

ADVICE NOTE 1 - Transition Zones and Gateways

1.0 Introduction

This advice note defines the meaning and function of *Gateways* and *Transition Zones* as they apply to the approaches to our towns and villages. It also explains the function of gateways and transition zones in relation to speed reduction/ passive traffic calming, wayfinding and place making. It describes the analytical process required to allow designers identify:

1. the extent of the transition zone, and
2. the optimum position of gateways.

This is followed by guidance on the design of gateways and transition zones.¹

A transition zone is the zone between the rural environment and more urbanised development. It is an area where speed reductions must occur when entering an urban area from a higher speed road (see Figure 1).

Gateway features are easily identifiable elements along the route which signal a change of context. These gateways can be used to influence driver behaviour, wayfinding, and signal an entrance to an urban area.

To identify the extent of a transition zone and suitable locations for gateways, the designer must analyse the street or road to see where the context changes, ie: where the context transitions from rural fringe to village/town centre.

1.1 Street Context - Classification and Method for Analysis

In most circumstances the characteristics of a place enable straightforward classification of its context, eg: Rural; Transition Zone; Town (see also Figure 2). However, there are places where context is more ambiguous. In such cases designers are required to carry out an analysis to identify the context of a place.

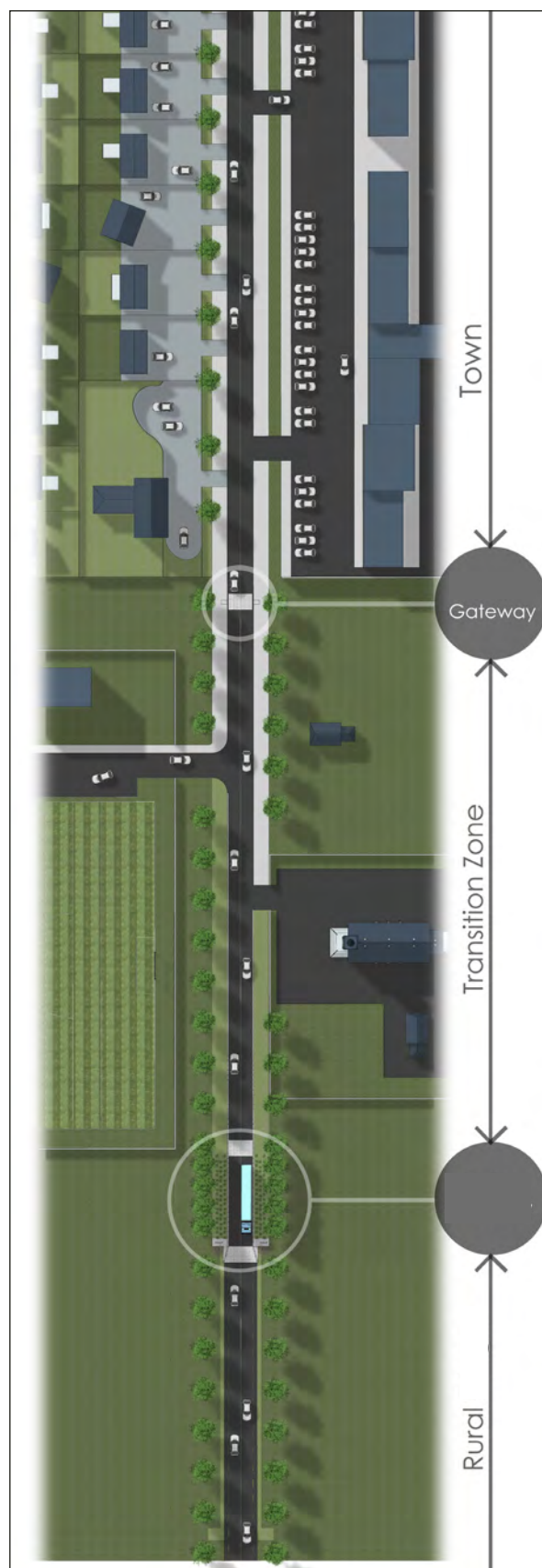


Figure 1 Illustration of a typical inner and outer Gateways, and Transition Zone from a rural road to a town/village.

¹ For urban national roads, the designer is also required to comply with DN-GEO-03084 Treatment of Transition Zones to Towns and Villages on Urban Roads (2018).

This can be identified through an analysis of some key elements such as boundary type, footpath, kerb, access gates, road width, and built form. The type and combination of these elements help to give a street a distinct sense of place, eg: in Figure 3, the Rural Context is generally identified by the hedgerow/tree boundaries, absence of footpaths, kerbs, etc. The transition zone by contrast, has a footpath and increased frequency of access gateways, etc. The town is identified by the presence of boundary walls, then building walls, continuous kerbs, street lighting, etc.

In carrying out a street context analysis the designer needs to consider key streetscape elements to include (see also Figure 3):

- Boundary types
- Building line
- Width of carriageway
- Road markings
- Streetscape materials
- Footpaths, cycle routes and general connectivity
- Street furniture including lighting
- Hedges and Trees

- Number and location of individual access points/field gates/commercial access / junctions.

The combination of these elements help to distinguish between rural fringe, transition zone, and town centre. Examples of a site analysis for some key elements in Table 1 and Figure 4.

As part of this street context analysis local distinctiveness should always be identified and enhanced wherever possible. This local distinctiveness includes

- Identify local materials e.g. Kilkenny limestone or Liscannor flags for example ,
- Identify local building traditions e.g. dry stone walling , wrought iron gates
- Identify local landscape types e.g. presence of native hedges as roadside boundaries
- Identify historic street elements e.g. Mile markers, water pumps
- Identify significant views from the street to local landmarks.



Figure 2: Traditional village gateway with a clear rural / village divide and church steeple as built landmark (left). Developing rural fringe gives rise to a transition zone, with new village gateway required. New buildings in the transition zone, such as the school, may become new landmarks approaching the village.

