generally apply to the design of parking lots in the City of Lincoln.

Section 2. POLICIES

2.1 Reviewing Agencies

All plans for the construction of parking lots shall be reviewed and approved by the Department of Public Works, screening and landscape design shall be reviewed and approved by the Lincoln City-Lancaster County Planning Department and the lighting design, if required, shall be reviewed and approved by the Lincoln Electric System.

Section 3. DESIGN

3.1 Layout

The size, location and orientation of the parking spaces and aisles shall conform to the details shown in *Figure PL-1*. Barriers and islands should generally conform to the details shown on *Figure PL-2*.

Required accessible parking spaces, including van-accessible spaces, shall be located, designed, marked and signed in conformance with the requirements of *Title 28, Code of Federal Regulations, Part 36 (ADA Accessibility Guidelines)* and *Title 156, Nebraska Administrative Code - Nebraska Accessibility Requirements*.

Upon completion of construction of the parking lot, the required parking spaces shall be marked on the parking lot surface with paint formulated for that purpose and in accordance with the approved layout. Parking spaces provided in excess of the number required under *Title 27, Lincoln Municipal Code* or as required by conditions of a special permit need not be marked, or they may be marked to lesser standards.

3.2 Driveway Approaches

Driveway approaches shall conform to the requirements of the *Design Standards for Driveway Design and Location*.

3.3 Parking Barriers

Parking barriers must be provided around parking lots to prevent the parked vehicles from overhanging the required yards where parking is prohibited, sidewalk space, public streets, public alleys, or other public or private property and to protect any required landscaping or landscape screen planting.

Approved barriers include the following types:

1. Poured concrete curb - nominal 6" x 6" (152 x 152 mm) exposed.
2. Fence - minimum 30" (762 mm) height - wire fabric, solid wood, post and rail, etc.
3. Masonry, modular segmental block or concrete wall - minimum 30" (762 mm) height.
4. Beam guardrail.
5. Post and cable guardrail.
6. Precast concrete wheel stop, firmly and permanently anchored.

Other barriers which fulfill the required function may be permitted, subject to approval by the Public Works and Utilities Department.

Barriers must be located to contain the parking within the approved parking lot. When a concrete curb or precast wheel stop is used as a barrier for perpendicular or angle parking, it must be offset at least 2 feet (0.6 m) from the edge of the parking lot to allow for the front overhang of the vehicle.

3.4 Drainage

Parking lots shall be designed to properly manage the surface drainage accumulating on and flowing onto the site.

For new parking lots containing 6,000 square feet (557 square meters) or more and which are located within 150 feet (45.7 m) of, or reasonably accessible to, an existing storm sewer or other drainageway, including open channels and creeks, but excluding roadway gutters, the parking lot must be graded and surfaced such that storm water runoff from the site is not allowed to discharge through the driveway approaches onto the public street or other property, but is collected on the site by an internal drainage system located on the site and carried to that existing storm sewer. Use of parking lot surfaces and surrounding landscaped areas to provide storm water detention is encouraged.

Parking lot drainage facilities and appurtenances shall be designed and constructed in conformance with the requirements of the *Drainage Criteria Manual* of the City of Lincoln, Nebraska.

3.5 Surfacing

All parking lots other than nonpermanent lots that are allowed for a maximum period of two years shall be surfaced with one of the following minimum cross sections:

1. Portland cement concrete pavement, 5 inches (125 mm) thick.
2. Asphaltic concrete pavement, 6 inches (155 mm) thick.
3. 3-inch (75 mm) asphaltic concrete surface on a 4-inch (100 mm) crushed rock or recycled concrete base course.
4. Modular pavers, open landscape paving blocks, pervious asphalt surfaces with subdrains or other permanent surfacing approved by the Public Works and Utilities Department.

It should be noted that the above surfacing sections are intended only to serve as minimum standards for primary use by automobile traffic. In parking lots and drive areas where moderate to heavy truck traffic is anticipated, the structural capacity of the surfacing should be analyzed and the pavement structure designed accordingly. Such instances may require thicker or reinforced sections and special subgrade treatments.

Nonpermanent parking lots may be graveled as approved by the City, and shall be maintained in a dust-free condition during the two-year period they are permitted.

