

# The Swedish Transport Agency's Code of Statutes



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RAIL ROAD TRAFFIC

## Regulations

### **amending the Swedish Transport Agency's regulations and general advice (TSFS 2021:122) on characteristics required for roads, streets, tramways and metros (building regulations);**

adopted on [Select a date].

Pursuant to Chapter 10, § 6 of the Planning and Building Ordinance (2011:338), the Swedish Transport Agency hereby lays down<sup>1</sup>, with regard to the Agency's regulations and general recommendations on characteristics requirements for roads, streets, tramways and metros (building regulations)

*that* Chapter 5, Section 24 shall cease to apply;

*that* Chapter 1, Sections 1 and 5, Chapter 2, Sections 20 and 24, Chapter 5, Sections 1, 4, 15, 21, 34, 39 and 51, the heading of Chapter 5 and the heading immediately preceding Chapter 5, Section 4 shall read as follows;

*that* five new sections – Chapter 4, Section 5a, and Chapter 5, Section 4a-d shall be inserted and worded as set out below;

*that* a new Section 15a of Chapter 5 shall be inserted immediately after the heading 'Cross-sections and connections', worded as follows;

*that* immediately before Chapter 5, Section 16, a new heading 'Level crossings' shall be inserted, immediately before Chapter 5, Section 18, a new heading 'Connections to the main carriageway at road tunnel' shall be inserted and immediately before Chapter 5, Section 19, a new heading 'Transparency of railings at intersections and junctions' shall be inserted;

*that* ten new sections shall be inserted, Chapter 5 Sections 17a-d, 39a, 46a-d and 49a, a new annex and new headings immediately before Chapter 5, Sections 17a, 17c, 17d, 46a and 49a, worded as follows;

and adopts the following general advice.

<sup>1</sup> See Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services.

**Chapter 1**

**Section 1** These regulations contain technical characteristic requirements for the construction works of roads, streets, footpaths and cycle paths, subways and tramways and related devices. They shall be applied by the developer, the road operator and the track holder when designing and executing the construction works. The requirements, with normal maintenance, shall be assumed to be met over an economically reasonable life.

The regulations apply to new buildings, alterations and other amendments, in accordance with Chapter 8 of the Planning and Building Act (2010:900).

In the case of construction works intended for temporary use, adjustments and derogations may be made to the regulations to a reasonable extent taking into account the nature, extent and duration of the measure.

**§ 5** These regulations use the following terms and definitions.

<i>main track</i>	railway track intended for secured movement, for example, a train running on a signalled line or operating position
<i>delineator post</i>	posts fitted with reflectors used to mark the road or carriageway edge in order to improve visual guidance
<i>curve profile</i>	the geometric profile of a track vehicle when running in a curve in addition to the nominal width of the vehicle on straight track
<i>platform</i>	raised area for travellers used to facilitate disembarkation and boarding on a bus, tram or metro
<i>PM10</i>	particles no larger than that they are capable of passing through a selective inlet that separates with 50% efficiency particles with an aerodynamic diameter of 10 micrometres
<i>ramp</i>	connection intended for pedestrian or vehicular traffic between roads at different levels
<i>reference speed</i>	vehicle speed underlying the design of a road
<i>splitter island</i>	a surface, fully or partially bounded by curbs or other physical device, used to control and protect traffic flows at junctions and which may contain a protective space for pedestrian and bicycle traffic

*objects at risk* a potentially dangerous activity, installation, natural risk, etc. where an accident may lead to a temporary or long-term societal disruption or threat; f.ex.

1. industry, warehouses and depots where environmentally harmful and dangerous goods are handled,
2. ports, airports and terminals where environmentally harmful and dangerous goods are handled,
3. roads, railways and maritime routes on which environmentally harmful and dangerous goods are carried, or
4. military firing ranges and exercise areas

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## Chapter 2

**Section 20** Supports, including foundations, for road traffic signs set up at the side of the roadway shall be dimensioned for loads due to self-weight, wind and ploughed snow. When dimensioning, loads due to wind and ploughed snow do not need to be combined.

