



MUNICIPALITY OF ANCHORAGE

Traffic Engineering Department



MUNICIPAL DRIVEWAY STANDARDS

DATE: November 3, 2021

TO: Developers, Private Property Owners, Engineers, Builders, and Contractors

CC: Development Services Department, Municipality of Anchorage
Project Management & Engineering, Municipality of Anchorage

FROM: Bradly Coy, P.E., PTOE
Municipal Traffic Engineer

RE: Driveway Standards within the Municipality of Anchorage

NOTE: THESE STANDARDS SUPERCEDE THE MEMO DATED NOVEMBER 5, 2020, APPROVED BY JOHN CRAPPS, P.E.

THIS DOCUMENT WILL BE INCORPORATED AS AN APPENDIX TO THE MUNICIPALITY OF ANCHORAGE'S DESIGN CRITERIA MANUAL AND IS PROVIDED AS A STAND-ALONE DOCUMENT FOR THE PURPOSE OF FACILITATING DISSEMINATION TO THE PUBLIC AND DESIGN PROFESSIONALS.

BACKGROUND

AMC Title 21.07 states that driveways to roads operated/maintained by the Municipality of Anchorage (including with public roads maintained by LRSAs and HOAs) shall comply with standards that are established by the Traffic Engineer of the Municipality of Anchorage. Title 21.07 states the driveways to single-family residences also must conform to these adopted standards.

Many factors are weighed when dealing with driveway location and design. Residential driveways, for example, would have very different design criteria than a commercial or industrial driveway. The location and design of driveways are based on many factors, including:

- land use
- location of individual property lines
- available street frontage
- existing roadway appurtenances (hydrants, mailboxes, streetlights, and utilities)
- on-street parking
- requirements of internal site design
- number of vehicles expected to use the driveway
- vehicle volumes on the street
- functional class of the roadway
- traffic safety considerations

The purpose of these standards is to detail the parameters to be used for the design of driveways within the Municipality of Anchorage Right of Way. Permittees should contact the Alaska Department of Transportation and Public Facilities (ADOT) for driveway permits on State of Alaska Right of Way. The ADOT has established driveway standards in Chapter 1190 of the Preconstruction Manual.

Driveway standards found in ADOT Preconstruction Manual Chapter 1190 are hereby adopted for the design of driveways within the Municipality of Anchorage. However, what follows is a summary of some of the requirements as well as some additions/changes from the ADOT requirements including:

- curb return requirements (required under certain conditions)
- driveway widths (varies under certain conditions)
- driveway profiles (more restrictive grades)
- sight distance (more restrictive)

FUNCTIONAL CLASSIFICATION

Highways, roads, and streets are classified according to their intended function, as shown in the Municipality of Anchorage Official Streets and Highways Plan (OS&HP). Functional classification is an important factor when considering driveway access on arterials, collectors, or local roads.

- Arterials are primarily for moving large volumes of vehicles and goods along the roadway. For safety and efficiency, arterials should have few, if any, private driveways. Access to arterials will typically be denied if access is also available to lower classified streets, unless in the case of commercially developed property that would directly impact a residential roadway. However, if driveways directly accessing the arterials are necessary, then, due to concerns of safety and the need to move through traffic efficiently, their number, location, and design will be strictly controlled to minimize the effect on the movement of through traffic and goods. Restrictions may be placed on the turning movements that may be permitted from the driveway.
- Collectors serve as a bridge between arterials and the local road system providing only limited access to abutting property.
- Local Roads are primarily to provide access to the public road system from the property adjacent to the roadway.

Other important definitions that affect driveway standards include:

- Cul-de-Sacs are streets having only one outlet, with provision for a turnaround at their termination, and which are not intended to be extended or continued to serve future subdivisions or adjacent land.
- Alleys are permanent service rights-of-way providing direct access to loading areas and off-street parking for abutting land uses. Even when built within public right-of-way, from a compliance standpoint for Code, they are not considered to be 'streets' with 'frontage'. Alleys are not subject to the 2/5ths rule regarding maximum driveway width.

WAIVERS

These Driveway Design Standards cannot cover all possible situations, and, as authorized under AMC 21.07, the Municipal Traffic Engineer has the authority to grant some changes to these Standards upon submittal of engineering studies that support the request.

However, the Engineer of Record—or other applicant/applicant’s representative—is expected to begin the design process by complying with all applicable standards and applying for changes for the least number of items possible in advance of construction, even if this potentially results in a reduction in the desired development yield (for private development) on the property.

The request for an alternate standard/design deviation must be made prior to issuance of any permits for work within the public right-of-way and should be made prior to issuance of any underlying land use/building permits.

