Comhairle Cathrach
& Contae Luimnigh

Limerick City
& County Council

Stiúrthóireacht Iompair agus Soghluaisteachta,
Comhairle Cathrach agus Contae Luimnigh
Cé na gCeannaithe,
Luimneach V94 EH90.

Transportation and Mobility Directorate,
Limerick City and County Council,
Merchants Quay,
Limerick V94 EH90

t: +353 (0) 61 556 000
e: transportationandmobility@limerick.ie

24th June, 2024

To: Each Member of Limerick City and County Council

Limerick City and County Council Traffic Calming Policy

A Chomhairleoir, a chara,

I attach herewith the updated Limerick City and County Traffic Calming Policy 2024 as recommended by the Travel and Transportation Strategic Policy Committee Meeting held on the 13th February 2024.

I recommend that Members adopt the Draft Policy.

Is mise le meas,

John Moran,
Mayor

Encl.

Comhairle Cathrach & Contae Luimnigh

Limerick City & County Council

Limerick City and County Council
Traffic Calming Policy

Transportation & Mobility Directorate
April 2024

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1. Introduction

Over recent years Limerick City and County has undergone a transformation from a car centric city and county to a County capable of sustaining a multi modal transportation system. As part of this ongoing change the requirement to deliver engineering solutions to provide safe and Vulnerable Road User (VRU) friendly roads has led to an increase in requests for traffic calming measure to be installed to combat locations where excessive speed is an issue.

Speed is a significant factor in road accidents and it affects the quality of life of residents, pedestrians, children the elderly and the motorist. In addition, other vulnerable road users may feel intimidated by inappropriate vehicle speeds.

It is important to also recognise that the function of strategic distributor roads is to carry and move traffic and cargo throughout Limerick City and County, which is necessary for economic development and trade. The installation of traffic calming measures may not be considered appropriate on strategic distributor roads at locations where excessive speed is considered an issue. When considering the installation of traffic calming measures all factors must be considered including the existing speed limit of the road, the type of road, the type of traffic the road caters for and the surrounding environs.

Accordingly, Limerick City and County Council's traffic calming policy will apply to roads located within an urban environment (speed limit 60kph and below) that are not on strategically trafficked routes and are in general, considered appropriate for traffic calming measures.

This Traffic Calming Policy is applicable to all departments within the Limerick City & County Council, primarily those that seek to change or improve the road infrastructure. These departments include, but are not limited to, Active Travel, Travel & Transport Strategy, Roads, Traffic & Cleansing, Regeneration Sports & Recreation, Housing, Planning, Forward Planning & Public Realm and Development Management & Place Making.

2. Legislation

Relevant Legislation

- Road Traffic Act, 1993 sets out Road Authorities responsibilities in relation to the maintenance and construction of public roads.
- Road Traffic Act, 1994, Section 38 states that a Road Authority may, in the interest of the safety and convenience of road users, provide such traffic calming measures as it considers desirable in respect of public roads in its charge.

  Section 38 (9) notes *"Traffic calming measures mean measures which enhance the provision of public bus services, including measures which restrict or control access to all or part of a public road by mechanically propelled vehicles (whether generally or of a particular class) for the purpose of enhancing public bus services"*

- Road Traffic Act, 2004, provides the legislative basis for speed limits generally, providing for the application of default speed limits in respect of various road types.
- Relevant circulars from the department of Transport.
- **The Guidelines for Setting and Managing Speed Limits in Ireland**

  Limerick City and County Council, in accordance with Section 9(9) of the Road Traffic Act 2004, has adopted Bye-Laws in respect of certain roads within its authority. These Bye-Laws are available on request.

Enforcement of the default speed limits and adopted Bye-Laws is the responsibility of An Garda Síochána.

Section 38 / Part VIII

Depending on the extent of a proposed measure or scheme and its implications, the procedure to be followed will either involve the process outlined in Section 38 of the 1994 Road Traffic Act or a Part VIII Planning process.

A Section 38 is essentially a procedure where Local Authorities advertise, consult and engage with members of the Gardaí, public representatives and the public with respect to potential traffic calming measures that are being introduced. This process provides all parties with an opportunity for open dialogue about the implication of proposals and allows time to consider and amend those proposals if necessary.

Within the Guidelines on Traffic Works Procedures, Section 38 (GTWPS38), there is a broad scope of interventions on public roads which fall within the definition of “traffic calming measures”. This can include such items, inter alia, as:

- Roadway alterations to enhance safety,
- Re-allocation of street space,
- Junction enhancement schemes to improve safety,
- Filtered permeability / filtered one-ways,
- Provision of bus lanes and bus gates,
- Bus facilities such as lay-bys, accessible bus stops and bus shelters.
- Construction or enhancement of footpaths,
- Pedestrianisation of sections of public roads,

- Construction of pedestrian and/or cycle crossings,
- Installation of cycle tracks,
- Cycle facilities, such as cycle stands, bike stations or bike parking.

The above list is not exhaustive in any way, but is illustrative of the range of road measures falling within the scope of Section 38.

On occasion, a proposed measure or scheme will exceed the remit of a Section 38 and will require a Part VIII planning application.

Note: If a Section 38 exceeds the value of €126,000, however, the verge or boundary remains unchanged the scheme may still proceed under the Section 38 process. This refers to reallocation of road space including schemes such as bus lanes, bus corridors, cycle lanes or footpaths. Outside of these schemes clarification should be sought from the Planning Department as to what process should be used.

As a synopsis a Part VIII is required for the proposed construction of a new road or the proposed widening or realignment of an existing road, where the length of the widened or realigned portion of the existing road, as the case may be, would be

(i) in the case of a road in an urban area, 100 metres or more, or

(ii) in the case of a road in any other area, 1 kilometre or more,

(iii) the estimated cost of which exceeds €126,000 incl. VAT.

In areas where the works involve the purchase of land outside the ownership of the council Part VIII planning may also be required.

3. Guidance Documentation / Standards

In October 2023, the Department of Transport National Guidelines and Standards Group (NGSG) issued Circular 3 of 2023 relating to Publication of Guidelines on Traffic Works Procedures Section 38 of the Roads Traffic Act. These guidelines shall inform designs and the relevant planning process to be engaged in.