Despite the first paragraph, supports for road traffic signs where the maximum permissible speed of the road is 40 km/h or lower need not be dimensioned for loads due to ploughed snow.

### **General advice**

*Verification of the load-bearing capacity of supports for road traffic signs installed at the side of the roadway can be demonstrated by calculation as specified in SS-EN 12899-1:2007, Fixed vertical road traffic signs – Part 1: Fixed road traffic signs. Safety factors according to class PAF1 of the standard can be applied.*

*As an alternative to SS-EN 12899-1, the Swedish Transport Agency's Regulations and general advice (TSFS 2018:57) on the application of Eurocodes can be used when the load-bearing capacity of supports for road traffic signs is verified. They can then be assigned to safety class 1. The eccentricity which, according to the recommended values in SS-EN 1991-1-4:2005 Eurocode 1: Actions on structures – Part 1-4: General actions – Wind load should be assumed for the resulting wind load on screens can be halved for road traffic signs when calculating the load effect.*

*Loads due to ploughed snow should be selected in accordance with Table 0. Loads due to ploughed snow can be assumed to burden road traffic signs as specified in Annex A of EN 12899-1.*

*Supports of steel tubes with a diameter of at least 60 mm, a freight thickness of at least 2.25 mm and a steel grade with a tensile strength*

$\geq 235$  MPa can be considered as having sufficient carrying capacity for wind load and ploughed snow, if the road traffic signs on the support have a combined area of not more than 0.70 m<sup>2</sup> and the upper road sign is situated no more than 3.5 metres above ground.

**Table 0. Loads due to ploughed snow depending on the ploughing speed and the distance of the road traffic sign from the edge of the road.**

Shortest distance between the edge of the road and the edge of the road traffic sign (m)	Ploughing speed [km/h]	
	50	$\geq 60$
	Load from ploughed snow (kN/m <sup>2</sup> )	
< 3.5	2.5	4
3.5 – < 5.0	1.5	3
5.0 – $\leq$ 6.0	0	1.5

**Section 24** Bridge parapets and other barriers at footpaths or cycle paths, including railing infills with insertion and fall and suicide protection, shall be able to withstand the load due to ploughed snow and road users for whom the track is intended.

**General advice**

Barriers can be dimensioned in accordance with method 1 of the technical report SIS-CEN/TR 16949:2016, in which case the loads  $q_{hk}$  and  $q_{vk}$  should be set to at least 1.0 kN/m. The value of the point loads  $Q_{hk}$  and  $Q_{vk}$  should be set to 1.0 kN and their loading area should be a circle with diameter 0.1 metre .

Barriers and fall and suicide arrest systems should be dimensioned for a distributed load of 0.8 kN/m acting perpendicular to horizontal parts, but otherwise in an arbitrary direction. The load can be assumed to act on one horizontal part at a time.

Gates, safety nets and splash guards should be considered as having adequate load bearing capacity if they are dimensioned for a horizontal snow load (snow spray during ploughing) of at least 2 kN/m<sup>2</sup> that acts perpendicular to the direction of the road. They should be dimensioned for a load that acts on the entire surface.

**Chapter 4**

**Section 5a** A bridge above a pedestrian or bicycle path shall be designed with mud flaps so that ploughed snow or splashes of water from the roadway do not fall in any significant quantity on the road users passing under the bridge.

## Chapter 5 Safety when using roads, footpaths and cycle paths

**Section 1** Roads, footpaths and cycle paths shall be designed in such a way that the design supports and contributes to the road user's understanding of the road's prescribed rules and the marking thereof, thereby providing the road user with guidance for efficient and safe traffic.

They shall be designed in such a way that the probability of accidents occurring is low and that the accidents which nevertheless occur have limited consequences.

