Transport Scotland

Speed Management Milestone 3

Interim Report of Irish Speed Limit Review

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Contents

Executive summary

1 Introduction 1

2 Overview of Department of Transport Speed Limit Review 2

2.1 General 2

2.2 Main Report 3

2.2.1 Modelling Methodology 3

2.2.2 Air Quality 4

2.2.3 Noise 5

2.2.4 Sustainability & Active Travel 6

2.2.5 Vehicle Emissions 6

2.2.6 Road Safety 6

2.2.7 Irish Work Recommendations 7

2.3 International Research 8

2.3.1 Road Injuries 8

2.3.2 Economic and Environmental Impact 9

2.3.3 Changing and Setting Speed Limits 9

2.3.4 Ensuring Compliance 10

2.3.5 Opposition / Support for the Changes 10

2.3.6 Evaluation of Change 10

3 Relevance to Speed Management 11

3.1 Comparison against Scotland 11

3.2 Comparisons Arising from the Irish Work Review 11

4 Conclusions 14

Tables

Table 2-1 – Total Change in Non-Greenhouse Gas Emissions on Ireland Rural Roads (See Table G.1 of the Irish Work Modelling Report) 4

Table 2-2 – Total Change in Non-Greenhouse Gas Emissions on Ireland Urban Roads (See Table G.2 of the Irish Work Modelling Report) 5

Table 3-1 - Percentage of vehicles exceeding the speed limit by road type in Great Britain, 2022 (Source DfT SP20112) 13

Appendices

Appendix A

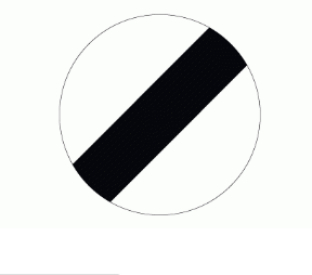
Glossary of Terms

Appendix B

Speed Limit Review Recommendations

Executive summary

The Scottish Government are committed to achieving safer road travel in Scotland, with a vision of “Scotland to have the best road safety performance in the world”. To support this Transport Scotland are considering two key options for altering speed limits in Scotland:



- Option 1: Reduced National Speed Limit on single-carriageway roads to 50mph and increased HGV speed limit on single carriageway roads to 50mph; and
- Option 2: Reduced National Speed Limit on single-carriageway roads (to 50mph), dual-carriageway roads (to 60mph) and motorways (to 60mph), and increased HGV speed limit on single-carriageway roads to 50mph and dual carriageway roads to 60mph.

To inform this work an interim review of the Speed Limit Review published in Ireland in September 2023 has been undertaken and presented within this technical note. The publication of the Speed Limit Review is beneficial for Scottish road safety policy development and practice due to the similar nature of Irish and Scottish roads. This review has concluded that the proposed approach being taken to consider speed limit options within Scotland is broadly aligned to that used in Ireland.

Promoting the speed limit options being considered within Scotland will likely support Scotland’s Journey to Vision Zero by reducing the number and severity of road traffic collisions. The wider impacts on associated government policies areas are likely to be relatively minor with respect the economy, climate emergency and active travel.

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Introduction

The Scottish Government are committed to achieving safer road travel in Scotland, with a vision of "Scotland to have the best road safety performance in the world". Transport Scotland's Road Safety Framework to 2030 outlines an ambitious and compelling long-term vision for road safety where there are zero fatalities or serious injuries on Scotland's roads by 2050. The journey to achieving this vision includes ambitious interim targets where the number of people being killed or seriously injured on Scottish roads will be halved by 2030.

As part of the delivery of the Scottish Government's Road Safety Framework to 2030, WSP UK Ltd was appointed by Transport Scotland to undertake a National Speed Management Review. Milestone 2 of this work was reported to Transport Scotland in late 2022 with a series of recommendations that could contribute to Scotland's Journey to Vision Zero, including potential alterations to speed limits within Scotland. WSP has brought in an academic with expertise in speed management from the Transport Research Institute at Edinburgh Napier University for an independent review of our work.

The Scottish Government published the Key Reported Road Casualties Scotland 2022 in May 2023 which showed an increase in fatalities on Scottish roads in 2022. To align with the Scottish Government policies associated with the Climate Emergency and to improve Scotland's road safety, WSP will consider two options from Milestone 2 related to speed limit changes:

- Option 1: Reduced National Speed Limit on single-carriageway roads to 50mph and increased HGV speed limit on single carriageway roads to 50mph; and
- Option 2: Reduced National Speed Limit on single-carriageway roads (to 50mph), dual-carriageway roads (to 60mph) and motorways (to 60mph), and increased HGV speed limit on single-carriageway roads to 50mph and dual carriageway roads to 60mph.