In June 2022, the Department of Transport National Guidelines and Standards Group (NGSG) issued Circular 2 and Circular 3 of 2022 relating to;

- Application of Guidelines and Standards in relation to works on Public Roads in Ireland.
- Quality Audits and Road Safety Audits on Public Roads in Ireland.

These guidelines shall inform designs and the relevant planning process to be engaged in.

In 2013 (revised May 2019), the Department of Transport, Tourism and Sport published the “Design Manual for Urban Roads and Streets”. This manual complements the “Traffic Management Guidelines”. It is now mandatory that Local Authorities ensure that the

principles, approaches and standards of the manual are applied as appropriate.

In 2003, the Department of the Environment and Local Government and the Dublin Transportation Office published the "Traffic Management Guidelines". This is a comprehensive manual that deals will all aspects of traffic management with emphasis on the safety of vulnerable road users. This manual will be used by Limerick City and County Council as the definitive guidance document for all traffic calming measures and schemes in Limerick.

4. Traffic Calming Policy Objectives and Aims

The purpose of this document is to provide a consistent approach in the application and implementation of traffic calming measures across all departments within Limerick City and County Council and to meet the following objectives;

- Improve comfort and accessibility for public transport, cyclists and pedestrians.
- Control speed to a level commensurate with activities taking place on that roadway
- Improve road safety.
- Enhancement of the built environment.
- Reduce noise, disturbance and anxiety.
- Improve driver awareness of vulnerable road users.
- Influence driver behaviour

These objectives shall be targeted through the following commitments:

(a) Incorporate traffic calming measures at planning and design of schemes.

Limerick City and County Council will adopt a pro-active approach incorporating speed assessment and speed control measures at the pre-planning stage at meetings with Designers & Developers. It will assess all planning applications for new residential / commercial developments from a speed control perspective.

(b) Expand the existing appraisal system for traffic calming to include existing regional and local roads and estate roads.

Limerick City and County Council will expand the existing appraisal system, which will be implemented across the City and County. This appraisal system requires approval from the Senior Engineer of the Roads, Traffic and Cleansing Department (or their delegate) to approve the installation of traffic calming features.

(c) Subject to funding restrictions, implement traffic calming on existing roads, on a phased basis, where need has been established.

Limerick City and County Council will review traffic calming requests in line with relevant legislation. Traffic calming schemes will consist of a combination of measures and the techniques chosen should be based on the most appropriate and effective measures for each individual situation.

Speed limit reduction will be a major consideration in Housing Estates in the charge of Limerick City and County Council, where problems with speeding have been established. The issue of excessive speeding will be established / determined by means of traffic speed surveys.

Note: Ramps are not permitted on National, Regional or Strategic Roads. Should the Engineer/Designer wish to install vertical deflection measures this decision shall be detailed in the assessment report and a determination made by the Senior Engineer for Roads, Traffic and Cleansing or their delegate.

The Traffic Management Guidelines emphasise that vertical deflections (speed tables) should only be used as a last resort and that all other measures should be considered first.

5. Traffic Calming Measures on New Planning Applications and Local Authority Developed Roads Projects

Traffic Calming Measures on new roads shall be considered at the outset of a scheme, commencing at pre-planning / planning stage. During the detailed design stage the horizontal and vertical geometric design shall be prepared so as to limit excessive speed levels.

To facilitate this Limerick City and County Council will adopt a pro-active approach incorporating speed assessment and speed control measures at the pre-planning stage at meetings with Designers & Developers. It will assess all planning applications for new residential / commercial developments from a speed control perspective.

To achieve coherent designs which will provide appropriate traffic calming measures in new developments the following should be adhered to;

- Pre-planning discussions to include addressing traffic management and calming issues.
- A requirement by all residential/commercial developments (where a bus may operate) to comply with DOT Traffic Management Guidelines.
- A requirement by all residential/commercial developments in urban areas to comply with the Design Manual for Urban Roads and Streets (DMURS), in particular in

relation to limited curve radii at junctions, the use of varied surface types to give priority to the vulnerable road users and also the confining of road widths.

6. Traffic Calming Procedures in towns and villages

Enforcing speed limits on public roads through towns and villages is a function of An Garda Síochána. The Local Authority will work with An Garda Síochana to implement measures which are conducive to calm traffic within towns and villages. In essence and in time, it is Limerick City and County Council's ambition to have towns and villages to become self-regulating. This can be facilitated when undertaking capital works such as public realm upgrades to the existing streetscape. An example of self-regulation is Ballyneety Village.

Consideration shall be given to the composition of traffic, volume of traffic and the urban setting when proposing traffic calming measures. In the first instance, engineers/designers should consider approaches to urban slow zones such as a "transition zone" from a rural area into an urban area. These have proven to be an effective mechanism in slowing traffic. An example of this is in Ardagh, Co. Limerick where large signage is installed on the peripheries on the village on the R521. This identifies a change in environment to road users.

Measures available, but not limited, to Engineers/Designers include;
Traffic Signs, Road Markings, Bollards, Posts, Poles, Horizontal deflections,(Chicanes), Rumble Strips (in specified areas), Raised/ lowered or modified road surfaces, Vertical deflections such as speed tables, Island or Central Reservations, Roundabouts, Junction modifications (tightening), Landscaping, controlled signalization (traffic lights).

Engineers/Designers shall complete Appendix A.2 when undertaking the assessment for traffic calming requests on regional and local roads. The design must be reviewed and approved by the Senior Engineer of the Roads, Traffic and Cleansing Department, or their delegate.

7. Traffic Calming Procedures on Existing Roads

Requests for traffic calming measures may come from many sources including Elected Members, members of the public, community groups and District Engineers. When a request for traffic calming is received, it will be initially examined by the Roads, Traffic and Cleansing Department of Limerick City and County Council to see whether it complies with basic criteria before it receives further consideration.

These criteria are:

- Would Traffic Calming be appropriate at this location?

- Is it in an urban environment and not located on strategically trafficked routes?
- Is the speed limit 60kph or below and located in an urban centre?
- In the case of a through road the minimum length of road shall be 300m.
- In the case of a cul-de-sac the minimum length of road shall be 150m.

In exceptional circumstances schemes can also be considered by Limerick City and County Council's own staff based on their judgement of a need for traffic calming at a particular location.