### **General advice**

*Human tolerance to collision violence should be a design factor in the design of roads.*

*On roads with reference speeds above 30 km/h, unattended cycle passages and unattended pedestrian crossings should be speed proofed by appropriate road design or other physical measures.*

*On roads with reference speeds above 30 km/h and a traffic flow exceeding 2000 AADT, pedestrians, cyclists and class II moped drivers should be separated from other traffic, if the flow of these road user groups is not negligible.*

*Roads with reference speeds above 50 km/h should be designed in such a way as to minimise the risk of side collisions.*

*Roads with reference speeds above 80 km/h should be designed in such a way as to minimise collisions between traffic in opposite directions of travel.*

*In certain environments, mainly on motorways, expressways or other roads with a similar design, where there is an increased risk of suicides or that pedestrians may be tempted to take a shortcut across the road, fences or other physical barriers should be provided.*

*For roads with a verge on the right in the direction of travel, they should be designed wide such that the verge is at least 0.75 metres wide.*

### **General advice on Chapter 4, Section 4 of the Road Traffic Signs Ordinance (2007:90) on M2 Edge of carriageway lines**

*Road marking M2, edge line, should be carried out next to the roadside or at least 0.75 metres from the roadside.*

## Obstacle-free height, width and section

**Section 4** Roads shall be designed with an obstacle-free height and width that prevents vehicles or road users from colliding with or getting stuck in fixed obstacles above or alongside the road.

**General advice**

*Roads should be designed with an obstacle-free height to allow traffic of 4.5 m high vehicles.*

*Roadways, as well as support, centre and side strips should be accessible to vehicles using the road, including operational, maintenance and emergency vehicles.*

**Section 4a** The design, furnishing and location of footpaths and cycle paths shall be adapted on the basis of:

1. the road user groups and vehicle types, and their flows, expected to use the roadway;
2. the horizontal and vertical curve of the track and any lateral obstacles; and
3. the amount of traffic and maximum permissible speed on the road in the vicinity that can be used.

**General advice**

*Footpaths and cycle paths should be designed and furnished in such a way as to minimise the risk of vehicles or road users colliding with, get entrapped or fastening in fixed obstacles, such as lighting columns, road traffic sign posts, road restraint systems, bicycle racks, benches, trees and bushes or other hazards such as car doors being opened.*

*The free height on footpaths should be at least 2.1 metres and on cycle paths and footpaths and cycle paths at least 2.5 metres.*

*Footpaths and cycle paths should be accessible to the vehicles intended to travel on the road, including operating, maintenance and emergency vehicles.*

*Footpaths and cycle paths should be designed in such a way that cleaning and winter road maintenance can be done with appropriate mechanical equipment.*

**Section 4b** A cycle path intended for traffic in one direction shall be designed with a minimum paved width of 0.75 metres. The cycle path shall then have an adjacent hardened surface at the same level as the path. The width indication applies only to new construction on a limited distance in an existing built environment in an urban area where the space is small. Otherwise, bicycle lanes shall be made wider with adaptation in accordance with Section 4a.

**Section 4c** A cycle path intended for traffic in two directions and a path common to pedestrians and cyclists shall be designed with a minimum paved width of 1.8 metres. The width indication applies only to new construction on a limited distance with low cycling flow in an existing built environment in an urban area where the space is small. Otherwise, the paths shall be made broader with adaptation in accordance with Section 4a.

If the cycle path or the foot and cycle path are directly adjacent to fixed lateral obstacles, the specified dimension shall be extended by, or alternatively the distance to lateral obstacles shall be, at least 0.2 metres per side.

**General advice**

*In the event of such a high cycling flow that the interaction between cyclists may pose a safety problem, the traffic directions should be separated.*

*In the event of such a high traffic flow that the interaction between cyclists and pedestrians may pose a safety problem, walking and cycling should be separated.*

**Section 4d** A motorway shall be designed at least 21 metres wide. Carriageways shall be designed with at least two lanes. The lanes shall be at least 3.5 metres wide. Each carriageway shall have a verge to the right in the direction of travel. The verge shall be at least 2.0 metres wide.

The separation strip between the carriageways shall be at least 2.0 metres wide and shall be fitted with barriers to each carriageway in the respective direction of travel. The distance between the separating strip and the carriageway shall be at least 0.5 m.

Entrances and exits of a motorway shall have acceleration and deceleration lanes, respectively, allowing connecting traffic to adjust its speed and to interconnect in a traffic-safe manner, or alternatively be constructed as road connections with separate lanes.