To develop an understanding of the potential road safety implications of speed limit changes and to inform the development of a Climate Change Plan for Scotland, WSP have undertaken an interim *Review* of work published in Ireland by the Department of Transport (DoT) on altering speed limits (*Irish Work*) to understand the potential impacts of changing speed limits on Scottish roads. This *Review* is documented within this report.

Overview of Department of Transport Speed Limit Review

General

Published on the 14th September 2023, the *Irish Work* fulfils a Programme for Government commitment in Ireland that included their Road Safety Strategy 2021 – 2030. The published *Irish Work* consists of four reports:

- Main Report;
- International Research;
- Modelling Assessment Report; and
- Workshop Report

The relevant findings in the Main Report, International Research and Modelling Assessment Report are summarised in this *Review*. The themes from the Workshop Report are covered within the other documents or considered to be of limited relevance to Scotland.

The main objectives of the *Irish Work* are to:

- improve road safety;
- consider vehicular carbon emissions and; and
- improve driver compliance with speed limits.

The Irish Road Network is over 99,000km in length and has three main categories noted below. The *Irish Work* recognises that a vast majority of the road network is of an inconsistent standard.

- National Roads Network (NRN), covering approximately 5,300km (approx. 5% of the Irish road network). This includes 1,000km of Motorway, 330km of Dual Carriageway and 3,970km of Single Carriageway roads;
- Regional Roads, covering 13,000km (approx. 13% of the Irish road network); and
- Local Roads, covering over 81,000 km (approx. 81% of the Irish road network).

The *Irish Work* considered and assessed seven scenarios for alterations to speed limits on rural roads. Divided roads are those which include a central reservation generally found as part of the cross section of dual carriageways and motorways. The seven scenarios are outlined below:

- Scenario 1 – 10 kph reduction applied across the entire rural road network (where existing speeds are greater than 60 kph);
- Scenario 2 – 10 kph speed reduction applied on all single carriageway roads;
- Scenario 3 – speed limit of 80 kph applied to all National Secondary Roads only;
- Scenario 4 – speed limit of 60 kph applied to all Local Roads only;
- Scenario 5 – speed limit of 70 kph applied to all National Secondary and Regional Roads;

- Scenario 6 – speed limit on all rural divided roads reduced by 10 kph and all rural single carriageway roads reduced by 20 kph; and
- Scenario 7 – speed limit of 80 kph on all National Secondary Roads and 60 kph on all Local Roads.

The presumption within the scenarios was that all streets within the urban boundary had a reduced speed limit of 30 kph applied.

Main Report

The following section of this report presents the *Review* of the Main Report of the *Irish Work* from the perspective of key themes identified to date by WSP as part of the Speed Limit Options being considered in Scotland (refer to the introduction). These themes include air quality, noise, sustainability & active travel, vehicle emissions and road safety modelling analysis.

Modelling Methodology

The approach taken to the *Irish Work* involved modelling, research on international practice and workshops with key stakeholders. The assessment was not to compare the scenarios, instead to consider the impacts and allow DoT to make an informed decision. The scenarios were then grouped into two approaches:

- Blanket Approach (Group 1): Speed limit reduction applied across all rural roads regardless of road classification (National, Regional, Local) i.e., Scenarios 1, 2 and 6; and
- Targeted Approach (Group 2): Speed limit reduction applied on specific carriageway types (divided or undivided roads) and/or road classification (National, Regional, Local) i.e., Scenarios 3, 4, 5, and 7.

Modelling and appraisal tools considered as industry standard in Ireland, were used to inform the assessment which have been used on a range of projects in Ireland including National Road Schemes. These included:

- TII National Transport Model (NTpM) was used to simulate behavioural response to the proposed rural speed limit scenarios and inform safety and travel time impacts. The TII Road Emissions Model (REM) was used to estimate GHG emission impacts; and
- National Transport Authority (NTA) Regional Modelling System (RMS) and smaller Local Area Models were used to assess the safety and travel time impacts on urban roads. NTA's Environmental Appraisal Module (ENEVAL) was used to estimate GHG emissions impacts.