Note analysis image based on image from page 118 in the 'In Practice' section of the Urban Design Manual (2010).

Figure 3: As individual elements of the streetscape change, the context of the street alters from rural to town.



RURAL

Boundary: hedgerow and trees

Footpath: none

Kerb: none

Access: infrequent or limited to farmland

Road width: carriageway only

Street lighting: none

Built form: infrequent

Speed limit: should be greater than 60kph



TRANSITION ZONE¹

Boundary: hedgerow and garden hedges with occasional boundary walls and gates

Footpath: commencing to one side

Kerb: occasional to one side

Access: increased individual access

Road width: carriageway, including setback/layby

Street lighting: occasional or none

Built form: occasional one off buildings offset from road

Speed limit: should be 50-60kph



URBAN AREA (CITY, TOWN, VILLAGE)

Boundary: garden hedges, walls, railings, buildings

Footpath: both sides

Kerb: continuous dropped at crossings

Access: individual, school and housing access

Road width: carriageway only, no setback or parking

Street lighting: one or two sides

Built form: closer to road with established building lines

Speed limit: 50kph or less

Images: Google Street View

* The Transition Zone will include elements of development similar to the Rural Fringe (as defined within DMURS), or also commonly referred to as Peri-Urban areas.

	Analysis of Existing Elements	Action	Aim
Built Boundaries in Transition Zones	Is it built using local materials e.g. local limestone /granite, local building methods e.g. dry stone wall? What is its condition? Are fences or railings new or old? Is it made of metal, wrought iron, timber? Are there many gaps or gates for circulation?	Record the location, condition, and any change to type of the boundary.	New boundaries to respect local historic boundary pattern and use of materials if appropriate. When a new boundary line is required, match the existing pattern and type in order to retain and reinforce the local context.
Planted Boundaries and Trees in Transition Zones	Is a roadside hedge part of an historic boundary or newly planted? Is it an effective barrier? Is it a mix of native species or a single species garden boundary? What is its condition? Does it have a screening function with respect to views to or from the street? Would its removal open up the street to views, or have a detrimental effect on privacy? Record the condition and type of trees.	Record the location, condition, and any changes to the vegetated boundary.	New landscape proposals should reflect the current species where appropriate. New planting should be appropriate for the location and context.
Circulation and Connectivity in Transition Zones – Pedestrians and Cyclists	If there are footpaths, record the location. Note whether they relate to crossings. Are there any pedestrian desire lines present, indicating deficiencies in current circulation provision from the village core to the rural fringe? Record existing materials, and elements of historic paving, if present? Are cycle routes clearly identified?	Record current circulation routes, including any desire lines. Note existing or required crossings, and redundant sections of path with no clear destination.	Ensure there is a clear circulation route through the transition zone and that gateway locations do not unduly impact on proposed circulation or cycle routes.

Table 1: Site analysis methodology.

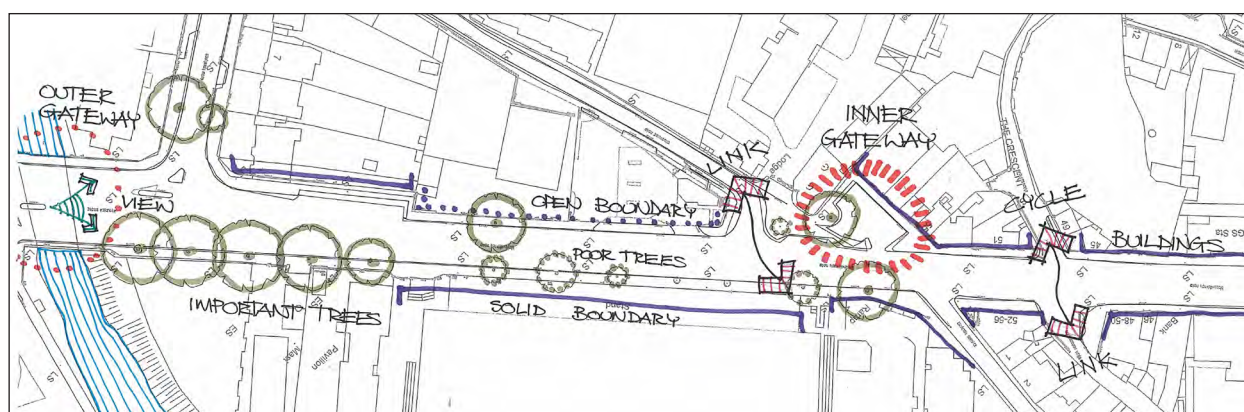


Figure 4: Typical example of streetscape analysis, identifying significant elements of the street including boundaries, trees, pedestrian areas, active street frontage, landmarks, nodes, significant views from the street and connectivity.

2.0 Definition and Location of Gateways

Gateway features are easily identifiable elements along the route which signal a change of context or point of arrival. Gateways have beneficial function for placemaking, identification, and traffic calming as they can be used to inform drivers of a change in driving conditions ahead (see Figure 5). Gateways are typically at the edge of transition zones and signify the change from rural to town environment (see Figure 6).

Existing features often serve as gateway features at the edge of transition zones, such as:

- Schools (new and old)
- Church's
- Community Sports Grounds
- Railway stations
- Fortified Houses and Castles

These landmark buildings are often the first elements of a settlement to be encountered on an approach road. They are also often a site for public art. In many towns, an existing gateway can be enhanced to reinforce a sense of place and improve wayfinding.

Gateways, if present, should be identified in the street context analysis. However, gateways are not always present, and in some cases the gateway may not be readily identifiable. In such instances, it may be helpful to consider the following in order to determine an appropriate gateway position:

- the presence of utilities,
- location of local access or gateways,
- existing or proposed pedestrian and cyclist circulation,
- sightlines
- local landscape conditions.