**Section 15** Roads and footpaths and cycle paths shall be designed with such a transverse fall that:

1. the risk of slipping on slippery roads is limited;
2. the risk of overturning and run-off-road accidents in curves, roundabouts and on ramps is minimised;
3. the thickness of the water layer on the pavement during rain is limited, and stagnant water layers on it are avoided.

**General advice**

*Transverse fall can be determined in accordance with:*

1. The Swedish Transport Administration's requirements document "Road surface measurement Measurement quantities", Chapter 1.5 Determination of transverse fall (TDOK 2014:0003), or
2. The Swedish Transport Administration's requirement document 'Determination of irregularities and transverse fall with straight-edge', Chapter 2.5 Measurement of transverse fall (TDOK 2014:0136),

*The transverse fall of a road should be designed based on the reference speed and radius of the road as well as the characteristics of the road surface and vehicles in such a way as to minimise the risk*

of vehicles overturning or driving off the road in curves, roundabouts and on ramps.

The transverse fall should not be less than 3% for roads with gravel or oil gravel surface courses, or with surface treatment on gravel base.

The transverse fall in the curves of a cycle path or joint footpath and cycle path should be designed in such a way that the track tilts inwards.

At pedestrian crossings, at stops or in places where pedestrians will cross railways or tramways, the road surface should have an inclination that prevents strollers or wheelchairs or other wheeled aids for persons with disabilities from moving on their own and rolling out onto the pedestrian crossing, road or track. This design should be done without adversely affecting the characteristics of the transverse fall.

**Section 15a** Road junctions shall be designed in such a way that road users can detect them in time and adjust their speed, orient themselves and choose the road and travel through the junction safely and efficiently. The design, function and use of the crossing shall be socio-economically efficient.

#### **General advice**

*The number of crossings should be minimised.*

*The number of conflict points, where the course of at least two road users can theoretically cut each other, should be minimised.*

*Angles that are close to 90 degrees between the entrances of a junction should be pursued.*

*Crossings should be designed in such a way as to minimise the risk of wrong turns.*

*When designing a junction, consideration should be given to:*

- 1. road safety;*
- 2. accessibility;*
- 3. practicability, and*
- 4. visibility.*

*In order to assess whether the design, function and use of a junction is socio-economically efficient, a cost-benefit analysis should be carried out based on at least the following factors:*

- 1. risk of personal injury;*
- 2. traffic flow and composition,*
- 3. speed, and*
- 4. crossing type.*



## Roundabouts

**Section 17a** A road with a reference speed above 70 km/h that connects to a circulation point shall be designed with a preparatory speed-reducing measure.

### **General advice**

*A preparatory speed-reducing measure, such as lateral displacement, should be set up around 150 to 250 metres before the roundabout, depending on the reference speed of the road.*

**Section 17b** The surface material of a roundabout or object placed in the roundabout shall not present a significantly increased risk of personal injury during collision.

### **General advice**

*Objects that are unyielding or which can penetrate a vehicle compartment should not be placed in roundabouts on roads where the maximum permissible speed is higher than 60 km/h through the roundabout.*

## Gyratory junctions

**Section 17c** Road connections shall be designed in such a way as to minimise the risk of road users inadvertently entering an exit ramp.

Crossings with a road at the end of an exit ramp shall be designed to minimise the risk that road users inadvertently travel directly from the exit ramp to the approach ramp without braking or stopping.

### **General advice**

*Crossings with roads at the end of the exit ramp where the reference speed is higher than 60 km/h should be designed with speed-reducing measures, such as a drip splitter island or roundabout.*

## Pedestrian crossings and cycle passages and cycle crossings

**Section 17d** At a pedestrian crossing, a cycle passage or a cycle crossing or where a bicycle path crosses another bicycle path, these shall be designed in such a way that road users can detect each other in good time before the location and are thereby given the opportunity to adjust their speed.

Pedestrian crossings, cycle passages and cycle crossings shall be designed in such a way that road users who are to use them can orient themselves and choose their routes and pass safely and efficiently.