Air Quality

Air quality impacts were not specifically addressed as part of the *Irish Work*, however the changes in traffic pollutants were recorded for the seven scenarios modelled. These are reproduced in **Table 0-1** and **Table 0-2.**

Table 0-1 – Total Change in Non-Greenhouse Gas Emissions on Ireland Rural Roads (See Table G.1 of the Irish Work Modelling Report)

Scenario	Description	Nitrogen Oxides (NO_X)	Nitrogen Dioxide (NO_2)	Particles with a diameter of 10 micrometres or less (PM10)	Particles that are 2.5 microns or less in diameter (PM2.5)
1	10kph reduction applied to the entire rural road network	-2.2%	0.0%	-0.4%	-0.6%
2	10kph speed reduction applied on all rural single carriageway roads	+0.5%	+0.1%	+0.1%	0.0%
3	Speed limit of 80 kph applied to all National Secondary Roads only	+0.1%	0.0%	-0.1%	-0.1%
4	Speed limit of 60 kph applied to all Local Roads	+0.6%	0.0%	0.0%	0.0%
5	Speed limit of 70 kph applied to all National Secondary and Regional Roads	+1.2%	0.0%	-0.2%	-0.3%
6	Speed limit on all rural divided roads reduced by 10kph and all rural single carriageway roads reduced by 20 kph	-0.7%	-0.1%	-0.5%	-0.7%

Scenario	Description	Nitrogen Oxides (NO_X)	Nitrogen Dioxide (NO_2)	Particles with a diameter of 10 micrometres or less (PM10)	Particles that are 2.5 microns or less in diameter (PM2.5)
7	Speed limit of 80 kph on all National Secondary Roads and 60 kph on all Local Roads	+0.7%	+0.1%	-0.2%	+0.1%

Table 0-2 – Total Change in Non-Greenhouse Gas Emissions on Ireland Urban Roads (See Table G.2 of the Irish Work Modelling Report)

National Traffic Model	NO_X	NO_2	PM10	PM2.5
East Regional Model	0.0%	0.0%	0.0%	0.0%
South West Regional Model	+0.2%	+0.1%	+0.1%	+0.1%
West Regional Model	+0.1%	0.0%	0.0%	0.0%
Mid-West Regional Model	0.0%	0.0%	0.0%	0.0%
South East Regional Model	+0.1%	0.0%	0.0%	0.0%

The changes in emissions reported in Table 0-1 and Table 0-2 show an inconclusive impact on emissions as a result of the modelled scenarios in each of the strategic transport regions of Ireland. The Transport Research Laboratory paper as detailed in the *Irish Work*, was used as part of the international research to support the Irish Work examined a number of instances where speed limits had been reduced, most notably in France and in Oslo, Norway. In both instances, air pollutants were found either to have reduced by a non-statistically significant quantity or experienced no significant impact.

The *Irish Work* presents data on changes in emissions for different speed limit reduction scenarios on rural and urban roads. The *Irish Work* concludes that the impact of the introduction of some reductions in speed limits on rural roads in Ireland is inconclusive with respect to air quality.

Noise

In the Stakeholder Engagement section of the Main Report of the *Irish Work*, (which is detailed in the International Research Report), environmental and noise pollution considerations were cited during the interviews as one of the reasons for changing the

speed limit. It was observed that a reduction in noise pollution was recognised as a positive environmental contribution, although the Literature Review section acknowledged that there is contrasting evidence. This seems to be mainly due to the difficulty in the implementation of evaluation models capable of evaluating key metrics.

In summary, the *Irish Work* considers environmental and noise pollution when changing speed limits. It aims to reduce noise pollution, recognising the benefits of this to the wider environment.

Sustainability & Active Travel

Within the Main Report of the *Irish Work,* the impacts of changes in speed limits upon greenhouse gas emissions are inconclusive. Studies that analysed observed data, as opposed to theorised or modelled outcomes, generally found that any positive environmental impacts were minimal or statistically insignificant.

The *Irish Work* identifies that lower speeds could allow for more active travel, including an allowance for greater interaction and less segregation between modes. The report also refers to the Dutch Institute for Road Safety Research (SWOV) for a range of speed limits for different circumstances/interactions. SWOV showed that a safe speed for any situation with potential conflicts with vulnerable road users (for example pedestrians walking in the carriageway; bike lanes; crossings) is 30 km/h (18.75 mph) or less.

Vehicle Emissions

The *Irish Work* demonstrates the relationship between the speed a vehicle is travelling and the volume of emissions it generates follows a U-shaped curve, rather than a linear one. Emission rates are highest at lower speeds, especially in urban driving conditions due to stop-starting, and reduce as speed level rises. However, emission rates start to increase again above vehicle speeds of 70kph.

In the context of the speed limit reduction scenario, reducing speed will not always lead to a proportional reduction in vehicle emissions due to this non-linear relationship.

