Nottinghamshire County Council

Part III: Layout
Chapter 2: General Geometry of Commercial and Industrial Developments

Updated 22/4/26

2.1 Introduction

2.1.1 The guidance contained in this chapter is intended to help you design industrial and commercial street layouts that provide for the safe and free movement of all street users, including pedestrians, cyclists, bus passengers, and motorists, and which meet their movement requirements. You should select and assemble the design elements in Table 2.1 with the aim of creating an environment that is safe for everyone and that encourages people to walk, cycle, and use public transport. The design and construction of works on classified roads and other roads (existing or proposed) not covered by this design guide must normally comply with the 'Design Manual for Roads and Bridges' published by Her Majesty's Stationary Office.

2.2 Scope

2.2.1 For the purposes of this part of the guidance, industrial development has been taken as meaning B2 General industry, B8 Storage and distribution, and E(g)(iii) Industrial processes. All other development except C3 Dwelling houses and C4 Houses in multiple occupation should be considered as commercial regardless of the definition in the Use Class Order. C3 Dwelling houses and C4 Houses in multiple occupation are covered in Part III, Chapter 1 of the guide.

Table 2.1

The parameters set out below are intended to guide the design of safe and functional layouts. They will be applied with engineering judgement, informed by site context and supporting evidence.

Geometry Requirements for Industrial/Commercial Roads			
Road type	**Major industrial access road**	**Minor industrial access road**	**Access to Premises**
Function	Large Retail (supermarkets), General Industry, Warehouse / Distribution	Offices / Light Industry and Assembly and Leisure	All
Size	No limit subject to Transport Assessment (TA). Must include multiple points of access with provision for cyclists and buses.	No limit subject to TA provided all employment units are within a 400m maximum walking distance of a bus stop.	Usually, a single point of access subject to TA depending on scale
Target speed	30mph	25mph	N/A

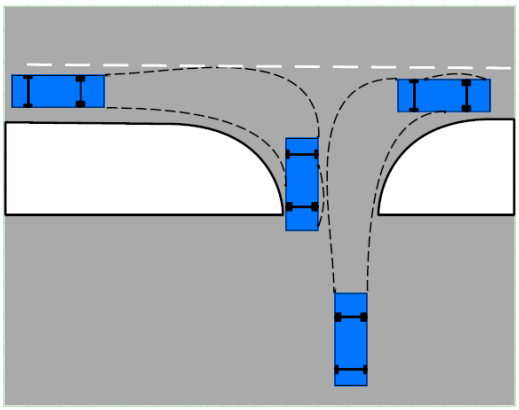
<table>
<tr><th colspan="5">Geometry Requirements for Industrial/Commercial Roads</th></tr>
<tr><th>Road type</th><th>Major industrial access road</th><th>Minor industrial access road</th><th>Access to Premises</th></tr>
<tr><td>Minimum carriageway width</td><td colspan="2">7.3m</td><td>6.0m for offices and assembly and leisure uses 6.75m for light industry.</td><td>N/A</td></tr>
<tr><td>Carriageway centre-line radius and widening on bends</td><td colspan="3">55m minimum
<table><tr><td>Radius (m)</td><td>55 to 74</td><td>75 to 89</td><td>90 to 150</td></tr><tr><td>Min. widening (m)</td><td>1.2</td><td>0.7</td><td>0.6</td></tr></table>Widening should be on both sides of the curve, or on the inside.</td><td>N/A</td></tr>
<tr><td>Junction type</td><td colspan="3">See relevant national highway design standards (e.g. CD 123) or otherwise demonstrate acceptability through vehicle tracking.</td><td>See Figures 2.4 to 2.8</td></tr>
<tr><td>Junction spacing</td><td colspan="3">Junctions on the same side of the road should normally be spaced at least 90m apart. This may be reduced to 60m where the priority route is demonstrably speed-restrained, informed by speed-reading evidence.
40m on opposite sides.</td><td>Not within twice the junction radii</td></tr>
<tr><td>Junction approach</td><td colspan="3">Wherever possible 90 degrees to priority road for at least twice the kerb radius length along the centreline.</td><td>Wherever possible 90 degrees to priority road</td></tr>
<tr><td>Turning heads</td><td colspan="2">Not normally required if more than one point of access.</td><td>In accordance with Freight Transport Association publication ‘Designing for Deliveries’.</td><td>See Figures 2.9 to 2.11</td></tr>
<tr><td>Gates</td><td colspan="3">Where gates/barriers are routinely closed and must open for each vehicle, provide on-site stacking between highway and barrier sufficient to contain the design vehicle(s) clear of the footway/carriageway.</td><td>Typically set back up to 20m depending on largest vehicle likely to visit</td></tr>
<tr><td>Carriageway crossfall</td><td colspan="3">1:40 (2.5%)</td><td>N/A</td></tr>
<tr><td>Carriageway/access longitudinal gradient</td><td colspan="3">Flexible surfacing: minimum 1:100 (1%) maximum1:20 (5%)
Not to exceed 1:25 (4%) for the first 10m of a junction.</td><td>Not to exceed 1:25 (4%) for the first 10m of a junction</td></tr>
<tr><td>Carriageway vertical curves</td><td colspan="3">See:
Part IV, Chapter 4: Vertical Curves</td><td>N/A</td></tr>
<tr><td>Visibility splays at junctions, ‘Y’ distance also</td><td colspan="2">Minimum 2.4m (X) x 59m (Y)</td><td>Minimum 2.4m (X) x 47m (Y)</td><td>As per road type from 2.4m minimum setback (X distance)</td></tr>
</table>

