

Chapter 2.25

PRIVATE ROADWAY DESIGN STANDARDS

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 private roadways located within the City or within the zoning jurisdiction of the City of Lincoln.

Section 2. POLICIES

2.1 Reviewing Agencies

All required permits for construction of private roadway improvements shall be obtained from the City of Lincoln Department of Building & Safety and all plans for that construction shall be reviewed and approved by the Public Works and Utilities Department.

Section 3. DESIGN AND CONSTRUCTION

3.1 Design Speed

The following design speeds shall be applied for the design of private roadways:

Location	Design Speed
Private Roadway - Urban	25 mph (40 km/h)
Private Roadway - Rural	30 mph (50 km/h)

3.2 Sight Distances

Unobstructed sight distances as set forth in *Figures SD-1, SD-2, SD-3 and SD-4 of APPENDIX A*, shall be provided at all street intersections and alley accesses for vehicular and pedestrian traffic safety. Fences, walls signs or other obstructions shall not be placed in the public street and shall not be placed in the sight triangles as set forth in *Figures SD-1, SD-2, SD-3 and SD-4* except that chain-link fences free from shrubbery and vines may be placed on private property within the sight triangles at uncontrolled or yield controlled intersections.

3.3 Horizontal Roadway Alignment

3.3.1. Intersections

a. Angle of Intersection

Roadways shall intersect as near as possible at right angles. In no case shall the angle of intersection vary more than 10 degrees from a right angle.

b. Intersection Separation

Where the roadways do not continue through the intersection (T-Type) a minimum separation of at least 120 feet (36.58 m), as measured between the centerlines, shall be maintained.

c. Intersections on Curvilinear Roadways

Where a curvilinear roadway intersects another, a straight tangent section shall be required at the approach to the intersection. The length required for this tangent is dependent upon the radius of the approaching curve. The minimum length of this tangent, as measured from the near edge of the pavement of the intersected roadway to the point of curvature, shall be as shown in the following table:

Centerline Radius	Minimum Tangent Length
150 ft. (45.7 m)	100 ft. (30.5 m)
175 ft. (53.3 m)	90 ft. (27.4 m)
200 ft. (61.0 m)	80 ft. (24.4 m)
225 ft. (68.6 m)	75 ft. (22.9 m)
250 ft. (76.2 m)	70 ft. (21.3 m)
275 ft. (83.8 m)	65 ft. (19.8 m)
300 ft. (91.4 m)	60 ft. (18.3 m)
350 ft. (106.7 m)	50 ft. (15.2 m)
400 ft. (121.9 m)	20 ft. (6.1 m)
450 ft. (137.2 m) and over	No Tangent Required

d. T-Type intersections on Horizontal Curves

T-Type intersections may be permitted along the outside of any horizontal curve provided the minimum sight distances are provided, based on the design speed of the intersected curved roadway, and that the minimum approach tangent length is provided in the case of a curvilinear approaching roadway.

T-Type intersections may be permitted along the inside of a horizontal curve provided that the centerline radius of the curve is 525 feet (160 m) or greater, and that the minimum sight distances, based on the design speed of the intersected curved roadway or street, and the minimum approach tangent length, in the case of a curvilinear approaching roadway, are provided.

3.3.2. Curvilinear Alignment

a. Horizontal Curves

All changes of horizontal alignment between intersections shall be connected by circular curves. The minimum centerline radius for curves on private roadways within the City (urban) shall be 150 feet (45.7 m). The minimum centerline radius for private roadways outside the City (rural) shall be 385 feet (117.3 m).

b. Tangents Between Horizontal Curves

A straight tangent having a minimum length of at least 100 feet (30.5 m) shall be provided between adjacent non-compound horizontal curves where the sum of the radii of the curves is less than 600 feet (182.9 m).

3.4 Vertical Street Alignment

3.4.1. Longitudinal Grades

a. Minimum

The minimum longitudinal grade for all private roadways shall be 0.5% to provide for adequate surface drainage.

b. Maximum

The maximum longitudinal grade shall be 8.0%.