Post-construction requests for waivers of a driveway wider than permitted by an approved permit will not be approved by the Municipal Traffic Engineer, aside from minor variations (typically one foot or less for residential driveways) within reasonable construction tolerances. Minor revisions to approved driveway grades may be considered on a case-by-case basis.

Compliance with these Standards will also be required for any site that has been out of use (business closed/abandoned, home removed by owner, etc.) for a period of four (4) or more years, per the latest edition of the Anchorage Design Criteria Manual.

ABOUT THIS DOCUMENT

The specific criteria begin on Page 1 of this document, which follows this cover memo. Pages 1 through 14 are approved for separate distribution via my approval signature on this memorandum.

The full document will be posted on the web page of the Traffic Department:
www.muni.org/traffic.

The Standards will also be made available as handouts available at the Department offices.

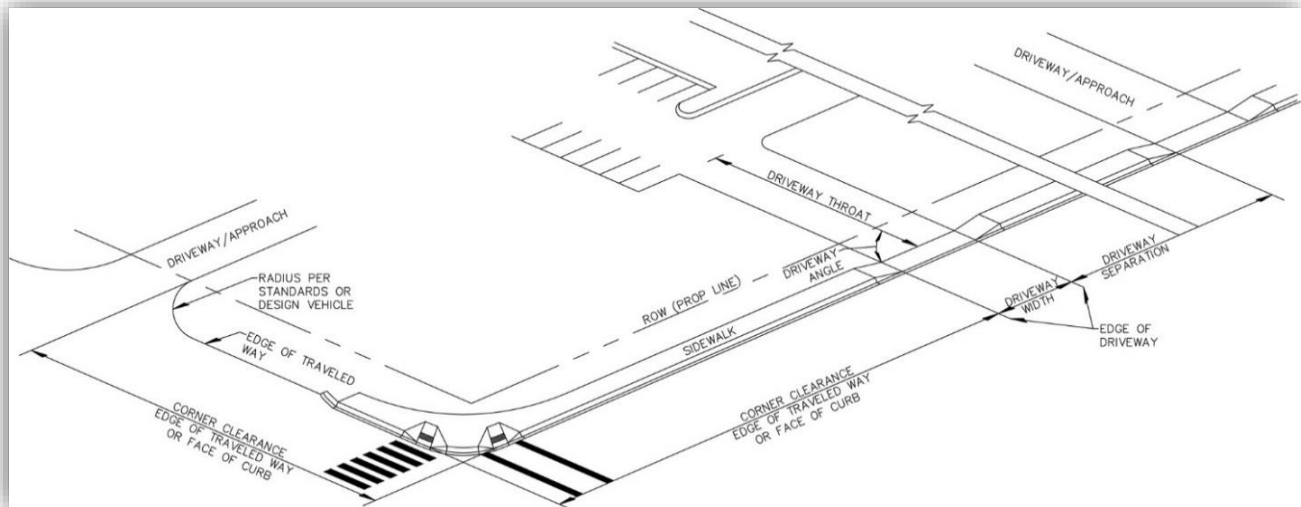


Bradly Coy, P.E., PTOE
Municipal Traffic Engineer

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Figure 1 illustrates many of the driveway characteristics referenced throughout this driveway standards document.

FIGURE 1



1. Curb Cuts and Curb Returns

- A. Single Family and Duplex shall use curb cuts.
- B. Triplex to 7-plexes may use curb returns. If curb returns are used for tri-plex through 7-plex, the minimum radius shall be 15 feet.
- C. Commercial Structures (including 8-plex and greater) shall provide curb return driveways as follows:
 - i. Low volume residential/commercial developments – minimum 15' radius curb returns.
 - ii. Large volume commercial developments greater than 100,000gsf – minimum 25' radius curb returns. Driveways serving loading areas/docks for large trucks should use larger radii to accommodate truck base turning radius for largest vehicle required to use the driveway.

2. Residential Driveway Widths (Up to 7-plex)

AMC Title 21.07 specifies the total width of driveway entrances to a residential lot shall not exceed 40 percent (i.e., 2/5ths) of the lot frontage. It also states that residential driveways are subject to the municipal driveway standards currently established by the Municipal Traffic Engineer and allows the Municipal Traffic Engineer to approve exceptions.

A. Standard Driveway Widths

The following driveway standards (curb cut or paved width) apply for single family and multifamily lots (up to 7-plex). For lots with less than 70' of frontage (or 45' on a cul-de-sac), these widths may exceed 2/5ths of the lot frontage and are considered appropriate to receive an exception in most instances.