### **General advice**

*Pedestrian crossings, cycle passages and cycle crossings should be designed in such a way that:*

1. the number of points of conflict between vehicles and pedestrians, cyclists or drivers of class II mopeds is minimised;

2. the distance that pedestrians, cyclists and drivers of class II mopeds need to travel is minimized or that the passage can be completed step by step; for example, with a splitter island, and

3. the angle between the pedestrian or cycle path and the road or other pedestrian or cycle path is close to 90 degrees.

Pedestrian crossings, cycle passages and cycle crossings should be designed in such a way as to make it clear to the road users who will use them where they are expected to:

1. place themselves in the intersection; and

2. continue their journey after the pedestrian crossing, bicycle passage or crossing.

A traffic signal controlled junction with bicycle traffic should be designed in such a way as to minimise the risk of crushing between cyclists and motor vehicles, for example with the road marking M17a, bicycle box, or other physical separation.

**Section 21** A safety zone shall be free from penetrating objects and unyielding objects higher than 0.1 metres above ground level. However, unyielding obstacles may be present within the safety zone, if their design prevents vehicles from reaching the unyielding obstacle.

Notwithstanding the first paragraph, the following are permitted within the safety zone:

1. smooth support walls and tunnel walls with sufficient carrying capacity;-

2. game or fauna fences;

3. edge supports and weather protection at stops;

4. barrier machines;

5. foundations for protection portals in a level crossing; and

6. inlet and outlet culverts, if designed so as to limit injuries in the event of collision.

### **General advice**

*Ends of culverts should be obliquely cut at the same slope as the bank and should not be protruding.*

*In order for retaining walls and tunnel walls to be considered smooth, they should not have protruding parts, such as niches or ramp noses or other unevenness where vehicles can get stuck, which can lead to serious damage.*

*Retaining walls and tunnel walls on entry to a road gate or tunnel should be protected with a road restraint system if their design means that vehicles are at risk of entering the road gate or tunnel with a large angle of impact.*

**Section 34** Longitudinal road restraint systems shall be capable of catching and retaining design vehicles on the roadway.

Road restraint systems shall be so designed as to limit injuries to persons during collision with passenger cars.

Within the declared working width of a road safety barrier or bridge parapet and, where specified, vehicle penetration, it shall be free from unyielding road devices and other objects.

**General advice**

*Design vehicles for road safety barriers should normally be considered as passenger cars, and design vehicles for barriers on elevated structures and in road tunnels should normally be considered as buses. For safety barrier terminals and crash cushions, passenger cars are the design vehicle.*

*When applying standard SS-EN 1317-2:2010 Road restraint systems – Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets, the safety barriers should meet at least the requirements for capacity class N1. On roads where the reference speed is 80 km/h or higher, safety barriers should meet at least the requirements for capacity class N2.*

*Where there is a risk of accidents due to high falls or deep water, as well as in road tunnels, safety barriers should at least comply with the requirements for capacity class H2.*

*Bridge parapets should meet at least the requirements for capacity class H2, except where the theoretical span of the bridge is no more than 10 metres and there is no risk of accidents due to high falls or deep water. In these cases, the barrier of the connecting road can also be used on the bridge. The edge of the bridge should then be located outside the working width of the barrier.*

*For bridges intended for vehicle traffic that cross a railway, tramway, metro or road, consideration should be given to designing the barrier in a higher capacity class.*

*On bridges with a specially arranged footpath or cycle path or escape route, the safety barrier of the highest capacity class should be placed at the edge of the roadway and not at the edge of the bridge deck.*

*Fall and suicide arrest systems and safety barriers on footpaths or cycle paths should withstand dynamic human impact.*

*For the purposes of standard SS-EN 1317-2 Road restraint systems – Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets, safety barriers should meet the requirements for damage risk class A or B in new construction.*

*Parts of longitudinal road restraint systems, including railing infill with a mass of more than 2.0 kg should not detach during a collision equivalent to the capacity rating test in accordance with standard EN 1317-2 Road restraint systems – Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets.*

*Declared working width and possible vehicle penetration should be determined in accordance with standard SS-EN 1317-2 Road restraint systems – Part 2: Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets.*

*Support systems for traffic signals or road traffic signs, marker posts, lighting facilities and other traffic management devices should not be placed on barriers.*

**Section 39** In the event of a collision, an energy-absorbing terminal shall be able to absorb the collision energy from a passenger car travelling at the reference speed of the road.