7.1 Process

The process can be outlined as follows

- Traffic calming requests are submitted to the Roads, Traffic and Cleansing Department of Limerick City and County Council for consideration and evaluation. The request will be logged in the traffic calming database for review.
- If the request is submitted by an Elected Member they should engage with the District Engineer in advance of securing a plebiscite to ascertain the possibility of Traffic Calming in the area requested. The Elected Member may request a site walkover with the Engineer or their delegate to discuss the proposal.
- Any such request, for residential areas, must be accompanied by a plebiscite of residents in which two thirds of all the residents on the street affected have indicated that they are in favour of the proposed measures. Any such plebiscite is restricted to residents living within 100m of the location of the proposed traffic calming measure.
- Plebiscites are only required for physical traffic calming measures (vertical or horizontal deflection traffic calming measures) which will alter the road alignment.
- Where the road is Regional, Local, Strategic or Link road within a residential area, a plebiscite is required. Any such plebiscite is restricted to residents living within 100m of the location of the proposed traffic calming measure. The traffic calming measures must also have the support of the local community.
- Following on from confirmation that the location meets the criteria above, a traffic survey and assessment is completed by the LCCC Roads team to determine if traffic calming is warranted. The traffic survey will be completed in "neutral periods" in accordance with TII Project Appraisal Guidelines where appropriate.
    - *Refer to **Appendix A.1** for traffic calming assessment in housing estates.*
    - *Refer to **Appendix A.2** for traffic calming assessment on regional and local roads.*
- If traffic calming is determined as justified in a particular area, funding (e.g. GMA, NTA grant, etc.) needs to be identified, as specific funding is not allocated for the installation of traffic calming measures except for approved Low Cost Safety schemes approved by the Department of Transport, active travel projects and other

approved schemes that have incorporated traffic calming measures.

- The designer shall review all **non-destructive** traffic calming measures in the first instance and shall detail the decision process in selecting the traffic calming measures.
- A Traffic Calming Design, which considers a variety of measures, must be completed to the relevant standards. The design phase is obliged to be cognisant of the existing road conditions, the existing speed limit, traffic volumes, traffic composition, pedestrians and the specific location itself.
- Consultation with An Garda Síochana, Fire, and Ambulance and Bus Services shall be completed prior to publication of the Section 38.
- The design must be reviewed and approved by the Senior Engineer of the Roads Traffic & Cleansing Department, or their delegate.
- On completion of the concept design a Road Safety Audit and quality audit will be required (in accordance with 2022 NGSG Circular 3).
- Once a funding source has been identified and the design completed, a Section 38 notice is advertised for the measure, this consists of a public consultation period (normally four weeks) where Elected Members and members of the public can make submissions.
- Any submissions received as part of the Section 38 process are reviewed and considered. Further to these considerations, appropriate amendments may be made, insofar as not to make a material alteration of the proposal, and be incorporated into the final design.
- Following the completion of the above steps the traffic calming measure can be constructed.

*Refer to **Appendix B** – Common traffic management solutions when preparing the design.*

7.2 Prioritisation

Priority of requests for a traffic calming measure may be decided on the following basis.

- Through road or cul-de-sac?
- Accident History/Data.
- Traffic Volumes.
- Actual measured traffic speeds, (85th percentile and average).
- Road alignment (horizontal and vertical).
- Proximity of Schools and residential areas
- The presence of ‘rat-runs’ where there is significant residential development fronting onto road.
- Positive/negative feedback from residents on the proposal to introduce traffic calming measures. (see process outlined below)
- Extent of direct access from frontage along a road.
- The location of green areas and play areas relative to the dwelling locations.

- Pedestrian generators, (route to shops, amenities etc.)
- The degree of vulnerable road users (pedestrians, cyclists, buggies, wheelchairs, etc.).
- Any other local conditions.

NOTE: Ramps are not permitted on Regional Roads (>60kph). Following the assessment, if vertical deflection is identified as the traffic calming intervention required, then Speed Tables are the only treatment permitted.

7.3 Measures to be considered

Following the initial assessment and scheme selection, a detailed examination of the site will be carried out to decide the optimum measure(s) to address and control or influence traffic speeds. The measures considered will be those recommended in the Traffic Management Guidelines and other technical guidance documents and may include:

- Introduction of 30km/hr speed limit. (Urban Centre / Housing Estates Only)
- Closure of a through road to traffic by way of a road closure at a particular point with continued through access for pedestrians and cyclists. A network level analysis should be considered to ensure that problems do not arise elsewhere. (Housing Estates Only)
- Width reduction and junction tightening.
- Traffic regulation measures including prohibition or restriction of categories of traffic.
- Traffic Islands.
- Mini roundabouts.
- Increased pedestrian / cyclist priority / crossing facilities
- Entry treatment.
- Build outs and/or increased on-street parking.
- Staggered parking.
- Pinch points.
- Horizontal deflections such as Build Outs, Pinch Points, Chicanes.
- Improved street lighting, signage, lines, markings
- Landscaping
- Driver Feedback Signage – on a temporary basis only as they lose effectiveness.
- Coloured or textured surfacing.
- Vertical deflections such as speed tables.
- Controlled signalization (traffic lights)

7.4 Post-construction

On completion of the works, the Engineer/Designer shall arrange for an independent audit of the traffic calming measures to check compliance. The following is a non-exhaustive list of items to be assessed;
- Gradient
- Quality
- Drainage
- Issues for buses / cyclists
- Completion of road markings

7.5 Removal of Traffic Calming Measures

In the course of maintenance works where vertical deflection measures are removed the need for traffic calming shall be reviewed. The Engineer/Designer shall assess the location, type of existing traffic calming measures and the suitability of the site for installation of new traffic calming measures. This review shall be approved by the Senior Engineer of the Roads, Traffic and Cleansing Department, or their delegate.

8. Additional Considerations

The Engineer/Designer shall also consider the following:

- Ramps and/or rumble strips do have unwelcome side effects such as additional noise, vehicle damage and possible personal injury.
- The Ambulance Service, generally, are not in favour of ramps and have concerns about the effect of ramps on people with spinal injuries travelling over ramps.
- The Fire Services are also concerned that ramps delay the response time of their fire tenders.
- Particular attention should be paid to comfort on bus routes, the traffic calming intervention identified in the design should be cognisant of bus connects routes, school bus routes and other bus service routes.

