Pedestrian Guardrail Assessment

A unique ID reference number shall be allocated, as it is intended all assessments will be logged into a database.

Assessment of existing guardrail ☐ **ID**……
(attach site plan/sketch & photographs)

Assessment of proposed guardrail ☐
(attach project plan)

Assessment Location (and/or project/drawing reference)

……
……
……

For example:

Reduce vehicle-pedestrian collisions

Channel pedestrians to crossing points

Protect pedestrians from a significant difference in level

Prevent pedestrians spilling into carriageway where there are high pedestrian volumes

Guide visually impaired across staggered crossings

Prevent kerbside waiting / loading

What is the intended purpose of guardrail?

……
……
……
……
……
……

Was the guardrail installed as part of an AIP (Accident Investigation and Prevention) scheme?

☐ **No**

☐ **Yes – *provide the reason for installation***

……
……
……
……

For existing guardrail, is the guardrail considered <u>obviously redundant</u> without further investigation?

☐ **No** – *continue with the assessment (go to Stage 1)*

☐ **Yes** – *provide justification* ***and sign at the bottom of this page***

If yes, there is no need to fill out the remainder of the form. Complete Guardrail Removal Order. Don't forget to email the copy of this (signed) form to transport.roadsafety@edinburgh.gov.uk for accident monitoring purpose.

……
……
……
……
……
……
……

Site Assessor's Name and section ……

Signature…….. Date……

Peer Reviewer's Name and section ……

Signature…….. Date……

Once finalised, email the signed copies of this form to transport.roadsafety@edinburgh.gov.uk

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THE CITY OF EDINBURGH COUNCIL

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Part A Determining the need for guardrail

Stage 1 Place and movement context and road safety assessment

Describe the urban structure, character and identity of the location, in terms of different user groups and how they use the street. Note any attractors or activities that may affect the form and function of the street.

(i) Place: Character Assessment

……
……
……
……
……

Consider volumes and speeds and how users interact with each other. Is the street dominated by vehicles? Is it important for pedestrians? Does the layout give a sense of relative priorities between user groups?

(ii) Movement: Character Assessment

……
……
……
……
……

Consider any specific safety issues in relation to the location. For example, an unusual number of vulnerable road users, unusual peaks in flows, excessive vehicle speeds, awkward road geometry. Review accident statistics – is there an issue at this location?

(iii) Road Safety Issues

(For most locations, obtain and review 3-year accident statistics, ensuring the appropriate period is considered. Attach results to form.)

……
……
……
……
……

Stage 2 Street Type Assessment

Taking account of the Place and Movement Character assessment, allocate a Street Type to the location. Refer to Table 1 overleaf, and select the relevant ID number.

On the basis of the Stage 1 assessment Street Type is ☐

Consideration should be given to how appropriate guardrail is for different street types. The table overleaf should be used as a guide but not deemed to be a final decision.

How appropriate is guardrail in this street type?

……

The use of guardrail is inappropriate in principle in certain street types, especially where a high degree of pedestrian priority is sought and vehicle speeds and flows are relatively low.

Stage 3 Further Supporting Information

Is further supporting information required?

☐ **No –** (go to Stage 4)

☐ **Yes –** (state below what is required and why - then go to Stage 4)

State, if any, supporting information is required and/or desirable to help Stage 1, 2 and/or 3 assessments.
For some minor sections of guardrail being assessed, it may not be necessary to collate any or all of the supporting information. **Use professional judgement** as to when it is beneficial.

Pedestrian flows ……
Video survey/CCTV ……
Traffic flows ……
Speed limit vs mean speed ……
Other (specify) ……

	Character of street frontage/role for pedestrians				
	Retail / High Street **H**igh pedestrian flows	**Service sector employment and high/medium density residential** **M**edium pedestrian flows	**Low density residential** **L**ow pedestrian flows	**Employment (Industrial) with limited frontage access** **L**ow pedestrian flows	**No Frontage /Rural roads** **L**ow pedestrian flows
	Streets/roads with many junctions			Roads with few junctions	
Role of street for public transport and other traffic	Street category number				
Strategic: 'A' class roads, roads with intensive bus services or the highest general traffic levels, or roads signed as strategic routes to/from the city/city centre	1H	1M	1L	1F	1R
Secondary: Other roads, important for public transport and/or with a more than local role for general traffic	2H	2M	2L	2F	2R
Local: Other urban streets and roads; mainly residential streets, also minor rural roads	3H	3M	3L	3F	3R
Cycleways	4				
Footpaths, Home zones, Pedestrianised Streets	5				

Taking account of the Place and Movement Character assessment, allocate a Street Type to the location. Refer to the Council's existing street categorisation, as set out in Table 1 above, and select the relevant ID number.