**General advice**

*In order to be able to absorb the collision energy of a passenger car travelling at the reference speed of the road in the event of a collision, an energy-absorbing terminal should at least meet the speed classes defined in standard SIS-CEN/TS 1317-7:2023 Road restraint systems – Part 7: Performance characterisation and test methods for terminals of safety barriers.*

*An energy absorbing terminal should meet requirements for damage risk class A or B according to SIS-CEN/TS 7-1317:2023 Road restraint systems – Part 7: Performance characterisation and test methods for terminals of safety barriers.*

**Section 39** In the event of a collision, a crash cushion shall be able to absorb the collision energy from a passenger car travelling at the reference speed of the road.

**General advice**

*In order to be able to absorb the collision energy of a passenger car travelling at the reference speed of the road in the event of a collision, a crash cushion should meet the classes defined in standard SS-EN 1317-3 Road restraint systems – Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions.*

*A crash cushion should meet at least the requirements for injury risk class A or B in accordance with standard EN 1317-3 Road restraint systems – Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions.*

*A crash cushion should be of the redirective R type in accordance with standard EN 1317-3 Road restraint systems – Part 3: Performance classes, impact test acceptance criteria and test methods for crash cushions.*

## **Delineator post**

**Section 46a** An delineator post, when erected, shall be used to mark the edge of the road or carriageway.

### **General advice**

*Delineator posts should be carried out in accordance with EN 12899-3 Fixed, vertical road traffic signs — Part 3: Delineator posts and retroreflectors. A ground-placed delineator post should be of type D2. An delineator post on railing should be of type D4.*

**Section 46b** When delineator posts are set up, it shall take place along both sides of the road.

An delineator post shall be positioned outside the road edge. If the road has more than one carriageway, the delineator posts may be placed in the dividing strip between the carriageways.

Along the road with railings, an delineator post shall be placed behind or on the railing.

### **General advice**

*A ground-placed delineator post should be positioned between 0,5 and 1.0 metres outside the road edge. If the delineator post is placed in the separating strip between the edge of the carriageway and the footpath or bicycle path, it should instead be placed at a different distance taking into account the width of the strip.*

*The longitudinal and lateral distance positions should be constant over as long distances as possible.*

*If different lateral distances between the roadside and the delineator post have to be used along a section of road, the difference should be equalised over a section of road.*

**Section 46c** An delineator post shall:

1. have a height of 1.0–1.3 metres above the nearest road or carriageway edge;
2. have a projected width towards traffic of 0.08–0.15 metres;
3. be white;
4. be equipped with horizontally centred retroreflectors whose vertical centre shall be located approximately 0.8 metres above the nearest road or carriageway edge;
5. be provided with a black band that surrounds and increases the contrast of the retroreflector. The track shall have an inclination of 30° towards the nearest road or carriageway edge. However, an delineator post placed on

barriers between carriageways must instead use a horizontal black strip or a at least 0.020 metre wide black frame around the retroreflector (see Figure 1 in the Annex). The black line or frame shall be 0.25 metres in height and its upper limit placed approximately 0.10 metres from the top of the delineator post.

**General advice**

*In the case of delineator posts with a black border, the frame may be executed with a slope of 30° against the carriageway or at right angles.*

**Section 46d** Along a road with a carriageway intended to operate in two directions (two-way carriageway), delineator posts for each driving direction shall display rectangular retroreflectors along the right side of the road and circular retroreflectors along the left side of the road (see Annex, Figure 2). However, delineator posts on the left-hand side of a road where the carriageway has traffic in two directions, where traffic is separated by a splitter island before or after an intersection, shall not be fitted with retroreflectors (see Annex, Figure 3).