9. Financial Considerations:

The decision by LCCC to proceed with any proposed scheme will be subject to funding being made available.
If the works are part of a Capital Scheme then the cost will be absorbed by the Capital funding source.
It should be borne in mind that retrofitting/rectifying traffic calming measures in existing residential estates or on local or regional roads can be expensive. Representations will be made by Limerick City and County Council to the Department of Transport/National Transport Authority seeking funding for rectification of existing measures to support initiatives such as Bus Connects.

Should Elected Members seek the installation of traffic calming measures, and the request meet the criteria outlined above, members may need to pool their GMA funding to finance the scheme.

The works on public roads may only be carried out by Limerick City and County Council or its agents (contractors).

10. Monitoring

It is important that the scheme is monitored post implementation for a duration of two weeks to ensure that the objectives of the policy are achieved and the issues originally identified are addressed. Monitoring shall be completed by the Engineer/Designer.

11. Review

Limerick City and County Council Traffic Calming Policy will be monitored and reviewed on a regular basis to ensure that all new advices, regulations, guidelines, etc. in relation to traffic calming are incorporated into the policy.

12. References

Road Traffic Act 1994 – Section 38 (No.7 of 1994).
Road Traffic (Bollards and Ramps) Regulations (S.I. No. 32 of 1988).
Traffic Management Guidelines.
Design Manual for Urban Roads and Streets (DMURS).
NRA Pedestrian Crossing Specification and Guidance – April 2011.
Guidance on Traffic Works Procedures – Section 38 of the Road Traffic Act (1994)
NGSG Circular 2 Application of Guidelines and Standards in relation to works on Public Roads in Ireland.
NGSG Circular 3 of 2022 relating to Quality Audits and Road Safety Audits on Public Roads in Ireland.

- Relevant circulars from the department of Transport.
- **The Guidelines for Setting and Managing Speed Limits in Ireland**
- NGSG Circular 2 Application of Guidelines and Standards in relation to works on Public Roads in Ireland.
- NGSG Circular 3 of 2022 relating to Quality Audits and Road Safety Audits on Public Roads in Ireland.

Appendix A

Appendix A.1 – Traffic Calming Policy Assessment Housing Estates

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Limerick City & County Council

Scheme Description	
Road Classification	
Road Number	
Municipal District	
Adopted Speed Limit	
Description	
Requested By	

Qualification	
Site inside 30km/h speed limit	
Is the length of through road >300m	
Is the length of Cul De Sac >150m	
Are 2/3 of residents in agreement (Plebiscite)	

Quantitative Assessment			
History of Collisions • **An Garda Siochana** • **Local knowledge**	No incidents	0	
	Low frequency (1-3)	10	
	High frequency (≥4)	20	
85th Percentile Vehicular Speed (posted speed in accordance with Bye-Laws)	< posted speed limit	0	
	Between Posted Speed Limit and 10km over posted speed limit	15	
	>10km over posted speed limit	25	
Vulnerable Road Users (Play Areas, Shops, Schools)	No	0	
	Yes	20	
Traffic Volumes (Estates)	< 300 Vehicles / day	0	
	> 300 Vehicles / day	5	
Local Conditions	**Option 1** Road width <4m, FSD <20m Kerbside parking both sides	0	
	Option 2 Road width >4m & <5m, FSD >20m & <50m, Kerbside parking one side	10	
	Option 3 Road width >5m, FSD >50m No kerbside parking	20	

Total Marks Awarded (Out of 100) – if > 65 marks then Traffic Calming required	
Estimated Cost of the Proposed Scheme	€
Engineer Comments	

Signed: _____ Date: _____

Approved: _____ Date: _____

Appendix A.2 – Traffic Calming Policy Assessment Regional/Local Roads

Comhairle Cathrach & Contae Luimnigh
Limerick City & County Council

Scheme Description	
Road Classification	
Road Number	
Municipal District	
Adopted Speed Limit	
Description	
Requested By	

Qualification	
Site inside 50km/h speed limit	
Is there an omnibus operating on this route	
Are 2/3 of residents in agreement (Plebiscite)	

Quantitative Assessment			
History of Collisions • **An Garda Siochana** • **Local knowledge**	No incidents	0	
	Low frequency (1-3)	10	
	High frequency (≥4)	20	
85th Percentile Vehicular Speed (posted speed in accordance with Bye-Laws)	< posted speed limit	0	
	Between Posted Speed Limit and 10km over posted speed limit	10	
	>10km over posted speed limit	20	
Vulnerable Road Users (Play Areas, Shops, Schools)	No	0	
	Yes	20	
Traffic Volumes	< 2000 Vehicles / day	0	
	> 2000 Vehicles / day	5	
Local Conditions	**Option 1** Road width <6m, FSD <20m Kerbside parking both sides	0	
	Option 2 Road width >6.0m & <7.5m, FSD >20m & <50m, Kerbside parking one side	10	
	Option 3 Road width >7.5m, FSD >50m No kerbside parking, No pedestrian Crossings	20	

Total Marks Awarded (Out of 100) – if > 65 marks then Traffic Calming required	
Estimated Cost of the Proposed Scheme	€
Engineer Comments	

Signed: _____ Date: _____

Approved: _____ Date: _____

Appendix B

Common Traffic Management Solutions

APPENDIX B

Common Traffic Management Solutions

Below outlines some of the more common traffic calming measures that are implemented by Local Authorities and elements that are to be considered in their design. DMURS and the Traffic Management Guidelines should be referenced when considering the implementation of traffic calming measures and provide guidance as to the appropriateness of measures under consideration.

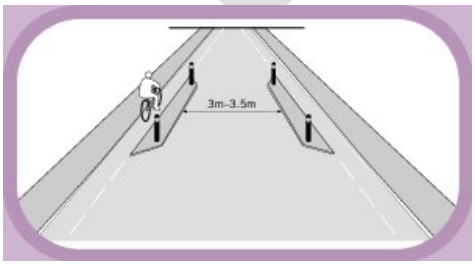
Transition Zones

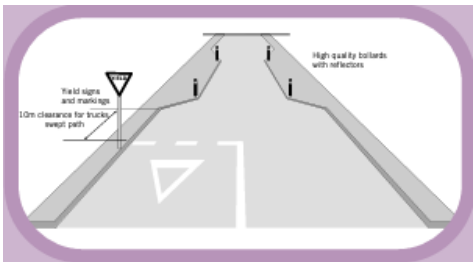
Transition zones are commonly used on approaches to urban areas or villages, often in conjunction with a speed limit, or at the start of a traffic calming scheme. Their purpose is to slow down speeding drivers and make them more aware that the road they are entering is one where people live. Transition zones should be sited so that they are clearly visible to drivers approaching them for at least the safe stopping distance appropriate for the 85%ile speed of traffic.