- i. Cul-de-sac turnaround: 12' – 18' maximum
- ii. Other local roads: 12' – 28' maximum

B. Snow Storage

MOA Street Maintenance may be asked to provide input into decisions on driveway widths that could affect maintenance and snow removal operations, however the final decision rest with the Municipal Traffic Engineer. Snow storage equal to the driveway width should be provided within the right-of-way in the direction of anticipated snow removal.

The availability of snow storage area can be determined in one of two ways:

- i. Snow storage is available in the right-of-way on the frontage of the property, downstream of the driveway; or
- ii. Snow storage is available beyond the driveway within the right-of-way associated with the adjacent property, excluding other driveways, mailboxes, utility cabinets, utility poles, and street signage - or other permitted uses within the right-of-way.

Property owners should note that MOA snow removal may be limited to 20' of the driveway width, regardless of the constructed driveway width.

3. Commercial/Residential (8-plex or greater) Driveway Widths

24' – 34' maximum width unless supported by a traffic analysis, or for serving large-wheelbase trucks.

4. Driveway Angle

The driveway angle should be 90 degrees, plus or minus 30 degrees relative to the edge of travelled way. Typically, an angle exceeding 15 degrees from perpendicular will only apply to right-in/right-out or one-way driveways.

Hillside area driveways may exceed this on a case-by-case basis. Furthermore, hillside area driveways may extend past (along the roadway centerline) the prolongation of the property line within the public right-of-way/easement.

5. Driveway Profile

On urban roads where urban shoulder treatments are not yet constructed, the profile of the driveway should be designed to allow future construction without significant driveway reconstruction.

A. Residential – Maximum grade of $\pm 12\%$.

A minimum 12-foot-long landing area where the driveway intersects with the roadway must be provided with a $\pm 2\%$ maximum grade.

Where hillside lots exceed the maximum grade of $\pm 12\%$, the required parking spaces will be provided adjacent to the $\pm 2\%$ landing grade.

Placement of the landing area may be permitted next to the structure instead of near the roadway; however, transitions at the pavement edge will still need to be met.

B. Commercial – Maximum grade of $\pm 8\%$. Provide a 20-foot-long landing area of $\pm 2\%$ maximum grade where the driveway intersects with the roadway. For semi-tractors or trailers, provide a 30-foot-long landing area of $\pm 2\%$ maximum grade where the driveway intersects with the roadway.

C. Grade breaks

- i. Arterials and Collectors: Algebraic difference of $>3\%$ - transition curve per Figure 2 is required.
- ii. Local Streets: Algebraic difference of $>6\%$ - transition curve per Figure 2 is required.

For Commercial/Retail uses: Use design vehicle to establish grade breaks that will avoid the vehicle from becoming high-centered or having the front/rear bumpers impact the pavement.

Confirm driveway requirements with Anchorage Fire Department. These criteria are based upon 'typical' design vehicles, not emergency vehicles and the AFD response may trigger more stringent requirements.

Figure 2 below provides a graphical representation of crest and sag vertical curves and is intended to be used in conjunction with the values in Table 1.