As part of the *Irish Work,* an analysis of the correlation between vehicle type, speed, and greenhouse gas emissions was undertaken. It highlights the comparative advantage of diesel cars over petrol cars in terms of emissions across a defined speed range (5 kph - 120 kph). Additionally, it emphasises the significant greenhouse gas emissions linked to LGV and HGV vehicles.

In summary, from the modelling outputs the environmental benefits of speed limit reduction in rural areas may not be as significant as previously assumed, emphasising the need for careful consideration of road types and characteristics when implementing such measures.

Road Safety

The road safety impact was analysed by looking at the change in total vehicle kilometres travelled and the change in total vehicle kilometres travelled at >80mph on single-

carriageway roads. As highlighted in Section 2 of this report, there were seven modelled scenarios for rural roads and categorised into two approaches for modelling work were considered within the *Irish Work*; Blanket Approach and Targeted Approach. The Blanket Approach applied limits across all rural roads irrespective of classification. The targeted approach applied limits on specific road classifications (National, Primary or Secondary) or road type (divided or undivided i.e. with or without a central reservation).

The Blanket Approach modelling indicated that reducing the speed limit across a rural single carriageway network only may have the best overall safety outcome. This is on the basis that the network maintains motorised (WSP understands this to be motorised traffic levels) traffic levels on the safest types of roads (motorways and dual carriageways) and reduces the rural single carriageway speed limit. The *Irish Work* recognised that a blanket approach may be challenging for compliance. Rural single carriageways which are of a higher standard would require enforcement and public buy-in. Conversely roads of a lower standard may be self-enforcing.

The targeted scenarios have the potential to lead to an overall net increase in vehicle kilometres (distance) travelled across the road network as drivers may re-route to find the quickest route between their origin and destination. Reducing speed limits on specific roads can result in traffic rerouting onto other roads “with a lower standard”. The *Irish Work* doesn’t elaborate on this, but the implication is that traffic may shift from roads built for higher speeds onto roads unsuitable for high traffic speeds or flows, which may increase the likelihood of a road collision.

Overall, the blanket approach scenarios may have a better impact on road safety compared to the targeted approach because drivers are less likely to re-route onto unsuitable roads. This re-routing effect should be considered in Scotland e.g. when looking at the impacts of reducing speed limits on specific sections of roads as it could lead to drivers diverting to ‘riskier’ roads.

The targeted approach scenarios have not been modelled as part of the *Irish Work,* however Transport Scotland may reduce the speed limit on a specific road section. The targeted approach modelling shows that there may be an increase in vehicle kms as drivers may reroute to find a quicker route.

Urban areas were assessed in the Irish Work however this will be discounted from this *Review* as the urban areas in Scotland are not appraised in the Options being considered.

Irish Work Recommendations

The Main Report of the *Irish Work* makes six recommendations for urban and rural roads with respect to speed limits. These include:

- to introduce a default 30km/h speed limit in urban areas;
- To maintain existing speed limits on the rural road network except for:

- National Secondary Roads where it is recommended that the default Speed Limit be reduced from 100 km/h to 80 km/h (62.5mph to 50mph); and
- Local Roads where it is recommended that the default Speed Limit be reduced from 80 km/h to 60 km/h (50mph to 37.5mph).

- To implement the following Safe System changes implemented:
  - Where the speed limit is to remain above 80km/h (50mph), the requirements to divide these roads and manage pedestrians/cyclists shall be investigated;
  - All new sections of the rural road network that are to be above 80km/h (50mph), should be designed as divided roads and have appropriate segregated provision for pedestrians or cyclists; and
  - All new pedestrian and cycle infrastructure should be segregated from road traffic where the speed limit is greater than 60kph.

Numerous other speed management related recommendations are made within the *Irish Work* which have not been specifically identified within this *Review.* Appendix B includes a summary table of all recommendations within the *Irish Work.*

International Research

This section provides an overview of the review of International Research undertaken by the *Irish Work*. This consisted of a literature review and stakeholder engagement with international partners. This aimed to understand:

- policy and legislation areas relevant to the setting and management of speed limits internationally;
- the impacts of decisions to amend speed limit policies, particularly where speed limits have been reduced;
- the existing legislative context; and
- current practices for setting speed limits.

The *Irish Work* identified a number of key findings with respect to road injuries, economic and environmental impact, changing setting speed limits, ensuring compliance, opposition / support for the changes and the evaluation of change. An overview of this work is presented in the following sections. Some of the core themes from the *Irish Work* have been combined within this *Review* due to the similar issues raised.