Horizontal deflections – Build Outs, Pinch points and Chicanes

Consideration should be given in the first instance to horizontal deflections as a means of traffic calming. These options are effective for all road users, require less ongoing maintenance.

Horizontal deflections may need to be signed in advance (for example "Road narrows"). This gives drivers adequate warning so that they can slow down to negotiate the feature. If the road is narrowed to a single lane width then yield markings should be provided to indicate which traffic flow direction has priority. Consideration should also be given to the use of yield signs to indicate priorities in situations where the markings alone would not have sufficient effect.





Apart from the options listed above, additional layouts are available and outlined in the Traffic Management Guidelines.

Vertical deflections – Ramps, Speed Tables and Speed Cushions

In general the emphasis should be on horizontal measures and good layout design rather than vertical measures. However, vertical measures may also be appropriate in certain locations in particular when retro fitting traffic calming measures on the existing network.

The Traffic Management Guidelines outlines the design parameters that should be considered when installing vertical deflections measure.

While that document should be considered **in full**, the following extracts outline some important points to note when considering the installation of vertical deflection measures.

General Points

i. Vertical deflection measures shall be installed within 5m of a public lighting column.

ii. On Regional Roads no ramps are permitted. Should vertical deflection measures be required raised tables are the only form of treatment permitted.

iii. Most of the ramps constructed on public roads should be at least 3.7m long, to minimise the risk of vehicles grounding on them. This is recommended as good practice in Ireland. Ramps on public roads should not be less than 900mm long.

iv. The design of a traffic calming scheme should aim to minimise accelerating and braking at and between features. It should encourage driving at a constant low speed. Good design practice is to space appropriate features as regularly and frequently as practicable (70m to 100m).

Table 6.8 Mean after speeds of cars (mph) between round-top and flat-top ramps

Mean Before Speed (mph)	RAMP Spacing (m)				
	60	80	100	120	140
30	19	20	22	23	24
35	21	22	24	25	26

v. It is important that drivers and riders are given adequate warning of vertical features so that they can reduce their speed accordingly. Clear, conspicuous signs and road markings can help to do this. Signs should be provided in advance of the features and should incorporate a distance plate if appropriate. If the features are greater than 150m apart they should be signed individually.

vi. The Traffic Management Guidelines suggest a minimum flat-top length of **6m on bus routes**, a height of 75mm together with ramp slopes of 1 in 15 represents a good balance between effective speed reduction and the potential drawbacks.

vii. The introduction of vertical deflections **may not always be suitable on national, regional or busy local primary roads given the volume and type of traffic** as the routes serve buses and heavy goods vehicles. There is also an anticipated level of comfort on these roadways and as such, ramps are an unsuitable form of traffic calming on these road types. However should the Engineer/Designer wish to proceed with their installation a robust justification should be noted and presented to the Senior Engineer, Roads, Traffic and Cleansing or their delegate for approval. Alternative measures should be first considered such as road narrowing, build-outs, road studs and lining. Irrespective of the road type vertical deflections should **only be installed on 50kph roads** and 60kph roads where there is a robust justification.

viii. When installing ramps the existing road gradients must be considered and accounted for in deciding on the ramp slopes. In many cases leaning toward a ramp slope greater than 1 in 15

may be adequate, however based on the traffic management guidelines this should be limited to 1 in 20.

ix. There shall be not less than two ramps on any roadway. Should the design comprise of one ramp this shall be approved by the Senior Engineer for Roads, Traffic and Cleansing or their delegate.

x. Ramps shall be constructed of black bituminous material however, should the Engineer/Designer propose an alternative material this shall require the approval of the Senior Engineer for Roads, Traffic and Cleansing Department, or their delegate.

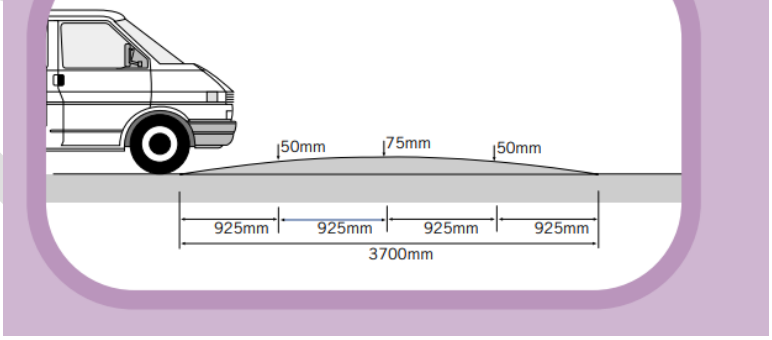
Round-Top Ramps – (Not permitted on omnibus routes)

i. Most of the round-top ramps that have been constructed on the public roads are 3.7m long and between 50mm and 100mm high. Shorter ramps have been tried but it is more difficult to get an acceptable balance between speed reduction and some of the potential drawbacks.

ii. The 3.7m length is designed to minimise the risk of vehicles, grounding on them. However, some vehicles have a lower suspension and other vehicles such as funeral cars have a longer wheelbase, without the extra ground clearance of a bus or emergency service vehicle. In such instances they can ground even at low speeds. Round-top ramps are generally constructed with tapered sides because they are not suitable places to encourage pedestrians to cross.

iii. 75mm high round-top ramps represent a good balance between reducing vehicle speeds and some of the adverse impact of the measures, but as noted above the existing road infrastructure and gradient must be considered prior to making a final decision.

Diagram 6.32 Cross section of 75mm high round-top ramp



Flat Top Ramps

I. Flat-top ramps consist of a raised section of carriageway with inclined sections (entry/exit slopes) at either end. Most of the flat-top ramps constructed on the public road in the UK have a minimum flat-top length of between 2.5m and 3m (**excluding entry/exit slopes**).