Along a motorway, express road, ramp or other road with a carriageway intended for traffic in only one direction, delineator posts shall have rectangular retroreflectors to traffic on both the right and left sides of the carriageway and no retroreflector on the rear (see Annex, Figure 4).

Retroreflectors on delineator posts shall be white. Directly before and after a bus stop, parking lot, rest area, road connection and intersection, the retroreflectors shall instead be yellow (see Annex, Figures 5 and 6).

Retroreflectors shall be of the type:

1. Rectangular retroreflectors which shall be placed vertically and have an area of at least 0.0072 m<sup>2</sup> with a maximum width of 0.045 m and a maximum height of 0.20 m.
2. Circular retroreflectors which shall be positioned in pairs vertically above each other at an interval of 0.10 m and a diameter of between 0.06 and 0.07 metres.

**General advice**

*A retroreflector should be of type R1 or R2 in accordance with SS-EN 12899-3 Fixed, vertical road traffic signs – Part 3: Delineator posts and retroreflectors.*

**Suicide prevention**

**Section 49a** The developer shall investigate whether there is a need for devices on bridges to counteract suicide. If the investigation shows that such a need exists, the developer shall take the necessary measures.

**General advice**

*Bridges with a height of 14 metres or higher from the underlying ground or water surface to the carriageway should be provided with suicide restraints that makes it difficult for people to pass or climb over.*

*Bridges within or adjacent to a built-up area with a footpath or cycle path should be provided with suicide restraints when the bridge passes over a railway, tramway, metro or road at a maximum permitted speed of 60 km/h or higher. This also applies in other areas near emergency hospitals, homes for people with mental illness or psychiatric clinics.*

*When designing a measure, transparency and visibility from the road should be taken into account.*

**Section 51** On roads where traffic is separated in each direction of travel, provision shall be made for emergency parking.

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This statute shall enter into force on 1 November 2025.

On behalf of the Swedish Transport Agency

JONAS BJELFVENSTAM

Karin Edvardsson

(Road and Rail)

## Annex. Delineator posts

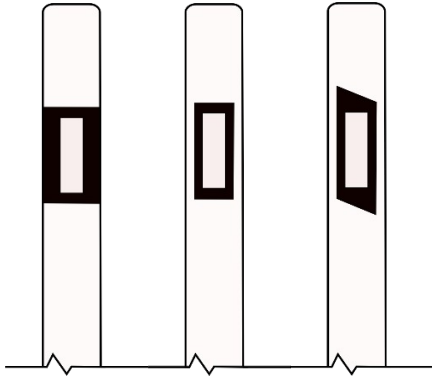


Figure 1. Alternative appearances of delineator posts on roads with separated carriageways where delineator posts are placed on barriers between the carriageways.

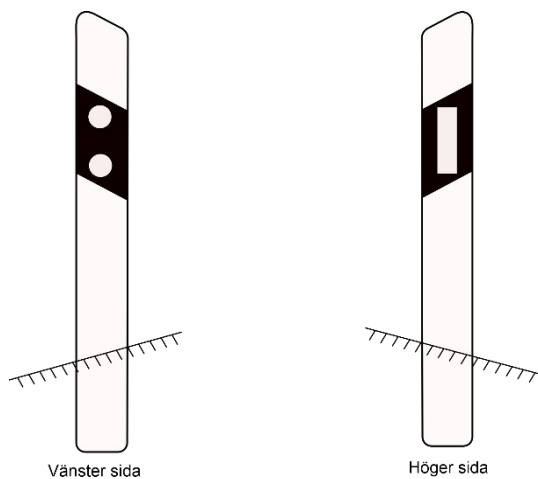
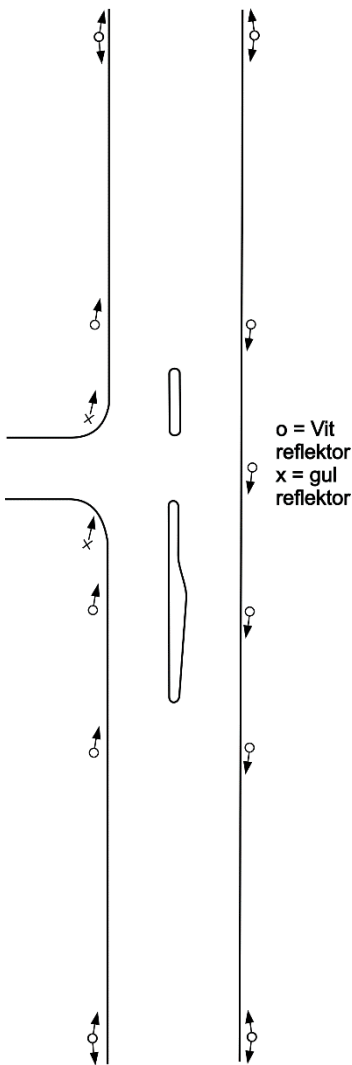