In some cases the location of a gateway may align with current speed limit signs, however this may not always be the case. A gateway will alert drivers to the start of the town or village. Where the gateway location does not coincide with the speed limit sign, there would be a need to develop a rural fringe or rural approach zone to the town or village, which will accommodate initial speed reduction measures.

These may be tree planting or changes to road surfacing, etc. For further guidance on speed reduction measures (refer to section 3 below).



Figure 5: Ballymahon, Co Longford. The distinctive profile of the water tower makes it a gateway element on the approach road, signifying entry to the town. It also highlights the transition from rural environment to town environment, signifying to drivers that slower speeds are appropriate (image: Google Street View).



Figure 6: Laytown Train Station, Co Meath. Traditionally where a railway line restricted the development of a town, the train station forms the gateway.



Figure 7: Gateway coincidental with speed limit signs at Killeagh, Co Cork.

2.1 Gateways as Settlements Expand

While emphasis should be given to consolidation by developing within existing built-up areas, certain settlements may be earmarked for substantial new development in statutory plans and planning schemes. In such instances, it may be appropriate for the start of the Transition Zone to be moved to a more suitable location. However, due regard should be had to the timescale of the new plan and the delivery of new development prior to considering moving the start of the Transition Zone.

Where a gateway is located some distance from the core of the town or village it may function as the start of a transition zone (see also Figure 8). An inner gateway may also be considered to further signal the change in context and introduce additional speed reduction measures as pedestrian activity increases, and as a transition to the low speed regime of the town.

2.2 Roundabouts as Gateways

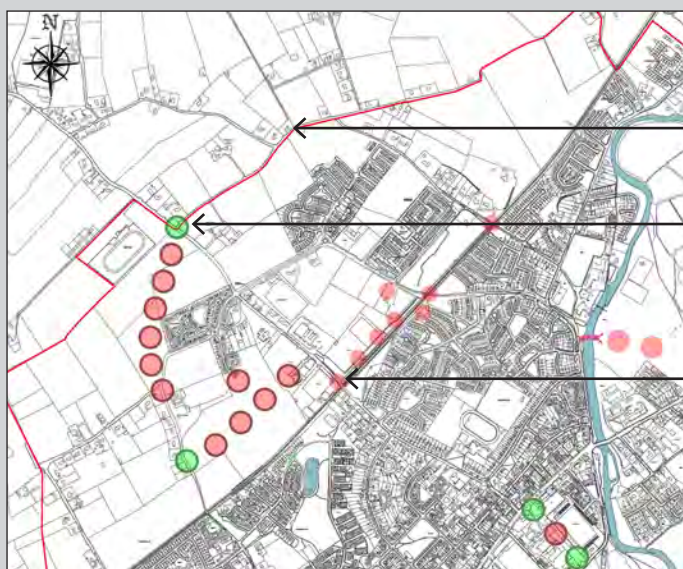
In many areas roundabouts act as gateways marking the transition between the rural environment and more urban forms of development. They also are important signals of arrival as they often form the first impression of a place.

It is preferred to remove roundabouts and replace them with junctions with a high level of service for pedestrians and cyclists. Where removal is not possible, or in circumstances where pedestrian and cyclist activity is lower², there may be opportunities for treating existing roundabouts to emphasise their gateway and wayfinding function (see Figures 9 and 10)³. In this regard, when considering the central island:

- Keep to a simple palette of materials, of both hard and soft landscape elements, for visual cohesion.

- 2 *Guidance on design to provide more compact and/or pedestrian and cycle friendly roundabouts is provided in Section 4.4.3 or DMURS.*
- 3 *A landscaping programme of roundabout has been undertaken by Kildare Co Co at entrances to the towns and villages in the county and to pick an appropriate theme that represents an aspect of the town or county and to create landmarks at the entrances to them (from Kildare County Council website).*

Figure 8: Newbridge Local Area Plan 2013-2019: This illustrates how the train station at Newbridge, Co. Kildare, was the gateway to the town. The planned expansion of the town, after all opportunities for consolidation are exhausted, will necessitate a new starting point to the Transition Zone.



Red line Local Area Plan Boundary

Future proposed streets and new junction will function as a new start of the transition zone

Newbridge Train station – previously acted as the gateway, and will become an inner gateway after the introduction of the new start to the transition zone.

Figure 9: Emo, Co. Laois – Example of the potential extension of a transition zone. The church steeple has traditionally acted as the gateway landmark to the village. However, a newly built school in the village transition zone now has the potential to signal a new start to the transition zone.



1: Approach to Emo – the approach to village with church steeple as traditional built landmark feature. The introduction of gaps to the boundary planting of the new school site could make elements of the school visible to signal the start of the transition zone. This would provide a signal to traffic to adjust speed to take account of the more urban environment.



2: Entrance to the new school – there is potential for a gateway feature at the entrance to the new school including a pedestrian crossing and/or a change in materials, to indicate the commencement of the urban environment. This would act as a traffic calming tool.



3: Approach to the village centre - the church steeple would now act as an inner gateway / landmark within the Transition one.

- Non regulatory signage should be kept to a minimum to avoid clutter.
- Central islands may be reduced in scale by providing an over run area of 1.5-2m with a 50mm kerb between the circulating lane and the overrun area. (Section 4.8.7 National Cycle Manual).
- When designing the central island, the outer 2m of the central island should be hard standing or planted with low level vegetation to 300mm high to retain visibility over this portion. It is better to block visibility across the central area however, as a traffic calming measure. Refer to TII Publications standard DN-GEO-03060 Geometric Design of Junctions (www.tiipublications.ie).
- Consider lighting as a means of creating interest outside of daylight hours.
- Sculptures and artwork should be of a scale to be impactful, but also located to avoid impact on road safety (see also Figure 10).
- When a roundabout is encountered as part of a sequence, on a relief road for example, a consistent theme should be considered.