II. Shorter lengths could lead to vehicles grounding. Entry/exit slopes vary in gradient between 1 in 6 and 1 in 30.

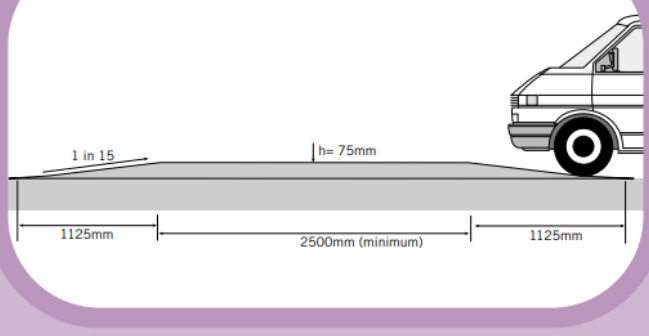
III. The height of features varies between 50mm and 100mm.

IV. The height of flat-top ramps and speed tables, is less critical compared to round-top ramps because the entry/exit slope and length of the feature are also significant factors in the design.

V. Entry/exit slopes steeper than 1 in 10 are rarely used as they are generally considered to be too severe. Slopes of 1 in 20 and shallower tend to be ineffective in terms of reducing speed.

VI. A minimum flat-top length of 2.5m **(6m on bus routes)**, a height of 75mm together with ramp slopes of 1 in 15 (1 in 20 on Bus Routes) represents a good balance between effective speed reduction and the potential drawbacks. However, as noted above the existing road infrastructure and gradient must be considered prior to making a final decision.

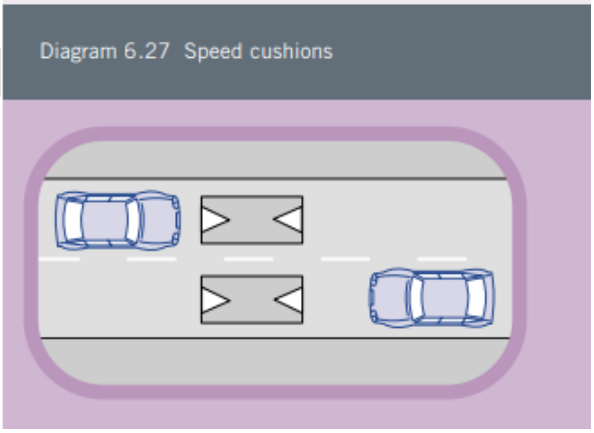
Diagram 6.34 Cross section of 75mm high flat-top ramp



The appropriateness of the type traffic calming measures along with the existing road environment should be considered prior to choosing the type of measures to be installed. Considering the identified problems, the type of traffic using the road and the existing infrastructure can all contribute in ensuring the proposed measures provide the desired results.

Apart from the options listed above, additional layouts are available and outlined in the Traffic Management Guidelines. Speed Cushions have the added benefit of having minimal impact on drainage runs but the sizing and positioning is crucial in determining their effectiveness.

Diagram 6.27 Speed cushions



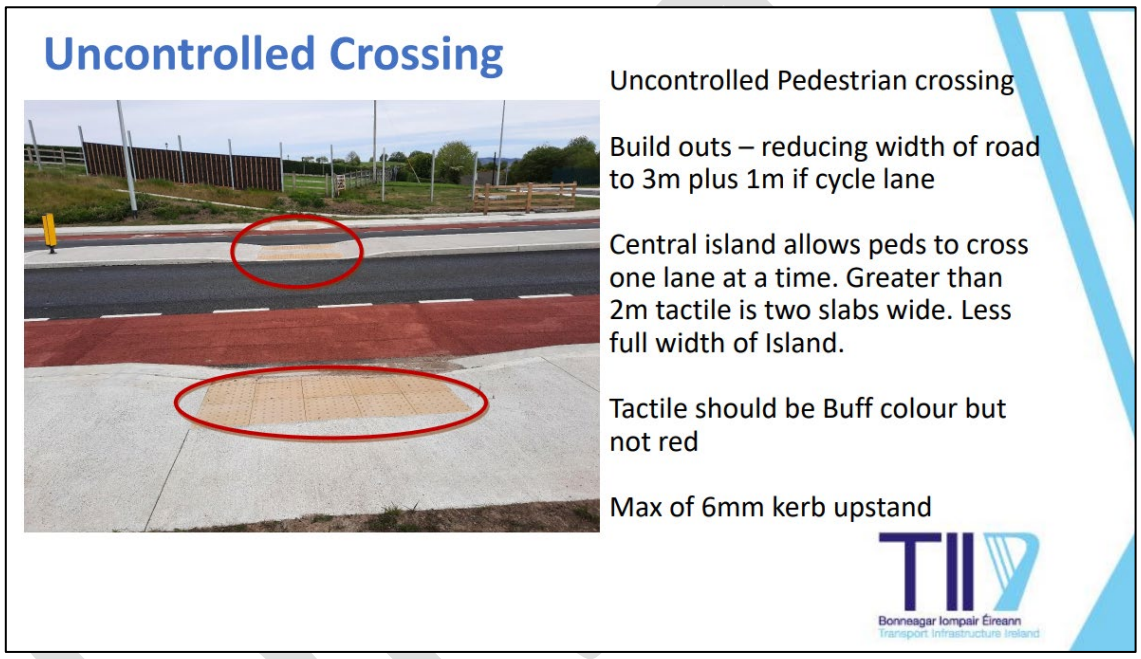
Pedestrian Crossings

In general there are **four types** of crossings to be utilised by Limerick City and County Council and these are shown below. It is important when proposing/designing a pedestrian crossing that the type and location is carefully considered to ensure its provision is safe and effective. It should also be noted that Pedestrian Crossing should be raised.