Road Injuries

The *Irish Work* considered the impacts within several countries where speed limits have been altered in rural and urban environments. These considered scenarios within urban and rural contexts where speed limits were either increased or decreased. Where speed limits are altered the evidence reviewed concludes that:

- Increasing speed limits increases road collision severity; and
- Reducing speed limits decreases road collision severity.

The conclusions noted above are consistent with international research. Notably some of the work reviewed considered individual sections of road rather than network wide changes.

Economic and Environmental Impact

The *Irish Work* considered the evidence on the monetised economic and environmental impacts. The qualitative review presented in the *Irish Work* considered several international examples and has identified a number of impacts to the economy from the changing speed limits. These relate to:

- Economic loss from increased journey times;
- Economic gain from reduced collision rates;
- Economic gain from fuel savings; and
- Economic gain from reduced greenhouse gas emissions.

It is also worth noting that there was no monetised economic analysis undertaken of the proposed scenarios and this appears to be a limitation of the *Irish Work* in comparison to the approach proposed in Scotland.

The evidence considered found that although there are a number of benefits, from a Cost Benefit Analysis perspective, when monetised these are outweighed by the economic disbenefit of increased journey times. The impacts for any given journey are considered to be small, but in aggregate, the effect of many small disbenefits results in a relatively large disbenefit overall which is itself a limitation of the approach to appraising economic impact.

The *Irish Work* notes that current approaches to economic impact assessment do not fully account for benefits “such as road safety and promoting usage by other types of road user” but does not expand upon how such benefits were considered in their own right.

Changing and Setting Speed Limits

The *Irish Work* identifies several tools around the world that are used to assess appropriate speed limits. These tools often consider similar factors when identifying speed limits for a section of road. These include:

- Actual traffic speeds;
- Traffic volume and composition;
- Geometric parameters including junction/access density;
- Active travel facilities/usage;
- Collision history;
- Enforcement;
- Roadside hazards;
- Local amenities; and
- Function of the road.

As part of the final decision-making process for changing speed limits some of the tools identify additional factors to inform this, such as value for money and the concept of credible

speed limits. This outlines that speed limits are easily understood by drivers as the correct speed limit.

Some countries, such as France, undertake an ongoing process of reviewing speed limits on a periodic basis.

In many countries the key reasons for lowering speed limits have been related to safety, environment, liveability, encouraging use of other forms of transport, improving traffic flow and following international best practice.

Ensuring Compliance

The Irish Work has identified that ensuring compliance takes many different forms around the world including speed cameras, traffic calming, variable speed limits, issuing of fines and communicating speed limits to the driving public.

This principle relates to many of the wider recommendations of the *Irish Work.*

Opposition / Support for the Changes

Stakeholder/public perception is identified within the *Irish Work* as being a key consideration before changing speed limits. Several key parties are identified including:

- The police;
- Emergency services;
- Local councils and Roads Authorities;
- Local residents; and
- Governments or politicians.

The support of these is often considered vital prior to changing speed limits as the lack of support from the public can undermine the objectives of changing speed limits being achieved.

Evaluation of Change

Many of the case studies considered within the *Irish Work* have only been implemented for a relatively short period of time. The evaluation of these examples has often considered the following:

- Speed changes – Evidence from the case studies reviewed identified that average traffic speeds were generally lower where speed limits were reduced;
- Safety – Evidence from the case studies identified that the number of KSI were reduced where speed limits were reduced;
- General public perception – The findings from the case studies considered was mixed; and
- Environment and Economy – No post implementation evaluations were identified by the *Irish Work* to see if benefits/disbenefits forecasted have been accurate.

Relevance to Speed Management

Comparison against Scotland

The purpose of reviewing *Irish Work* is to learn from the findings of the report and to consider:

- In what respects these findings may be applicable in Scotland; and
- In what respects these findings may not be applicable in Scotland.

The Scottish trunk road and motorway network in 2020 is estimated to be 56,959km of which in length with 3,739km are trunk roads and motorways (6.6%). This is considered as the strategic road network in Scotland which is maintained by the Scottish Government. This is comparable to the proportion (5%) of the National Road Network maintained by Transport and Infrastructure Ireland (TII) (See Section 2.1). These strategic routes typically receive greater funding associated with operation, maintenance and enforcement due to their national importance. Similar to Scotland, the road network in Ireland is of an inconsistent standard, reflecting their historical nature and relative funding levels between strategic and local roads.

National Secondary Roads are broadly equivalent to single carriageway A roads in Scotland; Local Roads are broadly equivalent to B roads and unclassified roads in Scotland.