Appropriateness of guardrail should be considered in principle as follows:-

- 1H Sometimes appropriate
- 2H Rarely appropriate
- 3H Rarely appropriate
- 1M Sometimes appropriate
- 2M Rarely appropriate
- 3M Rarely appropriate
- 1L Sometimes appropriate
- 2L Sometimes appropriate
- 3L Rarely appropriate
- 1F Sometimes appropriate
- 2F Sometimes appropriate
- 3F Rarely appropriate
- 4, 5 Rarely appropriate
- 1R Sometimes appropriate
- 2R Sometimes appropriate
- 3R Rarely appropriate

Street Type Assessment

Stage 4 Where are the predicted pedestrian desire lines, existing vehicle movements and conflict points between the two at this site?

A critical part of the guardrail assessment is to identify pedestrian and vehicle desire lines and then establish potential conflict points.

Assess pedestrian desire lines as if there is no guardrail, remembering that different pedestrian user groups may have different desire lines, particularly in relation to specific attractors.

Important desire lines, pedestrian and vehicular movements shall be plotted on a plan.

Remember to attach the plan to this form

a) Draw predicted pedestrian desire lines and vehicle movements on a street plan of the site.

IMPORTANT: If there is existing guardrail at this site **identify where desire lines would be if there was no guardrail present.**

b) Number the conflict points (where the desire lines and vehicle movements coincide)

c) Draw the locations of guardrail and label the sections A, B, C, etc.

d) Attach the plan to this form.

Stage 5 What is the severity of each predicted conflict point?

Pedestrian and vehicle desire lines commonly coincide but the fact that they do is not necessarily always a problem.

For each conflict point identified in Stage 4, state where the conflict might be significant and assess it against the five factors set out in the table below.

Also state which sections of guardrail are crossed by the desire lines being considered for each conflict point.

If the issue, under each factor, is not considered significant then the No box is ticked. If it is considered significant then details shall be provided.

Generally:-

Vehicle speeds of 20mph or less should generally not be a problem.

High levels of pedestrian flows at a specific location may be an issue.

Awkward geometry, such as a narrow footway may be an issue.

Visibility may be issue, is sub-standard. Do vehicles already slow down or not?

Other issues, such as steps, may be present.

Conflict Point 1	**Relevant Guardrail :**		
Are there any particular concerns about …	**No** (tick)	**Yes** (tick)	Provide details, especially for **Yes**
…vehicle speeds?			
…volumes of conflicting movements?			
…awkward geometry?			
…visibility issue?			
…other issue (specify)?			

Insert as many tables as required for assessing all locations.

Conflict Point 2	**Relevant Guardrail :**		
Are there any particular concerns about …	**No** (tick)	**Yes** (tick)	Provide details, especially for **Yes**
…vehicle speeds?			
…volumes of conflicting movements?			
…awkward geometry?			
…visibility issue?			
…other issue (specify)?			

INSERT FURTHER TABLES AS NECESSARY

If the issue, under each factor, is not considered significant then the No box is ticked. If it is considered significant then details shall be provided.

Assess guardrail not considered using the conflict point analysis
There may be other guardrail sections within the site, not associated with a specific conflict point. This guardrail should also be assessed, using the table below.

Generally:-

Vehicle speeds of 20mph or less should generally not be a problem.

High levels of pedestrian flows at a specific location may be an issue.

Awkward geometry, such as a narrow footway may be an issue.

Visibility may be issue, is sub-standard. Do vehicles already slow down or not?

Other issues, such as steps, may be present.

Guardrail Section:			
Are there any particular concerns about …	**No** (tick)	**Yes** (tick)	Provide details, especially for **Yes**
…vehicle speeds?			
…volumes of conflicting movements?			
…awkward geometry?			
…visibility issue?			
…other issue (specify)?			

Guardrail Section:			
Are there any particular concerns about …	**No** (tick)	**Yes** (tick)	Provide details, especially if **Yes**
…vehicle speeds?			
…volumes of conflicting movements?			
…awkward geometry?			
…visibility issue?			
…other issue (specify)?			

INSERT FURTHER TABLES AS NECESSARY

Stage 6 Confirm Problem Locations

Locations where there are no concerns in respect of all four criteria are deemed not to need guardrail.

It may be the case that a section of guardrail is relevant to several different conflict points / desire lines. If there are significant concerns with **at least one of the** desire lines, categorise this guardrail as type 2

After all conflict points have been considered, based on your analysis in stages 1 to 5, categorise each guardrail location as either type 1 or 2 in the table below to confirm problem locations that require further assessment.

If two or more conflict points relate to the same guardrail sections and at least one of the conflict points raises significant concerns then this guardrail should be categorised as type 2.

1	Guardrail sections where there are no significant concerns and guardrail is not considered necessary	
2	Guardrail sections where there are some significant concerns and which need to be considered further in Stage 6	

For all type 1 Guardrail sections

- Guardrail considered unnecessary, therefore it is recommend guardrail is removed or not installed
- Do you feel after going through this process that a Road Safety Audit (RSA) is necessary to independently assess installation / removal of guardrail at these conflict points?