More information is available at

https://www.tii.ie/tii-library/conferences_and_seminars/TII_road_safety_audit_seminar/2021/TII-Webinar-No-3-PD-23-June-2021.pdf

Uncontrolled Crossing

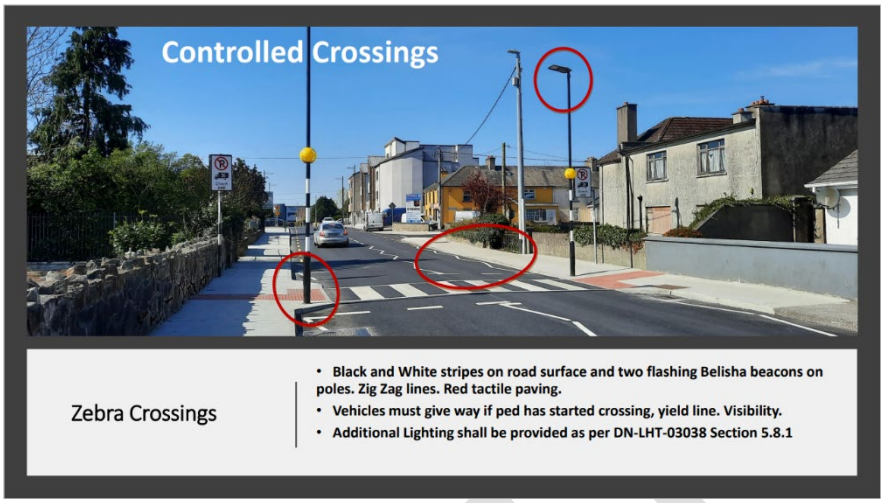


The locations of uncontrolled crossings are influenced by volume and speed of traffic. Typical locations include:

- Housing developments
- At minor junctions within City Centres, Towns & Villages

They should be located on the pedestrian desire line where possible.

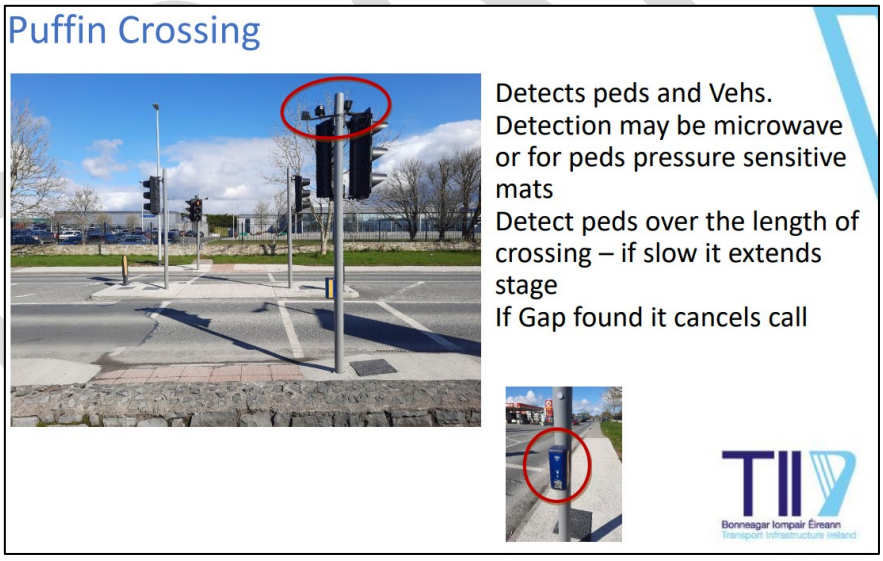
Zebra Crossing



The locations of Zebra Crossings are provided where pedestrians are normally concentrated, such as at school areas with good visibility. Other factors to consider include:

- There must be no obstacles (e.g., trees) on the footpath to block the view of pedestrians.
- The location should not have tight corners or steep hills.
- The crossing should be located where the footpaths are wide enough to make it clear to road users that pedestrians are waiting at the edge of the road to cross.

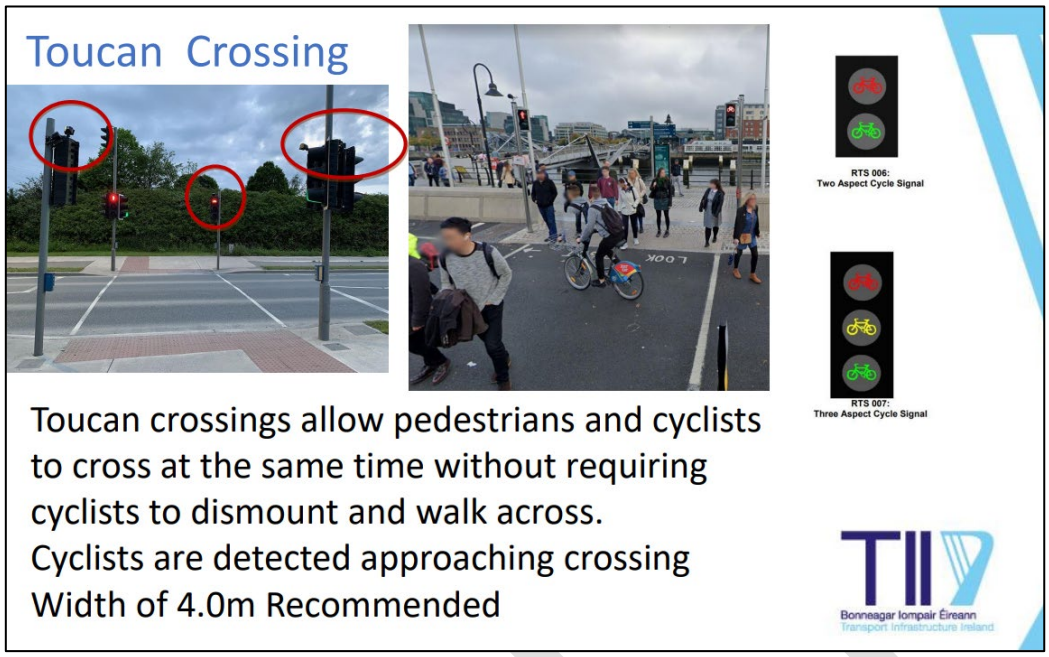
Puffin Crossing



The location of signalised pedestrian crossings are typically where there is greater traffic volumes and speed such as city centres, main junctions within towns, and areas of good visibility. They are:

- Suitable where there are large pedestrian volumes as sensors can be used to extend crossing time if necessary for pedestrian still in the crossing area.
- Not suitable too close to houses as the beeping sound may cause problem. However, the beeping noise can work to a timer, and only operate at certain hours of the day.