Comparing collision data between countries tends to be difficult primarily due to differences in how the data is recorded. Accordingly, no comparison has been presented within this *Review*. From this overview and our knowledge of the Irish road network there is strong similarities to the Scottish road network.

Drawing comparisons between countries road safety statistics is recognised as being difficult due to differing laws and cultures. Ireland, in these respects, is considered culturally and legally similar to Scotland due to the geolocation, generally similar cultures and the historical movement of people between the two countries.

Comparisons Arising from the Irish Work Review

The *Irish Work* considered alterations to speed limits on the rural road network, which aligns with the options being considered by the Scottish Government. The presumption within the scenarios considered by the *Irish Work* was that all streets within the urban boundary had a reduced speed limit of 30kph applied. This is consistent with Scottish Government policy to reduce speed limits on all appropriate urban roads to 20mph by 2025. It is acknowledged that there is some limited evidence of model shift as a result of the reduction in urban speed limits (30mph to 20mph) in Portsmouth, Bristol, and Edinburgh.

The recommendations from the *Irish Work* identifies the importance of speed limits in creating safe infrastructure for active travel. This aligns with Scottish Government objectives to promote active travel. In Scotland, Cycling by Design (Table 3.2 When to separate cycle

users from motor traffic. Cycling by Design 2019) requires segregated facilities for road traffic speeds above 50kph to provide a high level of service for most users similar to the *Irish Work recommendations*.

Speed limits within the seven scenarios presented by the *Irish Work* consider rural roads, the main focus of the Options being considered within Scotland.

International evidence is strong on the link between road traffic speeds and higher severity collisions rates (i.e. higher speeds leads to a greater number of high severity collisions). There is robust evidence between lower road traffic speeds and reductions in collision severity. This is consistent with the principles associated with the Safe System Approach to Road Safety, a key concept of Scotland's Road Safety Framework to 2030.

For assessing the impacts upon rural roads, the *Irish Work* utilised the TII National Transport Model (NTpM) to simulate behavioural response to the proposed rural speed limit scenarios and inform high level safety and travel time impacts. The assessment in Scotland will use the Transport Model for Scotland which is comparative to the approach in Ireland on rural roads.

TII Road Emissions Model (REM) was used to estimate GHG emission impacts on rural roads. The environmental assessments in Scotland will use the UK equivalent to TII REM.

The makeup of the Irish fleet has been considered throughout the GHG emission assessments as the fleet will change over time sue to the technological change and use of energy saving technologies. Scottish government policy is to phase out the need for petrol and diesel vehicles by 2030.

International examples considered by the *Irish Work* suggests that changes in speed limits are likely to have a theoretical negative economic impact when monetised. This is principally due to the large value attached to journey times. Given that modelling work in Scotland follows similar principles it is likely that modelling work within Scotland will also show an overall negative economic impact from any change in speed limits proposed and the impact of smaller journeys may be negligible.

For assessing the impacts upon urban roads, the *Irish Work* utilises the National Transport Authority (NTA) Regional Modelling System (RMS) and smaller Local Area Models were used to assess the safety and travel time impacts on urban roads. As the Options being considered within Scotland concern only rural roads, use of Local Area Models is not being considered.

NTA's Environmental Appraisal Module (ENEVAL) was used to estimate GHG emissions impacts on urban roads. The environmental assessment on Scottish roads will focus on rural roads, urban roads are not being considered as this is beyond the scope of the options being considered.

The tools used around the world to establish speed limits on roads consider similar parameters to those used in Scotland to set speed limits within The Speed Limit Review: The Assessment Process.

There are high degrees of non-compliance to speed limits across Great Britain as shown in Table 0-1; it can be assumed that this applies across Scotland. The approaches taken to ensure compliance with speed limits around the world are consistent with the approaches currently being taken in Scotland. Typically, this involves enforcement, education and engineering works.

Public perception from case studies considered within the Irish Work is a significant factor to ensure successful implementation of speed limit changes. It is likely that this could have a significant impact upon options being considered within in Scotland.

The international speed limit case studies have presented mixed findings for economic and environmental impact. A comprehensive evaluation strategy of all criteria used to substantiate speed limit changes in Scotland is likely to be required to ensure that speed limit proposals/alterations are robust to scrutiny.

With respect to the Options being considered within Scotland, the *Irish Work* makes limited recognition of the impacts of different speed limits for different vehicle types which is being considered for Scotland.

The wider recommendations of the *Irish Work* align to initiatives considered within Milestone 2 of this project.