3.6 Landscaping

(See Chapter 3.50, Section 7.1). *(Amended by Resolution A-83782, March 20, 2006).*

3.7 Screening

Parking lots shall be screened along the boundary of the parking lot on all sides as required by the *Design Standards for Screening and Landscaping*. No screen shall be required between abutting parking lots, or on a property located in a non-dwelling district located next to an O-2 district being used for nonresidential purposes, or in addition to the requirements of an applicable special permit. The design and construction of any screen shall be in conformance with *Section 14.44.010, Lincoln Municipal Code* and the *Design Standards for Screening and Landscaping*.

3.8 Lighting

Lighting systems for parking lot illumination shall conform to these standards and the lighting fixtures shall be so positioned as to direct lighting away from the immediately abutting properties and public ways.

The purpose of parking lot lighting is to provide adequate visibility within the parking lot and to enhance the security and safety of the lot users. It should not cause interference to traffic on public thoroughfares or encroach on the visual privacy of adjacent residents.

The intent of these standards is to provide guidelines to insure that parking lot lighting in the City of Lincoln is adequate and to minimize its adverse impact upon adjacent residential uses. It is also the intent of this standard to minimize light pollution which has a detrimental effect on astronomical observations. Except as noted in these standards, the parking lot shall be lighted in accordance with the *Illuminating Engineering Society of North America (I.E.S.) Lighting Handbook, 8th Edition*.

Airport parking lots shall be excluded from the restrictions of these lighting standards. Airport lighting requires special considerations and shall be controlled by the Lincoln Airport Authority.

There are three major controllable components of a lighting system that directly affect the quality of a light system. These are: (1) light intensity level, (2) uniformity of light distribution, and (3) glare. When these factors in a lighting system are managed in an appropriate way, intended use of the system is maximized and misuse is minimized.

Evaluation of parking lot lighting designs shall be based on the following criteria:

1. Light Intensity Level:
 - a. Illumination level: Not greater than 4.0 horizontal footcandles, average maintained, nor less than 0.2 horizontal footcandles, average maintained.
 - b. Illumination levels beyond the property line of parking lot: Illumination levels, attributable to a parking lot lighting system shall not exceed 0.5 horizontal foot-candle, maintained, on other properties, except public ways, within a residential zoning district.
2. Uniformity ratio: No greater than 4:1, average to minimum footcandles over the entire parking lot.
3. Glare control: Luminaires shall have a cutoff classification with no more than 2.5 percent of the candle power above 90 degrees from vertical nor more than 10 percent above 80 degrees from vertical. As an alternative, shields may be installed on the luminaires to achieve the cutoff requirements, or a non-cutoff luminaire having a light source that emits no more than 10,000 lumens at each pole location installed. The luminaires shall be designed to eliminate glare.

3.9 Continuation of Nonconforming Lighting

The lawful use of parking lot lighting existing immediately prior to the effective date of this resolution may be continued although such use does not conform to this design standard. When any fixture is replaced at its existing location, the design shall meet the standards set forth herein.

3.10 Sidewalks

A pedestrian walkway may be required across or through parking lots by the Public Works and Utilities Department to provide for pedestrian circulation along a direct route to an adjacent sidewalk system. Barrier free access should also be provided across parking lots and between adjacent pedestrian generators such as commercial or public buildings. Barrier free access may include providing ramps at curbs, clear walkways between precast wheel stops, and clearly delineated walkways on the parking lot surface.

Where the most direct pedestrian route between two pedestrian traffic generators is parallel to an internal roadway having a projected average daily traffic volume (ADT) of more than 2,000 vehicles, a separate pedestrian walkway shall be required.

Section 4. PARKING LOT PERMIT APPLICATION

Three (3) copies of the drawings and required documentation containing the information described herein and in the appropriate design standards and all other applicable ordinances, resolutions and special permits shall be submitted with the permit application to the Department of Building and Safety for review and approval by the City. The Department of Building and Safety shall serve as the coordinating agency for the reviews and approvals required by the various departments hereunder.