Figure 10: Landscaping and any artwork features constructed on a roundabout shall not be provided in the direct line of a potential errant vehicle that overruns the roundabout. Landscaping or artwork is welcomed within the green shaded area, but must not be positioned outside this area within the roundabout. Sight lines shall also be considered when such features are designed and positioned.



Figure 11: Lighting used to enhance a roundabout at Finglas, Dublin.

Figure 12: Before (top) and after (bottom) images at Nurney Roundabout, Junction 13, M7, showing how a combination of wildflower planting and sculpture, appropriate to the local context, have improved the appearance of this roundabout and made it a landmark, while also acting as a gateway to Kildare Town (Images Google Street View).



- Consider use of the roundabout as part of the storm water system to cleanse and recycle water.
- In some areas local sponsorship of roundabout schemes are run through the local Authority and these can be a useful way to encourage locally distinctive design and ensure future maintenance.

- Where the sculpture is interactive ensure safe access to the sculpture is provided.

2.3 Sculpture as Landmarks and Gateway Features

Sculptures can form significant landmarks and can be used to inform drivers of a change in driving conditions ahead or to signify commencement of a transition zone (see also Figures 13 and 14). In this regard when considering sculpture as landmarks or gateway features, designers should consider the following,

- Position the sculpture so it does not impact on adjacent pedestrian or cycle circulation or visibility
- When placed as a landmark beside junctions, ensure local signage does not detract from its setting and add to street clutter

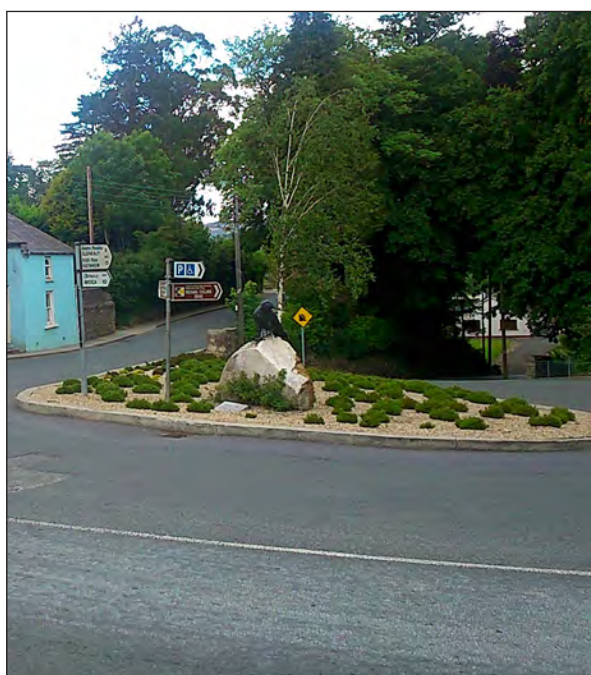


Figure 13: Example at Rathdrum, Co. Wicklow. A small scale sculpture at this junction acts as a landmark feature, signifying the transition from the village approach road to the main street.



Figure 14: Example at Birr, Co. Offaly. A large scale sculpture is used to signify the gateway to the town (image source: Google Street View).

3 Treatment of Transition Zones and Gateways

General design measures as contained in DMURS Chapter 4 can also be applied to transition zones. In addition, a number of particular measures can be applied to gateways and transition zones. Designers should emphasise transition zones and gateways by:

- Applying transitional geometric measures such as narrowing of carriageways.
- Applying material changes to carriageway.
- Introducing measures that provide enclosure, such as large trees.

Following context analysis and consideration of the street constraints and opportunities, the designer will be able to choose from the principles set out at section 3.1 below.

3.1 Design Principles

3.1.1 Reduce the actual width of Carriageways

Reducing the width of the carriageway is one of the most effective traffic calming design measures.

At many gateway or transition zone locations, the current carriageway widths exceed the recommended road widths as set out in Figure 4.55 of DMURS. Many have actual carriageway widths, typically indicated by yellow dashed lines in rural areas that can be reduced in accordance with DMURS recommendations.

In addition, there may be run off areas between the dashed yellow lines and the vegetated verge. By reducing the actual widths of the carriageway to those outlined in Figure 4.55 of DMURS there will often be space to develop a gateway feature or landscape schemes including tree planting, which aid speed reduction (see also Figure 15).

3.1.2 Reduce the perceived width of Carriageways

At some transition zone or gateway locations there may not be scope to reduce the actual width of carriageways but there may be scope for designers to reduce driver perception of the width of carriageway and so influence driver behaviour. Areas that were line painted or given a hard surface can be given alternative treatments to create contrasting surfaces and textures appropriate to the local context (see also Figure 16).

Where an existing central island exists and is paved, consider replacing hard surfacing with a planted treatment. Hedge, perennials, trees or a mix of these elements can be used to reduce the extent of hard surfacing visible in the transition zone, reduce the perceived width of the carriageway and allow application of sustainable drainage principles.

3.1.3 Applying changes to surface materials

Carriageway Materials

Chapter 4 of DMURS, and in particular Section 4.4.2 Carriageway Surfaces, gives advice for designers on the treatment of carriageways in order to reduce drivers speed. It is also recommended that the use of robust surfaces and/or changes in colour around gateways and transitional zones are an important tool to alert drivers of changing driving conditions.

Paviours and stone setts provide a tactile/audible experience for the driver that physically alerts them that they are driving in an area with different characteristics⁴. Such treatments alone can reduce vehicle speed by approximately 4-7km/h⁵.

In narrow streets and restricted road corridors the use of contrasting material on the carriageway surface or to the carriageway edges may be the only design tool available to the designer.

⁴ *Shared Space, Shared surfaces and Home Zones* from "A Universal Design Approach for the Urban Environment in Ireland", TrinityHaus, 2012

⁵ Refer to Section 7.2.15 of the UK Manual for

Figure 15: Kilcullen Road, Naas.



Before - 2 lanes, excessive width with path to one side only (Image: Google Street View).