Table 0-1 - Percentage of vehicles exceeding the speed limit by road type in Great Britain, 2022 (Source DfT SP20112)

Road Type	Cars	LCVs	Articulated HGVs	Rigid HGVs	Short Buses	Long Buses	Motor-cycles
Motorways	45%	48%	2%	[x]	[x]	[x]	55%
National Speed Limit Single Carriageways	11%	[x]	35%	41%	47%	53%	28%
30mph Roads	50%	51%	39%	42%	29 %	32%	56%
20mph Roads	85%	84%	81%	80%	70%	81%	92%

Conclusions

The *Irish Work* considered a wide range of speed limit scenarios and the potential impacts of changing speed limit changes. The overarching recommendations for rural roads (accompanied by a recommendation to apply a default speed limit of 30kph in urban areas) were firstly that the default national speed limits should remain the same except for National Secondary Roads where the speed limit should reduce from 100kmh to 80kmh, and secondly Local Roads where the speed limit should reduce from 80kmh to 60kmh. The report also recommended introducing dividers on existing rural roads where the speed limit was over 80kmh and that new rural roads with a speed limit >80kmh should be built with a divider. Another recommendation was that a new active travel infrastructure should be segregated from motor traffic where speed limit is >80kmh. These recommendations align, in part with the Options being considered in Scotland to reduce single carriageway speed limits.

National Secondary Roads are broadly equivalent to single carriageway A roads in Scotland; Local Roads are broadly equivalent to B roads and unclassified roads in Scotland. It is notable that the *Irish Work* did not consider it worthwhile reducing speed limits on dual carriageways or motorways due to these being the safest sections of roads in Ireland.

With respect to associated policy areas, the *Irish Work* is inconclusive / mixed when considering the impacts upon the economy, air quality, noise and wider environmental concerns.

To obtain the road safety benefits from speed limit alterations, ensuring compliance with the changes will be of importance, be it via enforcement or other initiatives. Many of the wider recommendations of the *Irish Work* relate to this and the other recommendations reported under Milestone 2 of this project.

The conclusions from the *Irish Work* showed that they followed an approach broadly in line with international evidence and the proposed approach being taken to assess the Options for the Scottish Road Network. Speed limit changes being considered within Scotland are likely to support Scotland’s journey to Vision Zero, although the wider impacts are liable to be relatively small.

Appendix A

Glossary of Terms

Glossary of Terms

Vision Zero means there are no deaths or serious injuries on our roads.

Safe System involves those who manage and design the roads as well as those who use them; each is responsible for, and must contribute to, eradicating fatal and serious injuries.

Transport Model for Scotland (TMfS) is a strategic transport model, which provides a broad representation of transport supply and estimates of transport demand.

Irish Work is a report which has been prepared in accordance with Action 6 of Ireland's Government Road Safety Strategy (2021 –2030) – Our Journey Towards Vision Zero. There was recommendations in the report which are Principal, Specific and Support Recommendations.

Within the *Irish Work*, the modelling approaches were considered in two groups:

- Blanket Approach (Group 1): Speed limit reduction applied across all rural roads regardless of road classification (National, Regional, Local) i.e., Scenarios 1, 2 and 6.
- Targeted Approach (Group 2): Speed limit reduction applied on specific carriageway types (divided or undivided roads) and/or road classification (National, Regional, Local) i.e., Scenarios 3, 4, 5, and 7.

Transport Infrastructure Ireland National Transport Model (NTpM) is used to simulate behavioural response to the proposed rural speed limit scenarios and inform safety and travel time impacts.

Transport Infrastructure Ireland Road Emissions Model (REM) is used to estimate GHG emission impacts.

National Transport Authority Regional Modelling System (RMS) and smaller Local Area Models were used to assess the safety and travel time impacts on urban roads.

National Transport Authority's Environmental Appraisal Module (ENEVAL) is used to estimate GHG emissions impacts.

Appendix B

Speed Limit Review Recommendations

Recommendations from the *Irish Work* shown in from the Speed Limit Review are structured in a hierarchical basis as:

- Principal Recommendations are in relation key general network level issues and are in turn divided on an urban and rural basis;
- Specific Recommendations are in relation to targeted issues relating to Speed Limits that align with the Principal Recommendations;
- Supporting Recommendations relate to enablers to support implementation.

Principal Recommendations

P1

It is recommended that a default speed limit of 30km/h for built up and urban areas is introduced. A 30km/h limit should apply, for all city or town centres, residential roads and locations where there is a significant presence of vulnerable/active road users. Exceptions would be permitted for the following:

- Pedestrian zones and shared space/zones whereby a speed limit of 20km/h would apply.
- National, Regional, arterial roads and key public transport routes where limits up to 50km/h may apply.
- Transition zones on National, Regional, arterial roads and key public transport routes where speed limits up to 60km/h may apply.
- Urban arterial roads with a high design speed such as motorways, certain dual carriageways and roads with limited access where higher speed limits may apply.