Geometry Requirements for Industrial/Commercial Roads			
Road type	**Major industrial access road**	**Minor industrial access road**	**Access to Premises**
applicable on bends and vertical crests	Speed-readings may be required from existing roads to establish visibility splay length.		
Service strips	2.0m usually combined with footway (see verges)		N/A
Carriageway margins	0.6m increasing to 0.75m if containing street lighting (Development on opposite side of the road only)		N/A
Verges	Not normally acceptable in the highway		N/A
Footway width	Usually 2.0m minimum width on both sides of the carriageway, except where there is bus stop provision, see below.		N/A
Footway pinch points	Minimum1.2m for a maximum length of 6.0m		N/A
Footway gradients	Minimum 1:100 (1%), Maximum 1:20 (5%) Maximum crossfall 1:35 (2.85%) Maximum 1:14 (7%) at accesses		
Pedestrian visibility splays at access	2.0m x 2.0m		
Bus stops	To include real time bus stop poles & displays including associated electrical connections, shelters, lighting and timetable cases and bus stop clearways. 300m – 400m interval 160mm raised kerbing height for 4m min. (Note Kassel kerbs should only be used where shallow unobstructed approaches to the bus stop can be achieved). Lowered kerbs for access. 3m min. footway width with 0.5m clearance around shelters. See standard configuration drawings.		N/A
Bus frequency	Target every 30 minutes minimum day time services, evenings and weekends minimum hourly. The service frequency and days/times of operation will depend upon the local network including the demand for travel, the commercial status of the service, and the potential for the service to become financially sustainable.		
Cycling facilities	Cycling facilities should accord with current national guidance.		

2.3 Access to premises for deliveries

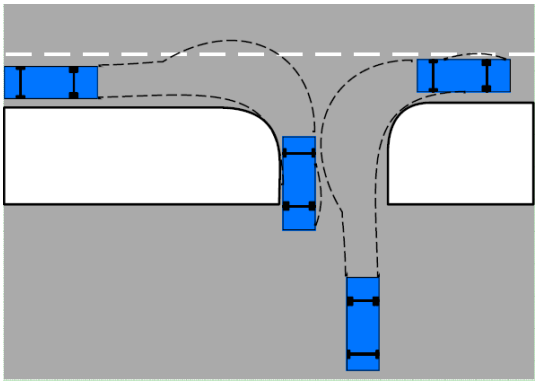
2.3.1 Access layouts should be designed to minimise conflicts between servicing vehicles and pedestrians, recognising the increased vulnerability of people walking within industrial and commercial areas. The required size and type of access to development is likely to be dependent on the size of the largest vehicle likely to visit, the frequency of vehicle movements to and from the development, and the speed and volume of traffic passing the development, see Figures 2.1 to Figure 2.3. The size of the access will require defining by a vehicle tracking exercise.