FIGURE 2

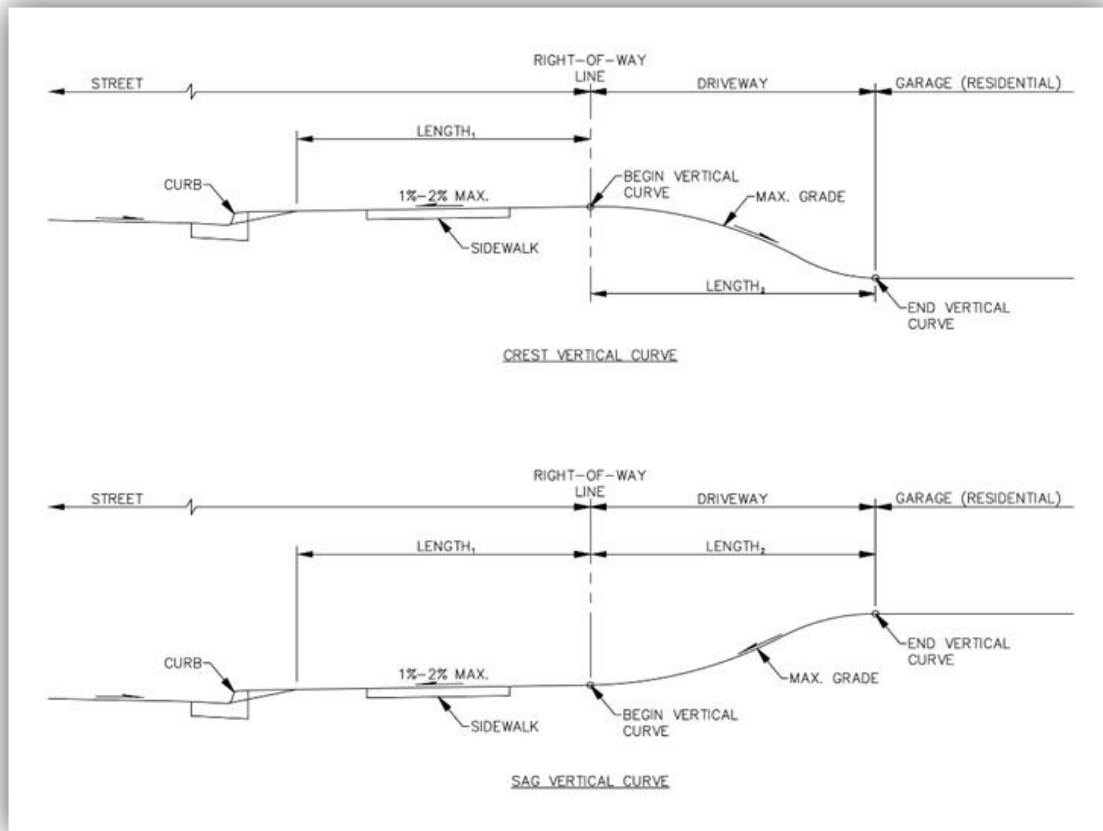


TABLE 1
DRIVEWAY PROFILE AND REQUIRED MINIMUM TRANSITIONS

	Residential	Commercial	Commercial/Industrial Semi or Tractor
Maximum Grade¹	12%	8%	4%
Length of Landing (L1) in feet	12	20	30
Length of Transition, Sag Condition (L2) in feet	15	25	Design per appropriate Design Vehicle
Length of Transition, Crest Condition (L2), in feet	10	25	

¹ For back-in parking, reduce the maximum grade by 2% - all cases

6. Number of Driveways

- A. Frontages of 74 feet or less – 1 driveway
- B. Frontages of 75 feet to 600 feet – 2 driveways (refer to Distances Between Driveways)
- C. Frontages over 601 feet – 2+ driveways (refer to Distances Between Driveways)

The Municipal Traffic Engineer may deny a second access to a residential property based upon safety concerns: proximity of adjoining driveways, utilities, pedestrian and bicycle activity, etc. on the roadway and roadway shoulder.

7. Private Access/Driveway Throat

Definition: The area within a private driveway where a vehicle, or vehicles, can be stopped without blocking an internal circulation aisle, an on-site parking space, or a sidewalk adjacent to the roadway.

- i. On private accesses serving a parcel or site – 20' minimum
- ii. For sites with either a cumulative retail space of 100,000 GSF with one or more driveways, or, where an access serves a use that has a vehicle mix that exceeds 10% large-wheelbase trucks, the following minima will apply.
 - a) No less than the overall length of one (1) WB-67 class heavy vehicle – commercial loading/delivery accesses only
 - b) The length dictated by the 50th percentile queue of vehicles – regardless of whether the internal access intersects a public street at a signalized or unsignalized intersection. The length shall be rounded up to the nearest 20-foot increment. For instance, a 50th percentile queue of 55 feet would be rounded up to 60 feet.

8. Distance Between Driveways

Definition: The distance between two adjacent driveways on the same parcel, measured along the right-of-way line between the adjacent edges (i.e., nearest edges) of the driveways.

Table 2 provides the minimum required distance between driveways based on the number of vehicles expected to use the driveway and the roadway functional classification. Uses that do not have an ITE Land Use Code will have their trip generation determined by the MOA staff of the Traffic Engineering Department based upon land uses with (at least perceived) similar trip generation characteristics.

Trip generation rates are found in the Institute of Transportation Engineers Trip Generation Manual, latest edition.

TABLE 2
DISTANCE BETWEEN DRIVEWAYS

Trip Generation of the land use > 10 veh. per hour			
Posted Speed (mph)	Rural Arterial and Collector Roads (feet)	Urban Arterial and Collector Roads (feet)	Urban and Rural Local Streets and Roads (feet)
25	350	150	150
30	370	200	200
35	400	260	250
40	440	340	310
45	540	430	390
50	690	510	490
Trip Generation of the land use ≤ 10 veh. per hour			
Functional Classification		Distance (feet)	
5-lane Arterial Roadways		200	
3-lane Arterial Roadways		100	
Collector Roadways		50	
Local Roadways		35	

9. Corner Clearance

Definition: The distance from the nearest face of curb, or nearest edge of traveled way for uncurbed roadways, of an intersecting public roadway to the nearest edge of driveway.

The minimum corner clearance should conform to Table 3 and is based on the higher classification of either the subject roadway or the intersecting roadway that is the basis for the corner clearance measurement. The reason is because the intersection's operations are primarily influenced by the higher classification roadway.