Included in the submittal shall be a detailed scale drawing of the site showing the location, orientation, and dimensions of existing and proposed parking spaces, aisles, barriers, driveway approaches, buildings, property lines, adjacent streets and roadways, sidewalks, pedestrian ways and drainage facilities. A detailed landscape plan showing the required landscaping and screening and all information required in the *Design Standards for Screening and Landscaping*. If the parking lot is to be lighted, the following information shall be submitted:

Lighting Plan Review Information

- A. Include catalog cuts or data showing lamp characteristics:
 - 1. Type (incandescent, fluorescent, HID, etc.)
 - 2. Wattage
 - 3. Lumen output (initial)
 - 4. Lumen maintenance factor (mean or end-of-life)

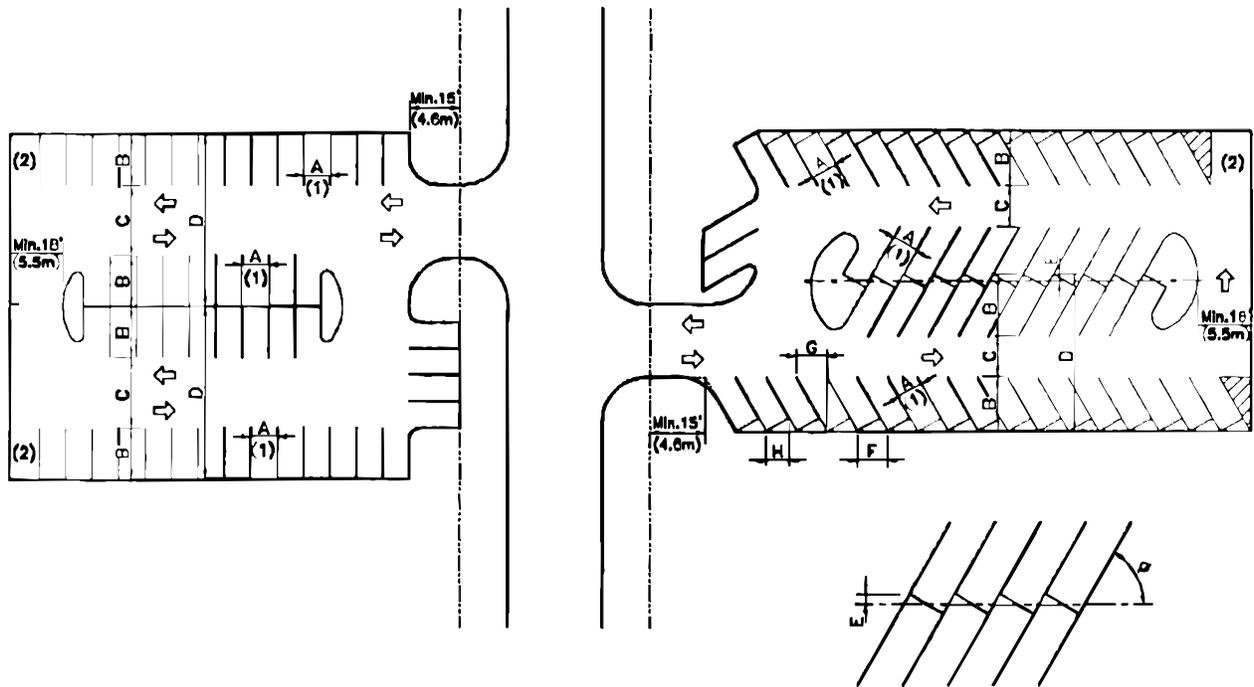
- B. Include catalog cuts showing luminaire characteristics:
 - 1. Type (roadway, rectilinear, post top, floodlight, etc.)
 - 2. Isofootcandle diagram

3. Utilization curve
 4. Isconcandela diagram
- C. Include details and information showing installation specifics:
1. Mounting height
 2. Tilt angle (when other than 90 degrees to vertical)
- D. Include site plan information including:
1. Location of parking area on site and site boundaries
 2. Location of lighting fixtures
 3. Zoning and type of use on adjacent properties
 4. Location of buildings on site
- E. Documentation showing:
1. Calculation of initial average footcandle (fc) level - Formula:

$$\text{Ave. initial fc} = (\text{lamp lumens} \times \text{coefficient of utilization}) \div \text{area in sq. ft.}$$
 2. Calculation of maintained average footcandle level - Formula:

$$\text{Ave. initial fc} \times \text{lamp lumen depreciation} \times \text{luminaire dirt depreciation}$$
 3. Calculation of uniformity ratio - Formula:

$$\text{Ratio} = \text{average initial level} \div \text{minimum initial level}$$
 4. Point-by-point footcandle levels plotted on parking lot site plan.
 5. Point-by-point footcandle levels at site perimeter plotted on parking lot site plan.