Figure 2.1 Simple turn



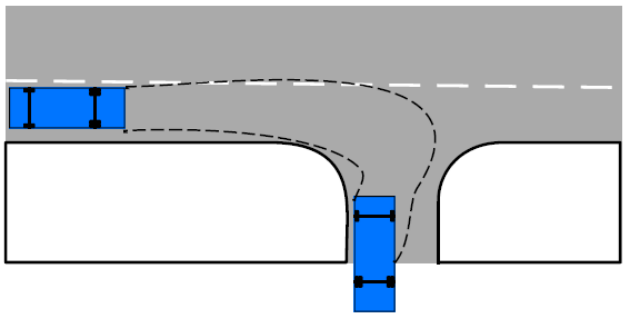
The delivery vehicle can access and egress the development turning left without encroaching into the offside carriageway and without blocking the access into the development. This arrangement is acceptable in most situations.

Figure 2.2 Forward overturn



The delivery vehicle is unable to egress the development to the left whilst maintaining access into the development without encroaching into the offside carriageway. This arrangement is only likely to be acceptable where there are adequate gaps in the two-way traffic flows passing the site at peak times and when the delay to the emerging vehicle is likely to be momentary. The left turn ‘in’ should not encroach into the path of exiting vehicles.

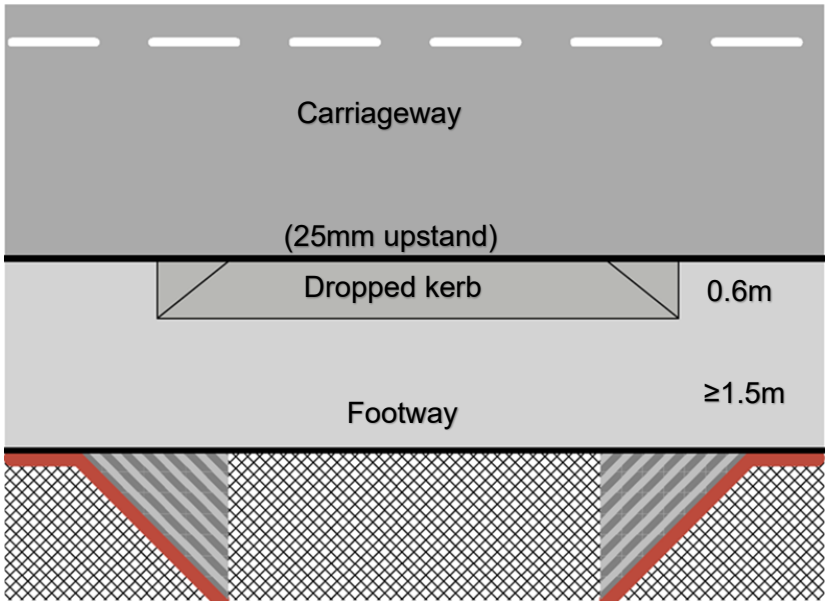
Figure 2.3 Side overturn



The delivery vehicle is unable to egress the development to the left whilst avoiding the offside carriageway without blocking access into the development. This arrangement is only likely to be acceptable when there are unlikely to be occasions when departing deliveries and arriving vehicles occur simultaneously.

2.3.2 The choice of access design will be dependent on the scale and kind of development, and its surroundings, see Figures 2.4 to Figure 2.8.

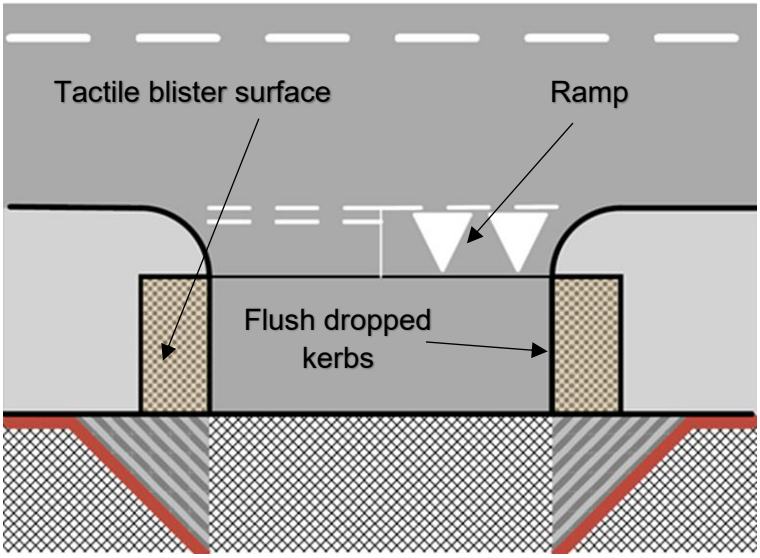
Figure 2.4 Dropped kerb (small scale commercial development)



Likely to be suitable for individual premises subject to all the following:

- in situations where both passing pedestrian and vehicular access flows are low,
- where deliveries are likely to be by car or van, and
- where segregated pedestrian access is provided.