After - lanes reduced to 2 as part of street upgrade works, allows additional space for pedestrians and cycle routes.



Further application of Design Principles – trees planted to add vertical elements and roadside planting breaks up the extent of hard surfacing visible.



Figure 16: Old N24 Cahir, tree and shrub planting used as part of speed reduction measure.

Public Realm Surface Materials

Paving and kerbing materials intended for use at gateways or transition zones should follow the principles set out below⁶:

- Materials should be locally distinctive, easily maintained, durable, and accommodate the application of sustainable urban drainage principles.
- Materials chosen should be part of a wider village or town material range where possible, to create a cohesive local hard and soft material palette that can be carried through to other large or small streetscape interventions in the future.
- Especially in historic contexts, materials should reflect those locally present and add to the sense of place.
- Materials should be easily sourced for ease of repair and for any future extension of works.
- Where a number of gateways are being designed, materials should be used consistently across all sites to aid wayfinding and reinforce local identity.
- Design palettes should be simplified as overly complex designs can cause visual confusion and are difficult to maintain and adapt.

Hard or Soft Shoulders, Laybys and Car Parking

Where hard shoulders or laybys are required within the transition zone, extending the carriageway paving/bituminous finish across the full width of the shoulders should be avoided. Consider extending the bituminous finish across the width of the carriageway only, and the use of a contrasting material to provide a visual contrast for the shoulder area. This will help reduce the perceived width of the roadway, in addition to clearly defining the limits of the traveling surface.



Figure 17: Example of the central zone of the formerly lined carriageway has been planted with a series of islands with contrasting material between islands and crossings to break up the visual extent of hard surfacing (Image - Google Street View).



Figure 18: Example of bands of paving to the road edge have been used to reduce the visual width of the carriageway (Image - Google Street View).



Figure 19: Example of gateway trees and local stone setts used across full carriageway width at the gateway and bus stop located at the entrance to the village (Image - Google Street View).

⁶ Refer also To Advice Note 2: Materials and Specifications.

Where laybys or car parking are to be provided for occasional usage in the transition zone, again consider using a contrasting material for visual contrast⁷. Other appropriate materials for designers to consider in the transition zone could include:

- Bound gravel shoulders offer good contrast, are permeable and are relatively low maintenance.
- 'Soft' grass shoulders offer excellent contrast to a hard surface in rural, or transition zone locations. Reinforced grass finishes can withstand occasional traffic loads and are also an opportunity to apply sustainable drainage solutions.
- Reinforced grass finishes are also appropriate for laybys or car parking in the transition zone, as such finishes reduce the visual impact of hard surfacing especially in car parks where variable usage rates or seasonal demands apply e.g. sports grounds or community buildings.

3.1.4 Introducing Vertical Elements

Another method available to designers to signal transition zones, reduce speed, and influence driver behaviour, is the introduction of measures that provide vertical enclosure, at gateways and along the transition zone (see Figure 20)⁸.

Vertical enclosure has been found to have a traffic-calming effect as drivers become more aware of their surroundings.

'A driver's perception of the appropriate driving speed is influenced by the relationship between the width of the road and the height of roadside vertical elements, also known as optical width. It can be shown that speeds are lower where the height of vertical elements is greater than the width of the road'⁹

⁷ Refer to DMURS, Section 4.4.9 - On-Street Parking and Loading.

⁸ Refer also to section 4.2.1 at page 69 of DMURS where this concept is also discussed, and also to TII publications *The Treatment of Transition Zones to Towns and Villages on National Roads DN-GEO-03084*, for further examples including those incorporating cycling.

⁹ DN-GEO-03084 *Treatment of Transition Zones to Town and Villages on Urban Roads* (2018).

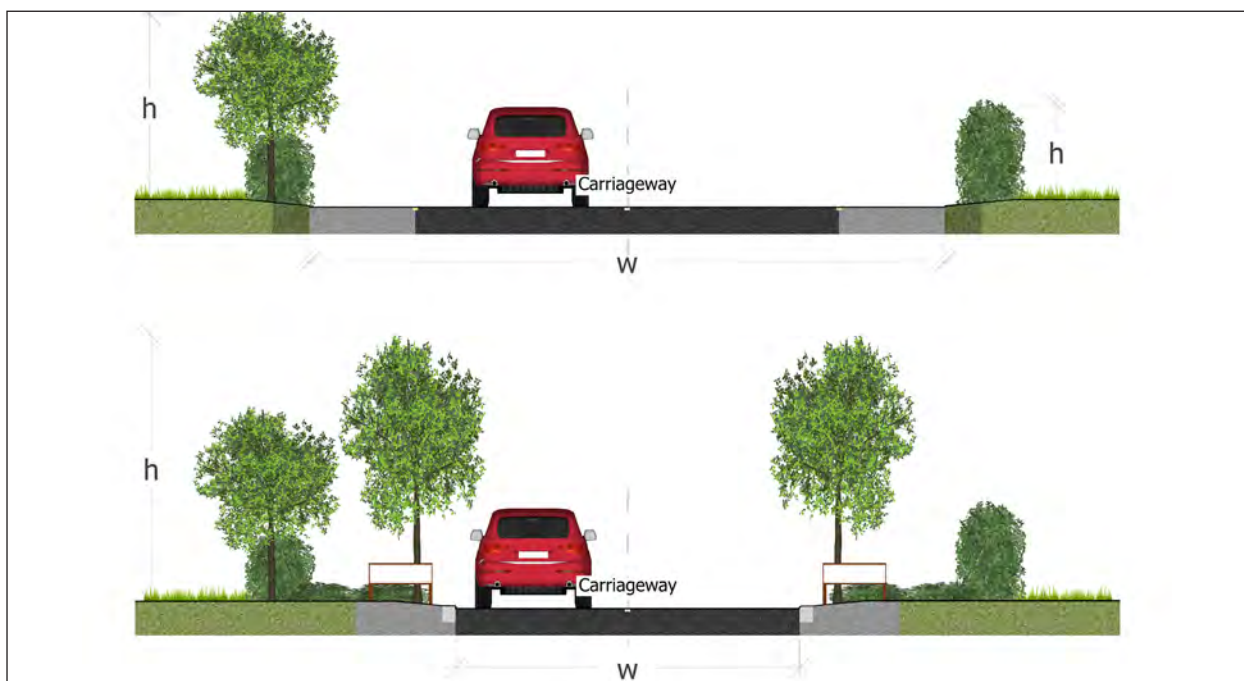


Figure 20: Illustration of the concept of 'optical width' where the relationship between the width of the road and height of roadside elements can influence a driver's perception of speed.