For example, Figure 3 shows an intersection of two dissimilarly classified roadways (i.e., arterial and collector roadways). In this instance, "Arterial" corner clearance requirements apply to the nearest driveways on both roadways because the standard is based on the higher classification of the two roadways. Similarly, the corner clearance requirement on a local street from its intersection with a roadway classified as a collector would need to meet the "Collector" street corner clearance requirement.

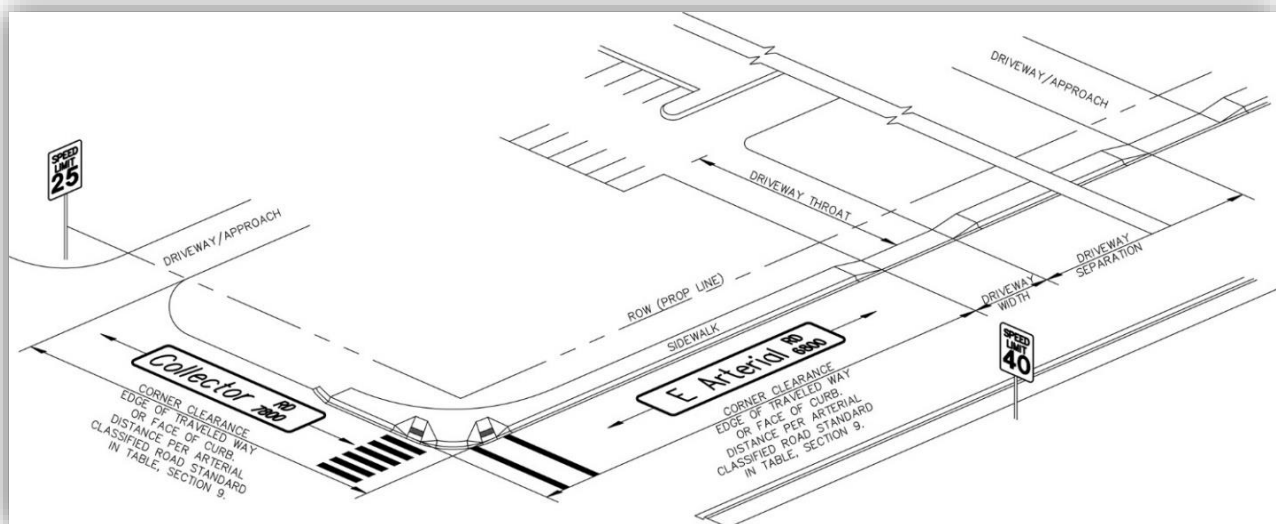
In an area where an existing abutting/fronting road will likely be widened, the corner clearance may be established by the Traffic Engineer to be based on the future edge of the travelled way/curb line.

TABLE 3
CORNER CLEARANCE

Trip Generation of the Use > 10 vph (highest peak hour of land use)			
Posted Speed (mph)	Major Generator >250 vph (feet)	Medium Generator 100-250 vph (feet)	Small Generator <100 vph (feet)
25	150	120	60
30	200	150	80
35	260	210	110
40	330	260	150
45	390	310	180
50	460	340	230
Trip Generation of the Use ≤ 10 vph (highest peak hour of land use)			
Functional Classification	Curbed Crossroad (feet)	Uncurbed Crossroad	
		Urban (feet)	Rural (feet)
Arterial Roadways	60	70	100
Collector roadways	50	60	60
Local Roadways	40	50	60

Roadways with a posted speed limit of 20 MPH or less will default to 25 MPH for corner clearance requirements

FIGURE 3



10. Sight Distance:

Definition: The term “sight distance triangle” refers to the roadway area visible to the driver entering the roadway. The required length is the distance necessary to allow safe vehicular egress from a street, driveway, or alley to a major street.

A. Calculations

The sight triangle is shown graphically in Figures 4 and 5 (plan view and perspective view, respectively). Figure 4 illustrates the unobstructed sight distance along the public roadway that shall be provided at all streets, driveways, or alleys, for motorist entering the roadway. This illustration is simplified to a tangent section of roadway with no horizontal or vertical curvature. The required sight distance (Line B2-C2 or B1-C1) must be measured along the centerline of the road, including along any horizontal and/or vertical curvature. This may result in sight lines extending to the opposite side of the street and across portions of right-of-way, cutting through crest vertical curves in the roadway, structures, or private property away from the site’s frontage.

Table 4 provides the sight distance requirements for a stopped passenger car to turn left onto a two-lane roadway with no median and grades of 3% or less. For other conditions and vehicle types (trucks), the time gap must be adjusted and required sight distance recalculated per AASHTO – A Policy on the Geometric Design of Highways and Streets, 2011 (or current edition).