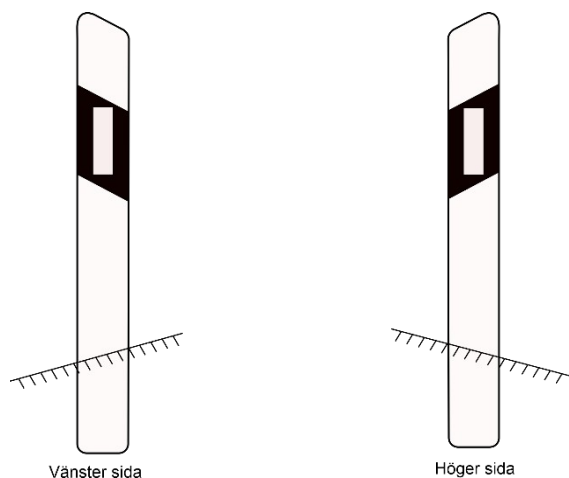
Figure 2. Appearance of delineator posts on roads with a carriageway for traffic in both directions of travel.





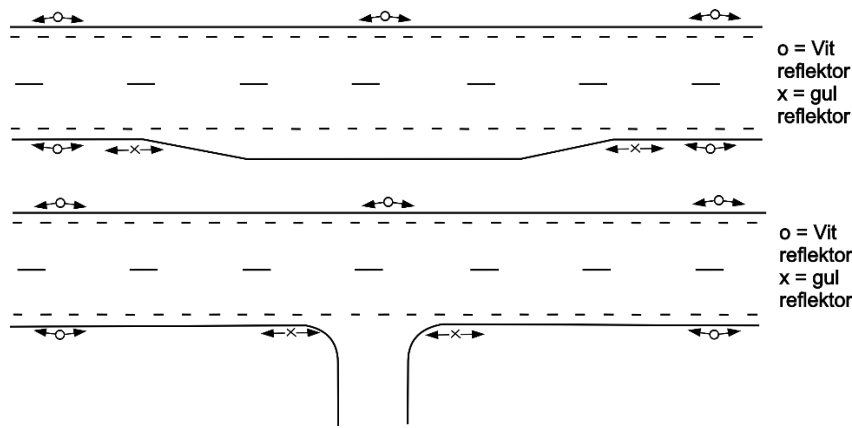
**White reflector, yellow reflector**

Figure 3. Location of delineator posts at a road crossing with splitter island. The arrows show the direction of the retroreflectors.



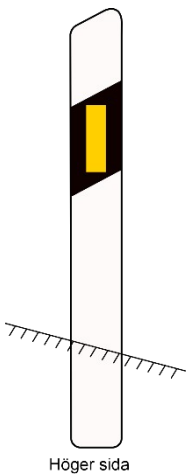
Left side, Right side

Figure 4. Delineator posts on roads with a carriageway that is intended for traffic in only one direction. There shall be no retroreflector on the back of the posts.



White reflector, yellow reflector

Figure 5. Location of delineator posts at rest stop, parking and bus stop (above) and intersection (below). The arrows show the direction of the retroreflectors.



**Right side**

*Figure 6. Appearance of the delineator post, to the right in the direction of travel of the road, directly before and after the rest stop, parking and bus stop, as well as intersection and connection.*