☐ **No**

☐ **Yes**, Order RSA (go to Stage 8)

For all type 2 Guardrail sections

- Continue assessment (go to Stage 7)

Site Assessor's Name and section ……

Signature…….. Date……

Stage 7 Determine Use of guardrail – Does/would the presence of guardrail contribute to the reduction of road danger and what alternatives are there to guardrail use?

Guardrail sections categorised as **type 2 in Stage 6** must be considered in more detail.

- Following on from the analysis in Stage 5 this question seeks to understand whether guardrail could be effectively employed towards achieving its stated purpose of materially diminishing road danger.
- For each conflict point explain how guardrail would make a contribution to reducing danger, specify how much guardrail is required to achieve that purpose.
- Consider if there are alternative mitigation measures that could be considered instead of guardrail. Also consider if any additional measures are desirable, as well as guardrail.
- Provide a breakdown of implementation costs.

Guardrail section	Contribution of guardrail to reducing danger	What guardrail is installed / proposed?	Alternative courses of action to reduce danger*	Cost Estimate

* Assess other possible course of action that could reduce road danger without the impacts that typically accompany the installation of guardrail. These may range in nature from comprehensive street design (e.g. replacement of roundabout with traffic signals) through to smaller scale traffic management measures to slow speeds etc, or other more indirect measures that remove the need for an intervention altogether.

Stage 7 Determine Use of guardrail (Continued)

Guardrail section	Contribution of guardrail to reducing danger	What guardrail is installed / proposed?	Alternative courses of action to reduce danger*	Cost Estimate

* Assess other possible course of action that could reduce road danger without the impacts that typically accompany the installation of guardrail. These may range in nature from comprehensive street design (e.g. replacement of roundabout with traffic signals) through to smaller scale traffic management measures to slow speeds etc, or other more indirect measures that remove the need for an intervention altogether.

Part B RSA Review, recommendations and final decision

Do you feel after going through this process that a Road Safety Audit (RSA) is necessary to independently assess installation / removal of guardrail at these conflict points?

☐ **No**, go to final determination (stage 9)

☐ **Yes**, order a RSA (go to Stage 8)

Stage 8 Safety Audit Recommendations and proposed exemptions

- Subject Part A recommendations to a RSA (use RSA request from)
- Summarise the recommendations of the safety audit by guardrail section. Guardrail sections not included in Stage 7 but identified as concerns by the safety audit should be added to the list. While this helps in understanding the particular concerns at each conflict point, the review also needs to consider how the safety audit recommends these concerns be overcome. This may involve measures other than guardrail.
- For each location where concerns were raised by the safety audit, indicate if and to what extent the recommendations are accepted and justification for any exemptions.

Guardrail section	RSA recommendations Regarding guardrail	Are they accepted?	Justification for proposed exemptions*
Stage 7 location:			
Stage 7 location:			
Stage 7 location:			
Stage 7 location:			
Other guardrail locations highlighted by safety audit :			

Other comments from the RSA not relating directly to guardrail

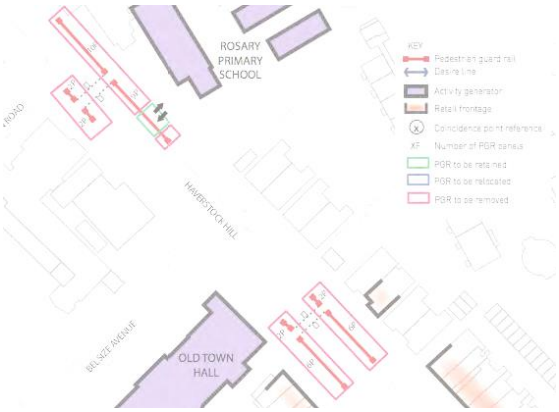
** It is acceptable not to adopt any specific RSA recommendation, but this must be justified. If a RSA response makes a guardrail recommendation that conflicts with the assessment proposal, a review process shall be undertaken for a final determination.*

Stage 9 Final Determination

Following the guardrail assessment and a review of the outcomes of the safety audit, a final decision needs to be drawn, weighing up all the information considered in the previous stages.

The guardrail assessment began with the consideration of an area of interest, and then progressed via a sieving process to identify specific locations where it is deemed to be an effective tool in addressing specific safety concerns.

Each of the locations where guardrail will be retained/proposed should be identified. Based on guardrail assessment illustrate the precise extent of proposed guardrail coverage on a map.



Cycle Parking

Is any guardrail to be removed currently useful for cycle parking (e.g. outside local amenity or shop, observed being used for cycle parking)? _____(Yes/No)

If yes, what alternatives will be put in place?

_____

Site Assessor's Name and section …….

Signature…….. Date……

Peer Reviewer's Name and section……..

Signature…….. Date……