Toucan Crossing



These are typically used:

- Adjacent to a cycle-path. Cyclists are not required to dismount for Toucan Crossings.
- At Schools

When considering the installation of toucan crossings, the appropriateness of the existing network must be considered. For example, toucan crossings may not provide the desired crossing points for cyclist at roundabouts and they may use the circulatory carriageway irrespective of the installation of a crossing. When including a toucan crossing the desire line and the actual benefit for cyclists must be considered.

Junction tightening schemes

Junction tightening schemes should have regard to recommendations contained within the Design Manual for Urban Roads and Streets (DMURS), in particular in relation to limited curve radii at junctions, the use of varied surface types to give priority to the vulnerable road users and also the confining of road widths, with the elements below should be considered at a minimum.

- The type of vehicles that use the junction, including:
    - Bus Routes
    - Refuse Vehicles
    - Business' that require delivery trucks
    - Emergency vehicles

- Swept path
  It would be prudent to carry out a Swept Path analysis on any proposals.

- Pavers
  Brick pavers should be avoided for any junction tightening schemes and the construction of the kerb line and buildouts should be capable of withstanding incidental overruns.

- Impacts to Drainage and Kerb Height
  In general junction tightening schemes involve relocating the kerb lines and therefore the implications on the drainage must be considered along with the cross falls of the carriageway.

- Existing infrastructure
  The tie ins into existing infrastructure must be considered and avoid the creation of ponding areas on foot paths, required kerb heights, impacts on parking.

Schemes requiring a Plebiscite / Section 38

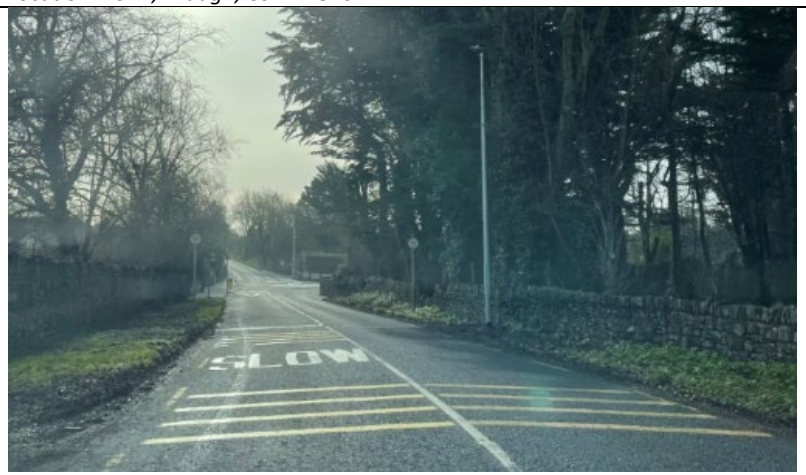
Not all traffic calming schemes will require a Plebiscite. The below list identifies

Traffic Calming Measure	Plebiscite	Section 38
Traffic Signs	Not Required	Not Required
Road Markings	Not Required	Not Required
Bollards, Posts, Poles	Not Required	Not Required
Horizontal deflections, (Chicanes)	Required	Required
Rumble Strips (in specified areas)	Not Required (Unless in residential area)	Not Required
Raised/ lowered or modified road surfaces	Required	Required
Vertical deflections such as speed tables	Required	Required
Island or Central Reservations	Required	Required
Roundabouts	Required	Required
Junction modifications (tightening)	Required	Required
Landscaping	Not Required	Not Required
Controlled signalization (traffic lights).	Not Required	Not Required

Road Safety Audits and Quality Audits

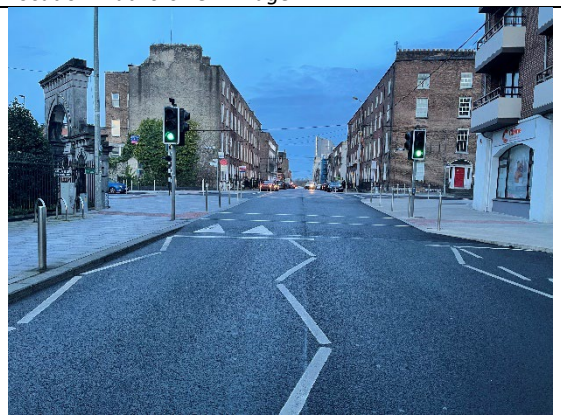
2022 National Guidelines and Standards Group (NGSG) **Circular 3 - Quality Audits and Road Safety Audits on Public Roads in Ireland.**

In general, Traffic Calming schemes will require both a Road Safety Audit and a Quality Audit.

Measures	Photo	Suitable Location
Traffic Signs	 *Location: R521, Ardagh, Co. Limerick*	Gateway signage is suitable for use in rural areas. Other traffic calming signage which can be used in urban / rural areas comprises, driver feedback signage / speed limit signage
Road Markings	 *Location: R511, Ballyclough, Co. Limerick*	Road markings are suitable for use in urban / rural areas. Care must be taken not to overload drivers with signage and road markings.

Bollards	 *Location: Roden Street, Limerick*	Outside Schools, around commercial premises. Bollards are generally fixed to footpath or macadam surfaces.
Chicanes	 *Location: Traderee Ct, Shannon, Co. Clare*	In housing estates / on link roads where traffic speeds can be reduced by altering the horizontal alignment through deflection.

Rumble Strips	 *Location: R511, Limerick*	In suburban / rural areas where there are no residential dwellings adjacent to the carriageway as there is noise from this form of intervention
Raised / lowered or modified road surfaces	 *Location: Quin Street, Limerick*	Raised / lowered surfaces are suitable for use in urban/suburban areas. The location must have public lighting and surface water drainage.

Central reservations	 *Location: R445 Castletroy, Limerick*	In urban locations where there are restrictions on traffic movements.
Roundabout	 *Location: Patrickswell Village*	Roundabouts are suitable for use in urban/ Suburban/ rural areas. The location must have adequate public lighting and surface water drainage. Advance signage of change in road layout required.
Junction modifications	 *Location: Mallow Street, Limerick*	In urban and rural settings where junction narrowing / raised table is appropriate. Raised tables are not appropriate in rural locations.

Landscaping	 *Location: O'Connell Avenue, Limerick*	In urban and rural settings where carriageway widths enable installation of landscaping. Note, landscaping must not inhibit sightlines at junctions or pedestrian crossings.