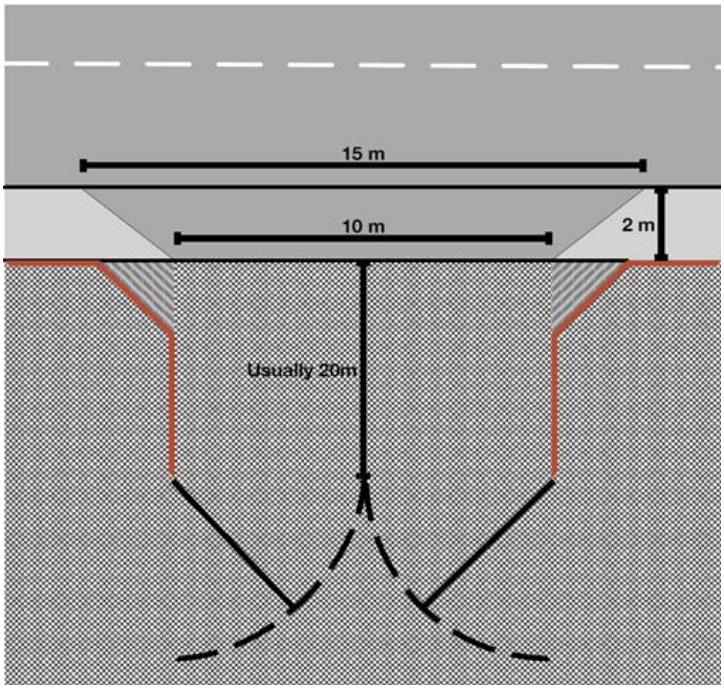
Figure 2.5 Footway crossover (medium scale commercial development)



Likely to be suitable subject to all the following:

- in situations where passing pedestrian and/or vehicular access flows are moderate,
- where deliveries are likely to be by car, van, or the occasional rigid lorry, and
- where segregated pedestrian access is provided.

Figure 2.6 Dropped kerb (industrial access)

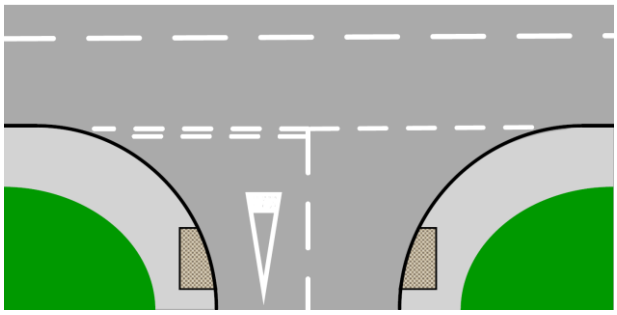


Likely to be suitable subject to all the following:

- within industrial estates or areas,
- where passing pedestrian movements are low,
- where lorries are unlikely to arrive and depart simultaneously,
- where segregated pedestrian access is provided.

Note: Narrower widths may be acceptable where it can be demonstrated that it would be unnecessary for the type and scale of development.

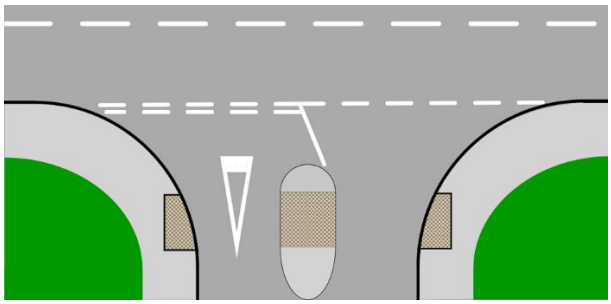
Figure 2.7 Priority junction (large commercial and industrial development)



Likely to be suitable subject to all the following:

- where traffic flows are moderate and/or there are regular deliveries by heavy goods vehicles,
- where passing pedestrian movements are moderate,
- where a Transport Statement or Transport Assessment has not identified a need for an alternative junction type.