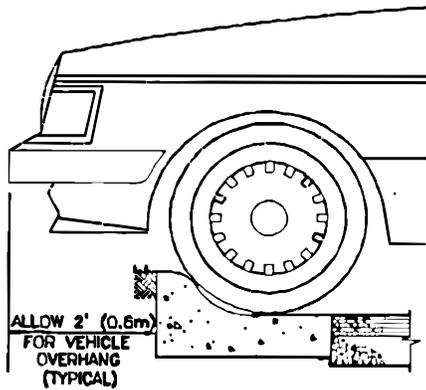
| ANGLE (α) | STALL WIDTH (A) | STALL DEPTH (B) | AISLE WIDTH (C) | | TYPICAL MODULE (D) | | INTERLOCK REDUCTION (E)* | CURB LENGTH (F)* | REAR EXTENSION (G)* | FRONT EXTENSION (H)* |
|--------------|--------------------|--------------------|--------------------|--------------|-----------------------|---------------|--------------------------------|---------------------|---------------------------|----------------------------|
| | | | LONG TERM | SHORT TERM | LONG TERM | SHORT TERM | | | | |
| 30° | 8.5' (2.6m) | 14.0' (4.3m) | 10.0' (3.0m) | 11.0' (3.4m) | 40.0' (12.2m) | 41.0' (12.5m) | 3.7' (1.1m) | 17.0' (5.2m) | 15.2' (4.6m) | 4.3' (1.3m) |
| | 9.0' (2.7m) | 15.0' (4.6m) | 10.0' (3.0m) | 10.0' (3.0m) | 40.0' (12.2m) | 40.0' (12.2m) | 3.8' (1.2m) | 18.0' (5.5m) | 15.2' (4.6m) | |
| 45° | 8.5' (2.6m) | 17.0' (5.2m) | 11.0' (3.4m) | 12.0' (3.7m) | 45.0' (13.7m) | 46.0' (14.0m) | 3.0' (0.9m) | 12.0' (3.6m) | 12.4' (3.8m) | 6.0' (1.8m) |
| | 9.0' (2.7m) | 17.0' (5.2m) | 10.0' (3.0m) | 11.0' (3.4m) | 44.0' (13.4m) | 45.0' (13.7m) | 3.2' (1.0m) | 12.7' (3.9m) | 12.4' (3.8m) | 6.4' (1.9m) |
| 50° | 8.5' (2.6m) | 17.7' (5.4m) | 12.0' (3.7m) | 13.0' (4.0m) | 47.4' (14.4m) | 48.4' (14.6m) | 2.7' (0.8m) | 11.1' (3.4m) | 11.3' (3.4m) | 6.5' (2.0m) |
| | 9.0' (2.7m) | 17.7' (5.4m) | 11.0' (3.4m) | 12.0' (3.7m) | 46.4' (14.1m) | 47.4' (14.1m) | 2.9' (0.9m) | 11.7' (3.6m) | 11.3' (3.4m) | 6.9' (2.1m) |
| 60° | 8.5' (2.6m) | 18.5' (5.6m) | 14.0' (4.3m) | 15.0' (4.6m) | 51.0' (15.5m) | 52.0' (15.8m) | 2.1' (0.6m) | 17.0' (5.2m) | 8.8' (2.7m) | 7.4' (2.3m) |
| | 9.0' (2.7m) | 18.5' (5.6m) | 13.0' (4.0m) | 14.0' (4.3m) | 50.0' (15.2m) | 51.0' (15.5m) | 2.3' (0.7m) | 18.0' (5.5m) | 8.8' (2.7m) | 7.8' (2.4m) |
| 70° | 8.5' (2.6m) | 18.8' (5.7m) | 19.0' (5.8m) | 20.0' (6.1m) | 56.6' (17.3m) | 57.6' (17.6m) | 1.5' (0.4m) | 9.1' (2.8m) | 6.0' (1.8m) | 8.0' (2.4m) |
| | 9.0' (2.7m) | 18.8' (5.7m) | 18.0' (5.5m) | 19.0' (5.8m) | 55.6' (16.9m) | 56.6' (17.3m) | 1.5' (0.5m) | 9.6' (2.9m) | 6.0' (1.8m) | 8.5' (2.6m) |
| 90° | 8.5' (2.6m) | 17.5' (5.3m) | 23.0' (7.0m) | 24.0' (7.3m) | 56.0' (17.7m) | 59.0' (18.0m) | 0 | 8.5' (2.6m) | 0 | 0 |
| | 9.0' (2.7m) | 17.5' (5.3m) | 22.0' (6.7m) | 23.0' (7.0m) | 57.0' (17.4m) | 58.0' (17.7m) | 0 | 9.0' (2.7m) | 0 | 0 |

