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Driveway Connections for Residential Building Sites and Property Access

For alternate formats, call 206-296-6600.

Purpose: The purpose of this document is to provide information to builders and property owners on the requirements and obligation to provide an access connection to their property that conforms to adopted County standards for unincorporated King County.

Authority: King County Code (K.C.C.) 14.28.020 exempts driveway connections from obtaining a right-of-way use permit. However, K.C.C. 14.28.080 requires all driveway connections be constructed according to the King County Road Standards (KCRS).

Road Standards for Driveway Connections: Section 3.01 KCRS provides specifications and drawing references for all driveway connections that apply to all public and private roadways in unincorporated King County. Excerpts from 2007 KCRS¹ on driveway connection requirements are included on the following pages. The standards also include drawing details available at www.kingcounty.gov.

If you are accessing onto a rural (open ditch) roadway, the driveway should conform to figure 3-003 (KCRS) in size and dimension. If a culvert pipe is required, it should be sized as noted and have beveled end sections shown in figure 7-001.

If you are located on an urban (curb and gutter) roadway, the driveway should conform to figure 3-004 (KCRS) in size and dimension.

All driveway connections should be located on the property frontage so minimum sight distances along the road frontage are met (section 2.12 and 2.13) and setbacks from intersections, alleys and property boundaries as shown in figure 3-008. If your driveway connection is to an arterial road, both entering and stopping site distances must be met. A map of the County's arterial road system is available at <http://www.metrokc.gov/kcdot/roads/planning/arterial/index.cfm>.

In addition to all the notes on the driveway drawings, the following also apply to all driveway connections.

- Second driveways are allowed on lots with greater than 75 feet of frontage but require approval from DDES prior to installation.
- Residential driveway connections should not be paved wider than 20 feet wide.
- Driveway locations must allow for minimum sight distances (see 2.12 and 2.13 KCRS)
- Driveways which do not conform to the drawings and specifications in Section 3.01 KCRS will require variance approval per Section 1.08 KCRS prior to construction.

¹ Adoptive Ordinance 15753 05/07/2007

Excerpts from the 2007 KCRS on driveway connection requirements for building permits and property access

3.01 Driveways

This section provides driveway standards for connections to public and private roads. It is not the intent of these Standards to govern design or location of driveways on private property except where they connect to the road right-of-way. However, fire access requirements governed by the Uniform Fire Code and Zoning Code (K.C.C. 21A), establish criteria for driveway widths. No new driveway connection shall be constructed which does not conform to this chapter and minimum sight distance criteria established in 2.12 and 2.13.

- A. Dimensions, slope, and detail shall be as indicated in Figures 3-003, through 3-009, as further specified in the following subsections. See Section 2.13 for entering sight distance and 2.12 for stopping sight distance requirements.
- B. New Driveways Requirements:
 1. Driveways directly giving access on to arterials may be denied if alternate access is available.
 2. All abandoned driveway areas on the same frontage shall be removed, and the curbing and sidewalk or shoulder and ditch section shall be properly restored.
 3. Maintenance of driveway approaches shall be the responsibility of the owner whose property they serve.
 4. Driveways shall be paved with asphalt between the edge of the paved surface and the right-of-way line, except when on curb and gutter section roadways. See Figure 3-003.
 5. For driveways crossing an open ditch section, culverts shall be adequately sized to carry anticipated storm water flows and in no case be less than 12 inches) in diameter, and at a minimum the culvert shall be equal to or larger than existing pipes within 500 feet upstream. Pipe should be long enough to allow for the minimum 3:1 beveled ends, figure 7-001. The property owner making the installation shall be responsible for determining proper pipe size. The Development Engineer may require the owner to verify the adequacy of pipe size.
 6. Storm drainage from driveway surfaces must be accounted for in the roadway drainage design. Direct discharge to roadway surfaces and sidewalks are not allowed.
- C. Location and Width of New Driveways. Refer to Figure 3-008.
 1. A residential driveway shall typically serve only one parcel except as noted below. The minimum width of a residential driveway is 10-feet and the maximum width is 30 feet. A driveway serving more than one parcel shall be classed as a commercial driveway, or a private street, except as provided in 3.a. below.
 2. On frontages 75 feet or less, no more than one driveway per lot shall be constructed. On frontages over 75 feet, the Development Engineer may permit two or more driveways per lot, subject to approval.
 3. No portion of driveway width shall be allowed within 5 feet of side property lines where it intersects with the street right-of-way line in residential areas or 9 feet in commercial areas except as follows:
 - a. A joint-use driveway tract may be used to serve two parcels:
 - i. Minimum driveway tract width in urban areas shall be 20 feet with an 18-foot paved surface cross slope in one direction and curb or thickened edge on one side. Minimum driveway length shall be 20 feet from right-of-way line. When required, radius returns on paved apron shall have 10-foot radii.
 - ii. Minimum driveway tract width in rural areas shall be 20 feet; 30 feet if a ditch is required. Minimum driveway length shall be 20 feet from right-of-way line. Radius returns on paved apron shall have 10-foot radii.