3.4.2. Vertical Curves

Changes in longitudinal grades shall be designed using parabolic vertical curves. Where the algebraic difference between the two grades expressed in percent is 1.0 or less, no curve is required. The minimum length of vertical curves necessary to provide adequate safe stopping sight distance shall be determined using the following formula:

$$L = K A$$

Where: L = Minimum length of curve as measured in a horizontal plane.

K = A measure of curvature, values of which are set forth in the following table.

A = The algebraic difference between the grades of the tangents to the curve expressed in percent.

Design Speed mph (km/h)	K- Value Crest Curves feet (meter)	K-Value Sag Curves feet (meter)
25 (40)	20 (5)	30 (8)
30 (50)	30 (9)	35 (11)

For vertical curves connecting flatter grades, care shall be taken to provide adequate slope for drainage. Generally, $K < 165$ (50 metric) for both sag and crest curves. The length of the vertical curve shall be kept as close as practicable to the minimum length as determined by the above procedure.

3.4.3. Intersection Approaches

a. Public Streets

The grade of a private roadway approaching a public street shall not exceed 3.0% within 50 feet (15.2 m) of the closest right-of-way line of the intersected street. All vertical curves shall be located completely beyond this approach platform.

b. Private Roadways

The approach grades of all intersecting private roadways which continue through the intersection shall not exceed 3.0% within 60 feet (18.3 m) of the centerline of the intersected roadway. At T-type intersections, the grades of the through street may exceed 3.0%.

3.5 Roadway Width

The following table sets forth minimum widths, as measured to the back of the curbs, for private roadways:

Roadway Use	Roadway Width
General Access	27 ft. (8 m)
Access to Less than 30 Residential Parking Spaces	21 ft. (6.40 m)
Access to Residential Lots of One or more Acres	20 ft. (6.10 m) w/ 4 ft. (1.2 m) shoulders

In locations where the roadway width changes, those changes shall be accomplished using a tapered section. The minimum length of that taper shall be determined by multiplying the offset of the roadway edge by the design speed.

3.6 Roadway Cross-Section

3.6.1. Pavement Crown

Except at intersections, roadway paving should be designed with the top of the curbs level from one side to the other. On private roadways with no medians, the roadway surface should have a transverse slope (crown) of 3.0% from the gutter line to the roadway centerline. Where medians are present, the roadway surface shall have a transverse slope of 3.0% across the entire roadway on each side of the median. Roadways without curbs shall have a transverse paving slope (crown) of 2.0% from the edge of the paving to the roadway centerline and transverse shoulder slopes of 6.0%.

3.6.2. Curbs

Concrete curbs shall be placed on both sides of all roadways.

3.6.3. Roadway Paving

Roadways shall be surfaced with any of the following surface types:

- a. Portland Cement Concrete
- b. Asphaltic Concrete
- c. Brick Pavers
- d. Pervious Asphaltic Concrete with sub-drainage
- e. Open Concrete Paving Blocks
- f. Other surfacing as approved by Public Works and Utilities Department

3.7 Intersection Geometry

At intersections, the curbs of intersecting roadways shall be connected by circular curves having a minimum radius of 20 ft. (6 m) (as measured to back of curb).

At intersections of private roadways with major streets, the minimum radius shall be 30 ft. (9 m). Additional right or left turning lanes, medians, tapered roadway sections or other special features may be required to accommodate anticipated traffic. The Public Works and Utilities Department will provide the specific design requirements at these locations on an individual basis.

3.8 Drainage Facilities

Storm sewers, open channels, culverts, inlets and other drainage facilities and appurtenances shall conform to the requirements of the *Drainage Criteria Manual* of the City of Lincoln, Nebraska.

3.9 Traffic Control Devices

Roadway signage, pavement markings and other traffic control devices for private roadways shall conform to the current version of the Federal Highway Administration's *Manual on Uniform Traffic Control Devices*.