For pedestrians’ safety, the sight distance shown on Figure 4 shall be 15 feet to the left, and 15 feet to the right, with Point C1 and C2 being measured along the center of the adjacent sidewalk.

For cyclist safety, the sight distance shown on Figure 4 shall be 225 feet to the left (i.e., a 20MPH speed), and 225 feet to the right with Point C1 and C2 measured along the center of the adjacent sidewalk, or, along the center of the adjacent (same side) bike lane/paved shoulder.

FIGURE 4

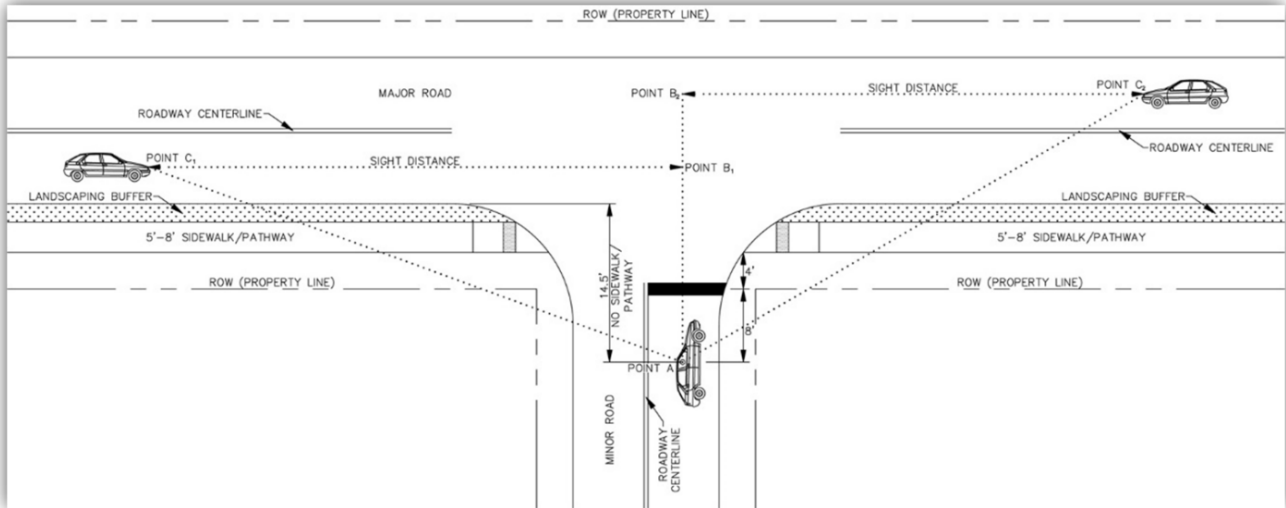


FIGURE 5
SIGHT DISTANCE CORRIDOR

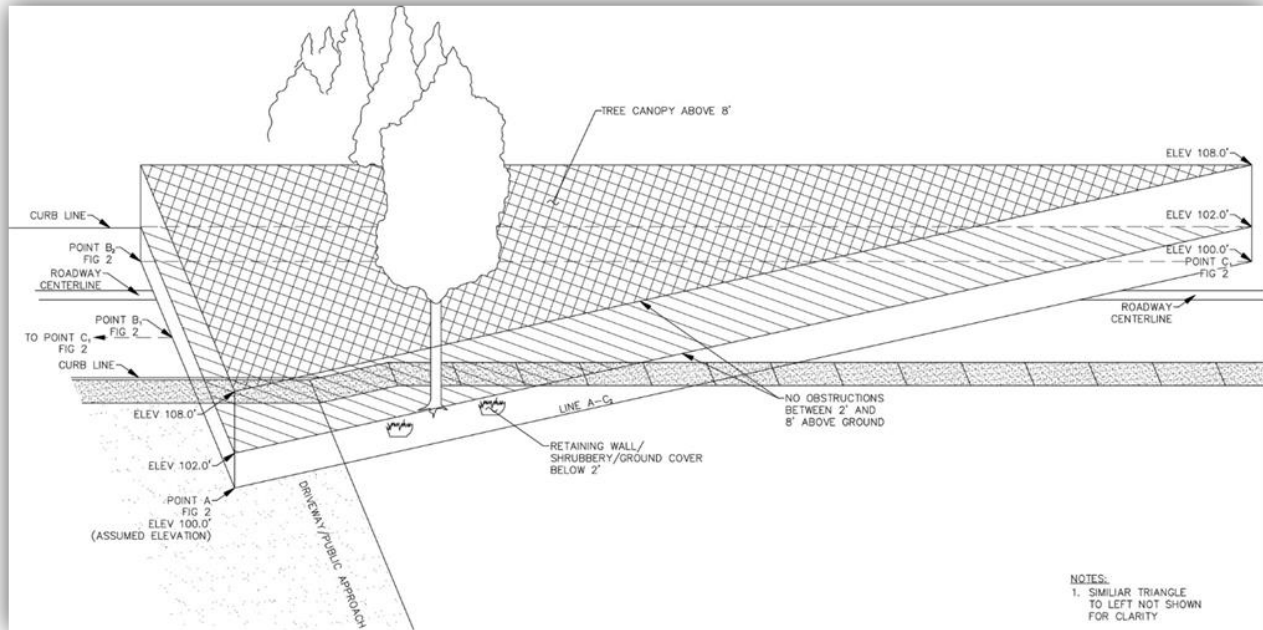


TABLE 4
SIGHT DISTANCE REQUIREMENTS (TYPICAL CONDITIONS)¹

POSTED SPEED MPH	SIGHT DISTANCE FEET ¹
25 ²	280
30	335
35	390
40	445
45	500
50	555
55	610
60 ³	665
65 ³	720

¹ These are the default sight distance values for passenger cars intersecting a generally-level roadway. Appropriate modifications must be made for roadway grades exceeding 3%+/- . Adjustments must also be made for single unit trucks (buses, fire apparatus, SU-class vehicles). Further increases will be required for vehicles greater in length than a WB-50, or for driveways serving “doubles” and overweight loads.

² Roadways with a posted speed limit of 20 MPH or less will default to 25 MPH for sight distance requirements

³ Posted Speed Limits equal to or greater than 55 MPH will typically be roads under the jurisdiction of the Alaska DOT&PF

A. Landscaping

Mugo Pine, or other landscaping plantings that requires aggressive maintenance, are not permitted where they will obstruct sight distance. This also applies to fences and retaining walls. Chain link and palisade-type fences may, viewed from a shallow angle from the driver’s eye, have the potential to obscure sight lines.

Care shall be taken to avoid a ‘picket fence’-type sight obscurement caused by a row of otherwise-permitted tree trunks. This is a common issue where the driveway is located near, or within, the inside of a horizontal curve. The required landscaping is now permitted by the MOA to be clustered to avoid encroachments into the sight triangle.

Sight distance is measured from height of eye of three and a half feet (3.5') on minor road and height of object of three and a half feet (3.5') on the major road. Trees in the sight triangle are acceptable if trunk is less than four inches (4") in diameter at maturity and branches are trimmed within two and a half to eight feet (2.5' to 8') per AASHTO – A Policy on the Geometric Design of Highways and Streets, 2018 (or latest edition). Ground cover and shrubs should be of species – and maturity - that does not grow into the sight triangle or require frequent maintenance. Decorative or retaining walls/fences are not allowed in the sight triangle.