- iii. Driving surface (rural areas) shall be 18 feet, paved or gravel, with a paved apron from the edge of pavement of intersecting street to right-of-way line or 20 feet, whichever is greater.
 - iv. The Development Engineer may allow use of an easement if the only access to a serving roadway is through an adjacent parcel not owned by the applicant, or for urban residential short plats to satisfy minimum lot width requirements.
 - b. Driveways may utilize full width of narrow "pipe-stem" parcels or easements if approved by Development Engineer.
 - c. On cul-de-sac bulbs, eyebrows, or hammerheads as necessary for proposed residential access.
4. Grade transitions, excluding the tie to the roadway, shall be constructed as smooth vertical curves. Ties to the roadway shall be constructed as shown in driveway figures 3-003 through 3-009. The maximum change in driveway grade, within the right-of-way, shall be 8 percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag vertical curve. Whenever there is a potential for future roadway widening, the driveway shall be graded to match the future widened road section without encroachment into graded shoulder or sidewalk. The design engineer for proposed developments shall consider the access driveway profile when designing the serving road to ensure that required grade transitions can be complied with considering building set back and lot terrain conditions. Driveways with slope exceeding 2 percent shall be designed to ensure surface water does not impact the right-of-way adjacent to the driveway.
 5. Driveways in rolled curb sections may be constructed abutting and flush with sidewalk or back of curb without gapping or lowering height of curb.
- D. Existing driveways may be reconstructed at their existing location provided such reconstruction is compatible with the adjacent road. For new development and/or changes in land use, existing driveway connections, which do not conform to this chapter, shall be reconstructed to the requirements for new driveways.
 - E. The minimum width for a commercial/business district driveway is 25 feet, and the maximum width is 35-feet.
 - F. For commercial or industrial driveways with heavy traffic volumes or significant numbers of trucks, the Development Engineer may require construction of the access as a road intersection. This requirement will be based on traffic engineering analysis submitted by the applicant that considers, among other factors, intersection spacing, sight distance, and traffic volumes.
 - G. Notwithstanding any other provisions, driveways will not be allowed where they are prohibited by separate County Council action or where they are determined by the County Road Engineer or Development Engineer to create a hazard or impede the safe operation of traffic on the roadway.

Excerpts from the 2007 KCRS on minimum stopping site distance that applies to all driveway connections

2.12 Stopping Sight Distance

- A. Stopping Sight Distance (SSD) is the sum of two distances: the distance traveled during perception and reaction time and the distance required to stop the vehicle. The perception and reaction time used in design is 2.5 seconds. The stopping sight distance is calculated using a constant deceleration rate of 11.2 feet/second². SSD, see Tables 2.1 and 2.2, applies to street classifications as shown in Sections 2.02 and 2.03.
- B. Available stopping sight distance is calculated for a passenger car using an eye height of 3.50 feet and an object height of 0.50 foot. Although AASHTO allows a 2-foot object height, a 0.50-foot object height

is used because objects with a height between 0.5-foot and 2 feet may be perceived as hazards that would likely result in an erratic maneuver.

- C. When calculating stopping sight distance, use $h_1=3.50$ feet and $h_2=0.50$ foot.
- D. The grade of the roadway has an effect on the vehicle's stopping sight distance. The stopping distance is increased on downgrades and decreased on upgrades. When evaluating sight distance with a changing grade, use the grade for which the longest sight distance is needed. Road grades other than those shown in exhibit 2-1 must be interpolated.

Exhibit 2-1. Stopping Sight Distance on Grades

DOWNGRADE

DESIGN SPEED (MPH)	3 Percent	6 Percent	9 Percent
60	598	638	686
55	520	553	594
50	446	474	507
45	378	401	428
40	315	333	354
35	258	271	288
30	205	215	227
25	158	165	173
20	116	120	126

UPGRADE

DESIGN SPEED (MPH)	3 Percent	6 Percent	9 Percent
60	538	515	495
55	470	450	433
50	405	388	375
45	345	331	320
40	289	278	269
35	237	229	222
30	200	184	179
25	147	143	140
20	109	107	104

- E. Sag vertical curves on residential or commercial streets that do not meet the minimum SSD may be approved by the Development Engineer if no practical design exists and if acceptable illumination is provided throughout the curve and is maintained by a franchised utility. The design shall include at a minimum 100-watt High Pressure Sodium luminaries, 25-foot mounting height and 100- to 120-foot spacing, throughout the sag curve.
- F. Intersecting Stopping Sight Distance.
1. Stopping sight distances for the design speeds of proposed commercial access streets, neighborhood collector streets and arterials must be met when intersecting arterials.
 2. The minimum stopping sight distance on proposed intersection approaches for all other access to intersecting roadways shall be 125 feet.

Excerpts from the 2007 KCRS on minimum entering site distance that applies to driveway connections to an arterial or neighborhood collector road classifications

2.13 Entering Sight Distance (ESD)

Entering sight distance applies on driveways and streets approaching intersections as set forth in Sections 2.02 and 2.03 with the exception of subcollectors, subaccess, residential minor access streets, and commercial minor access streets. Specific ESD values for required design speeds are listed in Section 2.04, Tables 2.1 and 2.2.

- A. Entering vehicle eye height is 3.5 feet, measured 10 feet back from edge of traveled way or edge line on rural roadways and ten feet back from face of curb on urban roadways, figure 2-012. Approaching vehicle height is 4.25 feet.
- B. Requirements in Section 2.04, Tables 2.1 and 2.2 apply to an intersection or driveway approach to a typical road under average conditions. In difficult topography the County Road Engineer may authorize a reduction in the ESD based on factors mitigating the hazard. Such factors may include an anticipated posted or average running speed less than the design speed or the provision of acceleration lanes and/or a median space allowing an intermediate stop by an approaching vehicle making a left turn.
- C. Where a significant number of trucks will be using the approach road, the County Road Engineer may increase the entering sight distance requirements by up to 30 percent for single-unit trucks and 70 percent for semi-trailer combinations.

Table 2.1 (excerpt)							
Arterial Roads, Rural Residential And Commercial Access Streets							
Design Values							
Design Speed (mph)	30	35	40	45	50	55	60
Stopping Sight Distance (Ft.)	200	250	305	360	425	495	570
Entering Sight Distance (Ft.)	335	390	445	500	555	610	665

Check out the DDES Web site at www.kingcounty.gov/permits