Vertical elements in the transition zone can be used to influence optical width and hence reduce driver speed, such as:

- trees
 - signage
 - sculptures,
 - street furniture
 - lighting
- When transitioning from a rural environment to an urban environment, the maintenance of grass verges can vary, with unmown wildflower verges giving way to edge mown areas, to fully mown grass verges, as one advances through the transition zone (see also Figure 21).
 - Tree planting is a useful method of introducing vertical elements to verges. These can help to reduce driver speed. Refer also to section 3.4.

3.2 Verges, Footpaths and Road Markings

Vegetated Verges and Road Marking

To reinforce transition zones, designers should consider measures such as¹⁰:

- Within transition zones the use of broken yellow line road edge markings should not be used. Traditionally such road markings are associated with high speed rural environments and are not consistent with urban environments.
- The removal of centre line markings in smaller settlements in order to reduce vehicle speeds may be considered.

Footpaths

With regard to footpaths in the transition zone the 'Smarter Travel - A Sustainable Transport Future A New Transport Policy for Ireland 2009-2020' states:

'We will require local authorities to prepare plans to retrofit areas towards creating sustainable neighbourhoods so that walking and cycling can be the best options for local trips, for example to reach local facilities such as shops and schools'. Recommended measures include 'Providing appropriately designed, safe, well-lit, direct, continuous routes.'

¹⁰ Refer to DMURS Chapter 4.2.4 Signage and Line Marking.



Figure 21: The maintenance regime for the verge – eg: mowing, can reinforce identification of a transition zone. While unmown verges have greater habitat value, a 1-2m wide mown strip at the edge of the road starting at the gateway signage, can assist driver recognition of the transition zone, while still retaining habitat value.

Many transition zones are characterised by a reduction in the provision of footpaths due to lower levels of pedestrian activity. If community buildings such as schools, churches or sports grounds are located in the transition zone ensure safe footpath routes are provided from the town. Footpaths should be extended to ensure they form part of a coherent circulation system.

In keeping with the transition zone character, they may only be required to one side of the road. All footpaths in the transition zone should be designed to have a start and a finish destination (see also Figure 22).

3.3 Signage

Signage can be used to signal the transition zone.¹¹ Following the initial context analysis, the existing location of town signs should be reviewed to see if they are in the best position in relation to the gateway to the town. There may be a need to review the location of existing town signage in relation to the preferred gateway location. Duplicate signs or old versions of signage should be removed to reduce clutter at gateways and within transition zones. Town signs should generally be incorporated into gateway features.

¹¹ Refer also to DMURS Chapter 4.2.4 Signage and Line Marking.

General information on town signs can be found in section 4.2.2 of the DTTS Traffic Signs Manual 2010.

Siting and Position of Gateways Signs

Following a review of the context of the street as set out in Section 1.2 above, the beginning and end of the transition zone should be established, as well as the gateway location. The optimum location of the gateways signs should then be considered. This should be reviewed in relation to both the speed limit signs and local context.

Step 1

Review existing gateway signage locations. Remove any that are no longer current or in poor repair to reduce visual clutter at the entrance to towns (see also Figure 23). Clutter occurs as new signage is gradually added over time with older signs retained. Review existing signage and consult with relevant parties for example local sponsors, heritage groups, tidy towns groups, etc – who may have originally sponsored or funded signage. Consider the effectiveness of the signs and if they are required in the first place.

Consider if:

- the existing signage is sufficient



Figure 22: A simply detailed footpath to one side of the road in Glaslough, Co Monaghan (left), leading from the village core to the school on the outskirts of the village, a distance of approximately 1.5km. It is appropriate to the transition zone context, and has a purpose with a clear final destination. Contrast with footpath continued to speed limit sign although it has no destination or function in the short to medium term (right). A planted hedge or verge would have been a better solution here to match the rural boundary, with a footpath provided if any future development or settlement expansion as required.

- Coordinate new gateway position with existing street furniture elements such as lighting etc.
- Consider combining signs into one, or a series of signs using a uniform scale and proportion.

Following context analysis agree optimum location options for gateway sign at the start of the transition zone. If the transition zone does not relate to the local speed limit there may be a need for an inner and new outer start to the transition zone to accommodate speed limits extents.

When establishing a new gateway or outer start to the transition zone, the position is determined on completion of the site analysis, when local context, relevant views, local access and features have been assessed.

If deciding a final gateway location, designers should aim to:

- Locate signage near to existing landscape features to provide a backdrop and setting for the sign.
- Avoid standalone signs that break the skyline especially in more exposed Irish landscapes where there may be fewer vertical element to act as backdrops for signage. Signs seen against the sky can also be difficult to read with the sun behind them especially in low winter sun conditions.

Locally distinctive signs can be effective when simply designed, and are especially effective in settlements along local roads and in smaller scale landscapes.

Local context, legibility, colour contrast and lettering all need to be carefully considered and all signs should be designed with regard to the general information on town signs found in Section 4.2.2 of the DTTS Traffic Signs Manual 2010.

Where gateway features align with speed limits, careful placement is required. There may be scope to combine town signs with speed limit signage to reduce visual clutter.