The 2' height restriction for ground cover/shrubbery—with or without raised planter beds—shown in Figure 5 will allow for limited re-growth of vegetation/ground cover between maintenance cycles and snow accumulation in winter, with limited encroachment into the sight triangle. Figure 5 also shows a flat, or a constant grade, profile to simplify the diagram. Similarly, for clarity, it shows only the sight triangle to the right. Crest or sag curvature may constrain sight distance that otherwise appears to meet the standard.

11. Turning and Maneuvering in Driveways

Per the Vehicular Access and Circulation section of AMC 21.07, vehicles entering or exiting a driveway may not use the public right-of-way for maneuvering: either backing into the street to exit or backing into the driveway to enter the abutting property. Single-family, two-family, townhouse, and mobile home dwellings on individual lots may be exempted from that Code requirement and may turn and maneuver in the right-of-way.

A. Exceptions to Turning and Maneuvering in Driveways

Multifamily dwellings with up to four units shall be exempted in appropriate circumstances if approved by the traffic engineer.

Appropriate circumstances may include:

- i. lots with alley access, only, and/or
- ii. lots located on low-volume streets, and/or
- iii. lots located on dead-end streets or cul-de-sacs, and/or

For purposes of these standards, “low volume” streets have a maximum daily traffic volume of 500 vehicles/day.

12. Driveway Paving

See Figure 6 for Class A and Class B land uses in the Anchorage Bowl (including Hillside - see AMC 21.08) for paving standards and Figure 7 for Class B land uses in Eagle River and Chugiak.

Secondary accesses (e.g., second driveways to gain to rear yards, or access for RV parking) in the Class “A” improvement areas of the Anchorage Bowl will be required to be asphalt paved or sealed R.A.P. for at least the first 15’ as measured from the edge of roadway paving. A secondary driveway is still subject to approval per 6. Number of Driveways (above). If the road is unpaved, the Municipal Traffic Engineer will make the determination on paving the driveway apron.