Figure 2.8 Priority junction (large commercial and industrial development)



Likely to be suitable subject to all the following:

- where traffic flows are moderate and/or there are regular deliveries by heavy goods vehicles,
- where the need to accommodate the swept path of lorries has resulted in a wide bellmouth,
- where passing pedestrian movements are moderate,
- where a Transport Statement or Transport Assessment has not identified a need for an alternative junction type.

2.3.3 Parking layouts and servicing arrangements are to be provided in accordance with Part IV, Chapter 2: Commercial Parking and Servicing. This should avoid the need for vehicles to reverse across the site access when accessing or egressing spaces.

2.3.4 Where satisfactory access arrangements cannot be achieved without undue conflict, encroachment, or reliance on informal priority or other highway users giving way, the proposed development may be considered unacceptable in highway terms.

2.4 Access, Turning and Internal Layout Operation

2.4.1 All industrial and commercial developments are expected to provide on-site servicing and turning provision of sufficient size to allow the largest vehicles likely to visit to load, unload and manoeuvre within the site so that access and egress can be achieved in a forward direction (see Figures 2.9 to 2.11).

2.4.2 In most cases, the size and configuration of turning and servicing areas will need to be demonstrated through a swept-path tracking exercise. Swept-path tracking should normally use the design vehicles defined in Appendix H: Design Vehicles for Tracking, or, where appropriate, a 16.5m articulated goods vehicle, which represents the maximum length of standard articulated HGVs permitted on UK roads for general freight movements, unless robust evidence demonstrates that a smaller alternative vehicle set would exclusively and reliably serve the development over its lifetime. Vehicles operating outside standard articulated HGV dimensions, including specialist, experimental, or permit-based freight vehicles, will not normally be required to be accommodated unless the development is explicitly logistics-led and it is confirmed that such vehicles will be in routine use.

2.4.3 On-street servicing is unlikely to be acceptable and will normally only be considered where the size and nature of the development are such that it is demonstrably unlikely to be served by goods vehicles, and where any deliveries would form an incidental part of the day-to-day arrival and departure of staff.

2.4.4 For developments where significant construction or fit-out activities are proposed, the site layout should also demonstrate that construction vehicles can access, load/unload, turn, and exit the site without reversing onto, waiting on, or otherwise obstructing the public highway. Where required by condition or agreement, this should be supported by a proportionate Construction Logistics Plan, but the need for safe on-site manoeuvring should be addressed through layout design in the first instance.

2.4.5 Access arrangements and internal layouts shall be designed to operate safely and efficiently under realistic day-to-day conditions, having regard not only to the initial configuration at occupation but also to foreseeable operational variability over the lifetime of the development. Layouts should be robust to reasonable changes in intensity, staffing levels, delivery patterns or operational practices that could lawfully occur within the same use class, without giving rise to unsafe manoeuvres, encroachment, or reliance on informal behaviour by highway users.

2.4.6 Within larger commercial and industrial developments, a clear internal movement hierarchy should be established, distinguishing primary servicing routes, secondary vehicular circulation, parking areas, and pedestrian routes. Layouts should minimise conflict between heavy goods vehicles, general traffic and pedestrians, and should avoid routing servicing movements through customer or staff parking areas where this would give rise to safety or operational concerns. Internal road hierarchy should be reinforced by clear signing, lining and control of conflict points.

2.4.7 Swept path assessments, undertaken for the vehicles identified in accordance with paragraph 2.4.2, should allow appropriate tolerance for day-to-day operational conditions, including variation in driver behaviour, minor obstructions, temporary storage, foreseeable on-site clutter, and should demonstrate appropriate clearance margins to fixed features and to opposing vehicles, rather than relying on marginal kerb-to-kerb envelopes. Layouts that function only through marginal clearances, extreme vehicle performance, or idealised operation are unlikely to be considered robust.