Section 4.2.2 of DMURS outlines how street trees can provide vertical enclosure. When planting trees in transition zones or along streets, careful consideration of the planting distance and selection of tree species is required. A knowledge of their eventual canopy spread is needed, to ensure they achieve the aim of the designer in creating enclosure, or acting as a buffer to traffic, and enhancing place.



Issue - Signs are poorly positioned, overlap each other and are difficult to read.

Solution – Further amalgamate and relocate signage where possible, remove redundant signs and considering local context and impact on landmark sculpture to achieve a context sensitive signage solution.

Figure 23: The position and quantity of gateway signage needs to be carefully considered.

Figure 24: Gateway Signs – consider the backdrop, mounting height and streetscape setting of the gateway signage.



Signs are more effective when read against a backdrop, for example a wall or hedge.



This signage is out of scale with the roadside landscape. A lower sign position or tree planting to the rear of the sign, to provide a backdrop, would improve its legibility and setting, in addition to emphasising its gateway function.

Figure 25: Gateway signs, local context and visual linkages.



County Specific town and village sign containing local context.



Town signage combined with graphic sited to allow visual link to town landmark

The presence of trees in a transition zone also provides a backdrop for road signs and thereby, helps to reduce the visual impact of street furniture or signage elements.

The effectiveness of trees as a visual aid is seasonal where deciduous species are used, but even during winter, the form of the tree can still act as effective vertical elements. It is also noted that trees can help define different spaces in the street and thereby provide protection to footpaths and cycleways from vehicular traffic.

The following guidance relates to tree planting within the 60km/h speed zone, for higher speeds, refer to *TII guidance DN-REQ-03034*.

Distinct Canopies

Ideally avenue trees along streets should be planted at regular intervals to allow a coherent tree line develop (see Figure 26). This is not always possible. Where regular street tree placement is not achievable due to the presence of services, junctions, entryways etc, wider spacing may be necessary to retain a sense of rhythm and establish a regular pattern in the streetscape. Distinct canopies may also be appropriate where the intention is to allow views through the trees, for example, to local landmarks. Knowledge of the impact of tree spacing, and species selection are important elements in the design toolkit.

Continuous Canopy

Trees can also be used to create a continuous canopy and so create enclosure in transition zones in locations where there is no continuous building line (see Figure 27 and 28). Again, to be effective in achieving enclosure, trees must be planted at intervals which allow the canopies to join in the short to medium term. This will vary depending on the species.

At junctions and focal areas, individual specimen trees or groups of trees can aid wayfinding or indicate a transition from one form of street to another, for example from arterial to link to local road (see also Figure 29). Trees with a large eventual canopy are best for long term presence and the species chosen may contrast with surround landscape species for distinctiveness.



Figure 26: Narrow Columnar Hornbeam trees with narrow canopy maintained at 2-3m, planted at approx. 7 m centres for maximum tree cover while still allowing visual linkages across the street. When viewed from oncoming traffic they creating a sense of enclosure, while narrow canopy species were chosen to prevent canopy spread to adjacent traffic lanes.



Figure 27: Large Trees with eventual canopy spread of 0-15m are planted in a triple row at 20-25m centres (image source: Google Street View)..

Tree spacing for Transition Zones

All tree planting spacing in the following table are based on the canopy spread after approximately 20 years. However this may vary between species or cultivars. Spacing is measured from the centre of the tree (see also Table 2).

Tree Species for Transition Zones

The choice of tree species is dependent on suitability of the planting location and local landscape character. The selection of street trees is guided by their mature size, available below surface root zone, water demand, crown shape and future management requirements¹². 'Transitional Trees' should be considered for linking rural and rural fringe landscapes with more structured and ornamental town landscapes. These trees are primarily cultivars of native/long introduced trees with some more ornamental or street tree characteristics and species with a semi natural form.¹³

Table 3 is a suggested species list only, based on eventual canopy size, height varies. Local context and locally occurring tree species should be considered by the designer when deciding on final tree selection.

¹² Refer also to Dublin City Tree Strategy 2016 – 2020)

¹³ Refer also to Hilliers Designers Guide to Landscape Plants (1999).



Figure 28: Trees with eventual canopy spread of 8-10m are planted at 3.5m centres, to create a dense continuous canopy and so form a distinctive vertical element, which acts as gateway to the town (image source: Google Street View).



Figure 29: Ardattin, Carlow. Feature tree at junction acts as a landmark, creates a sense of arrival and can be seen by motorists approaching the junction, thus helping to influence driver behaviour. The tree is highly visible to the driver from a distance, before the stop sign and road markings become visible junction indicators (images: Google Street View).

Continuous canopy			
Eventual canopy spread	Small canopy 2 -4m	Medium canopy 4-7m	Large canopy 7m+
Suggested spacing	3-5m	5-8m	8m+
Distinct canopy			
Eventual canopy spread	Small canopy 2 -4m	Medium canopy 4-7m	Large canopy 7m+
Suggested Spacing	5-8m	8-14m	14m+

Table 2: Tree Spacing

Small canopy	Medium canopy	Large canopy
Alnus glutinosa	Acer campestre 'Streetwise'	Acer planinoides 'Emerald Queen'
Prunis Avium 'Pleana'	Betula nigra	Aesculus var.
Sorbus commixta	Tilia cordata 'Green Spire'	Tilia tomentosa var
Sorbus aria	Fraxinus angustifolia	Tilia platyphlos var
Sorbus aucuparia	Pyrus calleryana	Fraxinus var
Acer platinoides 'Columnare'		
Alnus cordata		
Quercus robur 'Fastigiata'		

Table 3: Tree Species

3.4 Boundaries

In many cases plot size and the scale of typical uses found in transition zones mean that they present extensive boundaries to the street and this can have a significant impact on the rural approach and transition zone. Uses such as sports pitches, community buildings or larger commercial/retail units can have a significant impact if the design of their boundaries is seen in isolation. When considering boundaries in the transition zone designers should:

- Minimise the removal of existing hedgerows, ditches and locally significant stone walls. Existing intact boundaries add much to the context and biodiversity of the transition zone. Where removal is unavoidable, sensitive replacement should be considered to reflect the original treatment and retain the boundary as a functioning wildlife corridor where possible.
- Look to the local context and in particular materials, planting types or construction methods. For example new boundary planting to reflect existing hedge plant composition. New built boundaries to reflect local stone or walling types, eg; dry stone walling. Painted wrought iron gates, and associated piers and stiles are a feature of many rural transition zones and should be noted as part of the context analysis process. The designer should try to maintain original material in new boundary treatments.
- Visibility within the transition zone plays a key role ensuring pedestrian paths are considered safe and well used.¹⁴ To ensure passive surveillance is provided vegetated verges and boundaries should also be maintained regularly and cut back outside of the nesting season. Blank/high walls and impenetrable boundaries should also be avoided (See also Figure 30).



Figure 30: Walls should be kept low and planting well maintained to ensure passive surveillance of pedestrian path.

¹⁴ Refer also to DMURS, Section 2.1.2.0 Connectivity

3.6 Deflections

In transition zones, and at both the start of the transition zone and at gateways, there may be opportunities to apply horizontal or vertical deflection methods to influence driver behaviour and to reinforce a change in design speeds approaching our towns. Narrowing carriageways as a horizontal deflection, combined with a change in road level as a vertical deflection, can be an effective ways of reinforcing the gateway to the town.

Centre lines and straight streets can encourage faster speeds by drawing the driver's eye to the horizon. A change in the alignment of the street calms traffic as drivers proceed cautiously due to the uncertainty of what may lay ahead. Raising the level of the road at key gateway or pedestrian priority points can also be considered. The Traffic Management Guidelines emphasise that vertical deflections such as ramps should only be used as a last resort and that all other speed reduction measures should be considered first. However when raised tables are linked with adjoining public realm improvements they can be an effective design tool.

Chapter 4 of DMURS, and in particular section 4.4.6 Alignment and Curvature and Section 4.4.7 Horizontal and Vertical Deflections, gives advice for designers on the treatment of carriageways taking visibility splays and potential methods of deflection into account. Where incorporating deflection into a gateway or transition zone methods to consider include (see also Figure 27 and 28):

- Changes to carriageway materials to reduce long straight sections of carriageway surfacing
- Introducing pinch points or more varied edge treatments again to break up the linear continuity.
- Central medians or islands can be an effective method used to divide roadways, and combined with planting can add additional vertical elements to the centre of the street in order to reduce speed.



Figure 31: Planting beds with trees as vertical elements combine with horizontal deflection to reduce speeds in transition zone.

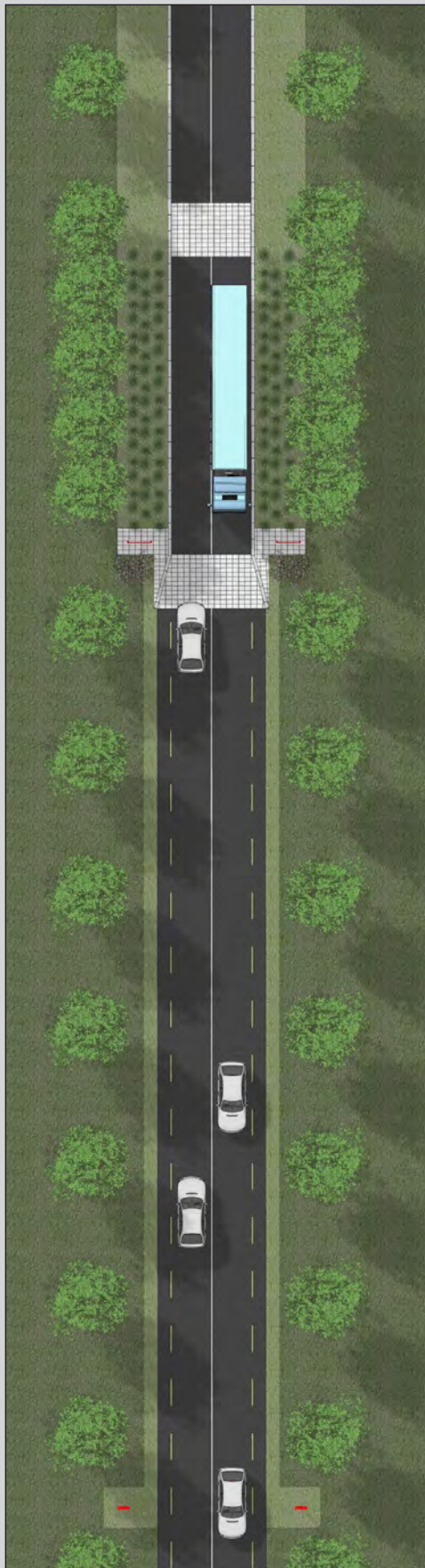


Figure 32: Typical Gateway and Rural Approach to Transition Zone - Design Principle Applied

- Carriageway is reduced to 6-6.5m at the gateway as per arterial route guidance.
- Yellow lines stop at gateway.
- Locally/county/regionally distinctive town signage to both sides of gateway. 2m zone in front of signs for planted bed /hard standing or mown grass
- Trees planted at close centres for continuous canopy at gateway for vertical emphasis.
- Speed sign may be incorporated into gateway signage if required, signals start of transition zone.
- Band of paving to carriageway at each end of gateway as visual and tactile measure to agreed technical specification.
- Refer to appendix on Materials and Specifications.
- Hard material used for robust kerbs and paving material to reflect those found in the local town/village centre.
- Trees planted at 10-12m spacing in rural fringe/rural approach to signal approach to gateway.
- When a speed limit sign is outside of the gateway, in the rural fringe/ rural approach, apply a changed verge mowing regime as a visual clue as to the changing context of the road ahead.