Alternative structural surfaces may be allowed utilizing Geogrid under the conditions specified below:

- The portion of the driveway within the right-of-way, with a minimum distance of two feet from the edge of the traveled-way or curb, shall be A.C. pavement or concrete on a paved roadway.
- Manufacturer product information that demonstrates that the product can meet the equivalent of two inches of A.C. pavement or concrete must be provided to the Municipal Traffic Engineer. May require cross-section data of base material based upon the design loading/vehicle as determined by the manufacturer of the product. This might include the ability for to support the loading of an emergency vehicle.

FIGURE 6
ANCHORAGE DRIVEWAY PAVING REQUIREMENTS

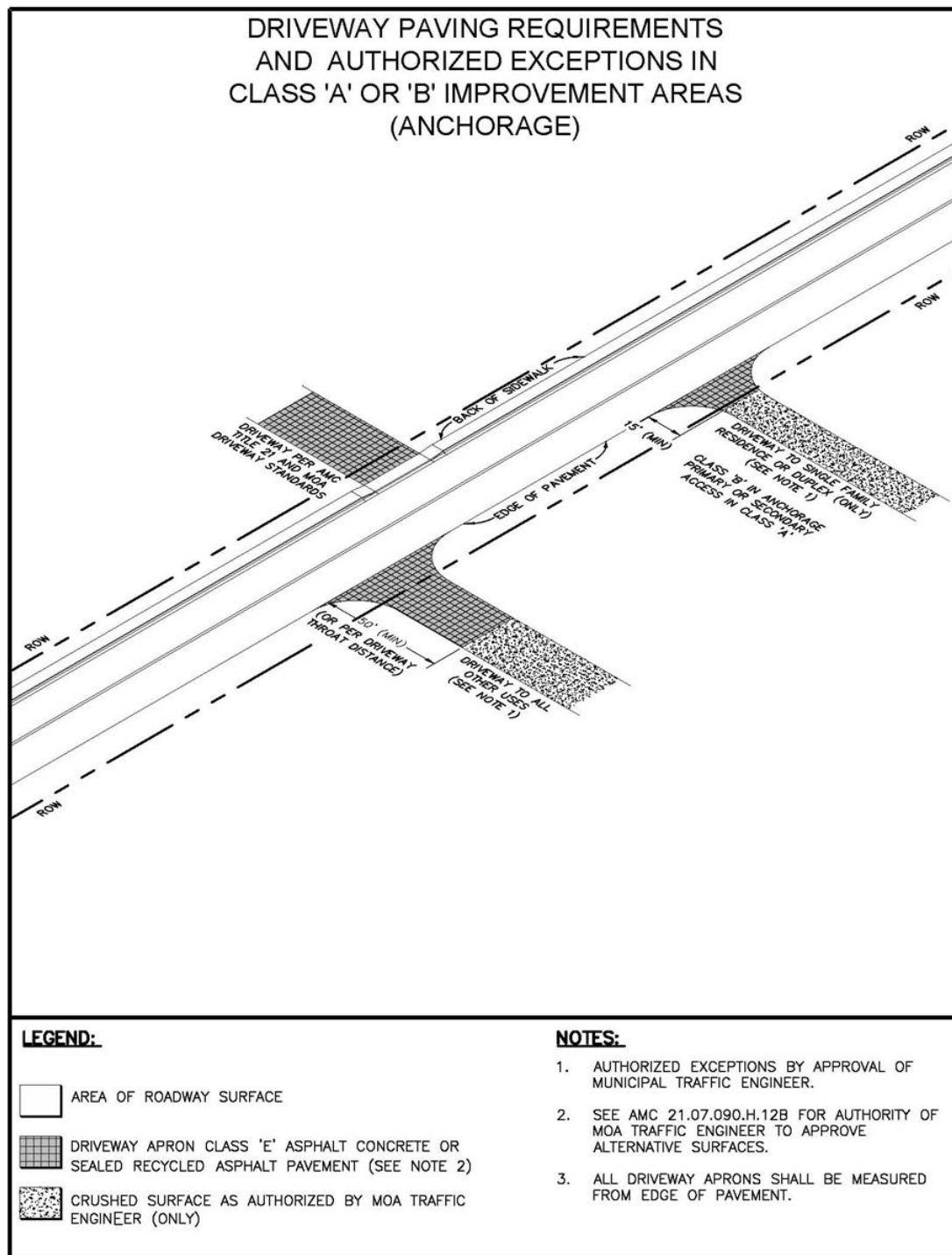


FIGURE 7
CHUGIAK/EAGLE RIVER DRIVEWAY PAVING REQUIREMENTS