2.4.8 Access arrangements should be designed so that vehicles can enter and leave the site without the need for turning, reversing, waiting or adjustment manoeuvres in the immediate vicinity of the site access. Manoeuvring associated with car parking, servicing, loading, unloading or vehicle queuing should be fully accommodated within the site and clear of the access or junction bellmouth. Layouts that rely on vehicles stopping, shunting, reversing or waiting near the access—whether for parking or servicing purposes—are unlikely to be considered robust, particularly where such manoeuvres could interfere with pedestrian movement, visibility, or the safe operation of the public highway. Reliance on brief duration, low frequency or managed manoeuvres at the access will not normally outweigh safety or operational concerns.

2.4.9 Access roads, junction bellmouths and internal circulation routes should not be designed or relied upon to accommodate servicing, loading, unloading or waiting vehicles. Servicing activity should be fully contained within the site in accordance with Part IV, Chapter 2: Commercial Parking and Servicing.

2.4.10 Layouts should also ensure that emergency service vehicles can access and manoeuvre within the site as required, having regard to vehicle size, swept-path requirements and available headroom, (see Part III, Chapter 8: Headroom, clearances, structures and obstacles on, in, and over the highway)

2.4.11 Where satisfactory access arrangements cannot be achieved without undue conflict, encroachment, or reliance on other highway users giving way or informal priority, the proposed development may be considered unacceptable in highway terms.

Figure 2.9 Service yard roundabout – design artic, 40 tonne gross vehicle weight, 16.5m long, 2.55m wide

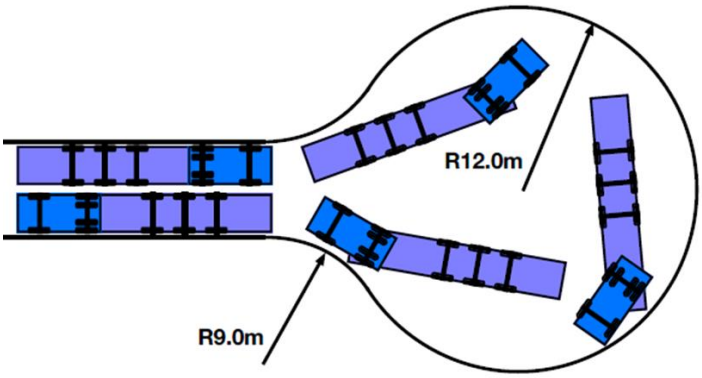


Figure 2.10 U-turn - small rigid lorry, 7.5 tonne gross vehicle weight, 7.17m long, and 2.3m wide.

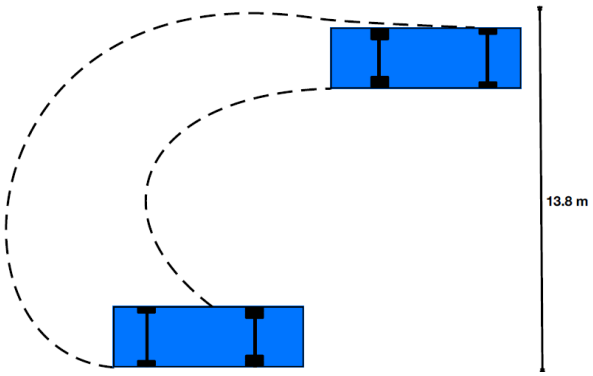
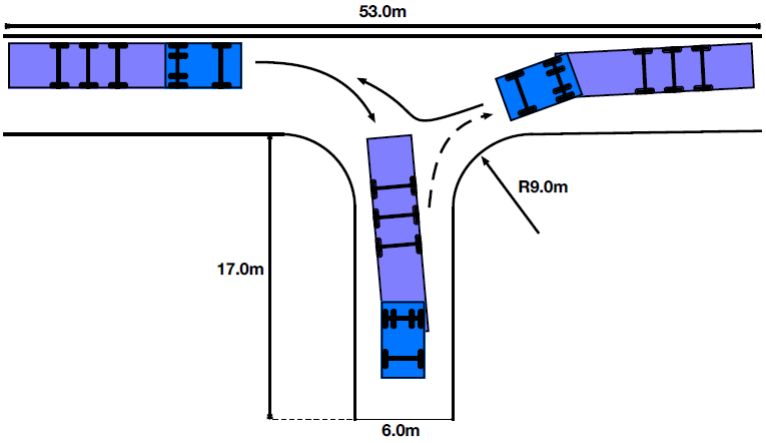


Figure 2.11 Service yard T-turning area – design artic, 40 tonne gross vehicle weight, 16.5m long, 2.55m wide



-End-