* APPROXIMATE

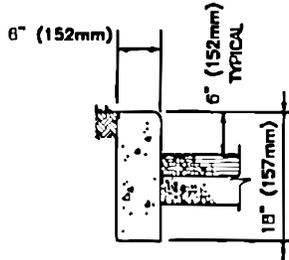
(1) THE MINIMUM STALL WIDTH FOR ALL LOTS SHALL BE 8.5 FEET (2.6 m).

(2) FOR PERPENDICULAR (90°) PARKING, STALL ADJACENT TO CLOSED END OF THE AISLE SHALL BE A MINIMUM OF 10 FEET (3.0m) WIDE.

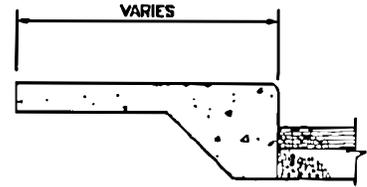
FIGURE PL-1



CURB AND GUTTER

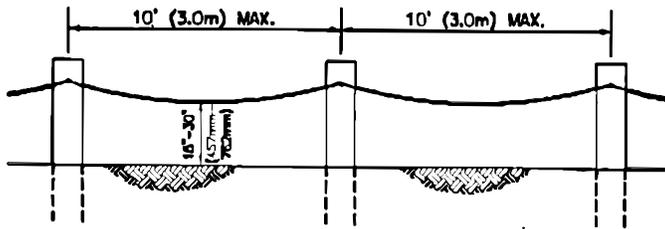


BARRIER CURB

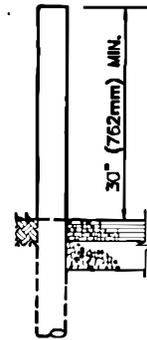


WALK CURB

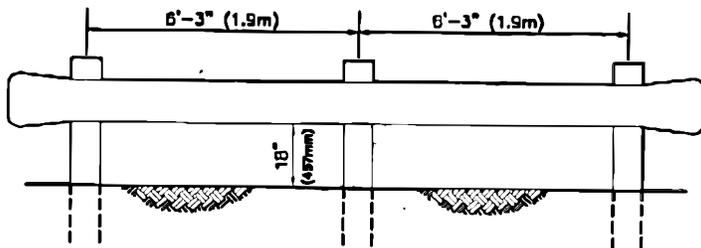
POURED CONCRETE CURBS



POST AND CABLE

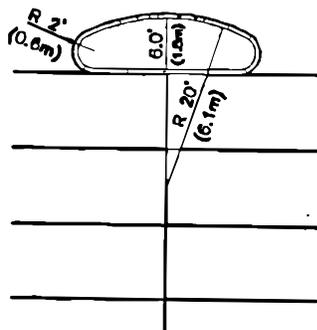


FENCE OR WALL



BEAM GUARDRAIL

PARKING BARRIERS



TYPICAL ISLAND DESIGNS

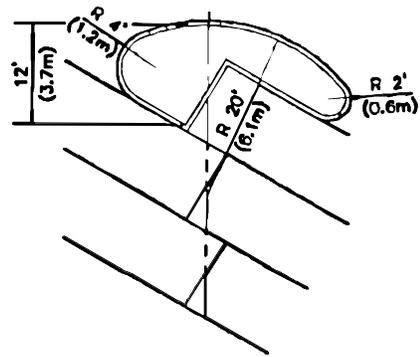


FIGURE PL-2