The definition of ‘built-up area’ and ‘urban area’ requires to be defined and updated in legislation and the Guidelines for Managing Speed Limits. A number of options need to be considered including the use of the CSO Settlement Boundaries and the DMURS Manual. A study is required to develop these options and is identified as a supporting action.

P2

It is recommended that default Speed Limits remain the same on the rural road network except for:

- National Secondary Roads where it is recommended that the default Speed Limit be reduced from 100 km/h to 80 km/h to align with the Safe System principles and to reduce the severity of head on collisions. It is generally not feasible that these roads will ever be divided having regard to the future requirement to divide roads with a speed limit greater than 80 km/h.
- Local Roads where it is recommended that the default Speed Limit be reduced from 80 km/h to 60 km/h to align with the use of the network and the Safe System principles. Given the variability of the network exceptions based upon road safety, and classification would be permitted in accordance with a methodology set out in the Statutory Guidelines.

It is also recommended that the following Safe System changes are implemented:

- For sections of the current road network where it is proposed to maintain a speed limit over 80km/h, the requirements to divide these roads and manage pedestrians/cyclists shall be investigated and that TII, for National Roads and the Department of Transport for Regional and Local Roads each prepare a plan within the next two years to address this.

All new sections of the rural road network that are to have a speed of over 80 km/h, not yet through the planning process, should be designed as divided roads and have appropriate segregated provision for pedestrians or cyclists. e. All new pedestrian and cycle infrastructure should be segregated from general traffic on sections of the road network where the speed limit is greater than 60 km/h.

Specific Recommendation

SP1

It is recommended that where Cycle Streets are provided a speed limit of 30 km/h should apply.

SP2

It is recommended that the Speed Limit for roads adjoining schools be set to between 30 km/h and 50 km/h respectively on urban and rural sections of road, that the type of sign including School Speed Limit signs be updated, that such signs be remotely monitored and facilities supporting enforcement be provided.

SP3

It is recommended that in accordance with a Safe System approach, that Speed Limits for Shared Spaces (Zones) should have a 20 km/h limit and be considered for development as regulated zones.

SP4

It is recommended that, where vehicles are permitted at certain times in Pedestrian Zones, that a maximum Speed Limit of 20km/h should apply.

SP5

It is recommended that 30km/h Slow Zones should be retained and further developed with Community Involvement.

SP6

It is recommended that Quiet Lanes be developed and piloted and that as part of the outcomes of this, a recommendation is made on Speed Limits. This should also include a

range of recommended measures such as signing and traffic calming and would be consistent with ‘self-regulating roads’.

SP7

It is recommended for consistency of Cycleways and Greenways, which are mixed in use, 30 km/h should be considered.

SP8

It is recommended that the Variable Speed Limit Scheme on the M50 be completed and fully implemented and that based on the experience gained, similar schemes be considered elsewhere in Ireland as appropriate.

SP9

It is recommended that Roadworks Speed Limits be updated through revised regulations and guidelines to include improved signage, camera enforcement and increased driver penalties.

SP10

It is recommended that design solutions for gateways and transition zones be developed including simple traffic design and signage.

SP11

It is recommended that the concept of Restricted Roads be developed to allow for implementation on suitable high-speed roads (greater than 80km/h) across the road network as required.

SP12

It is recommended that traffic calming solutions be further developed for urban and rural areas to guide the need for such facilities, including the types of traffic management measures (such as rapid deployment), signage and site trials.

Supporting Recommendations

SU1

It is recommended that legislation is introduced to amend the default Speed Limits to 30 km/h for ‘built-up area’, to 80 km/h for rural national secondary roads, and rural local roads to 60 km/h. It is also recommended that the term ‘urban area’ be clearly defined. Regulations will be required in relation to Road Works Speed Limits.

SU2

It is recommended that relevant Standards / Guidelines are reviewed and updated to ensure that they are aligned with this report and the key principles of Road Safety (Safe System),

Climate Action and Active Travel. Examples of issues to address include dividing roads for higher speeds, urban roads., managing all users including active users, traffic management and street space allocation. It is recommended that the planning and ongoing co-ordination of Guidelines and Standards be done through the recently established National Guidelines and Standards Group (NGSG).

SU3

It is recommended that a plan be developed and implemented to ensure standardisation and sharing of relevant road, safety and traffic data. This plan should look at mechanisms and structures to achieve this.

SU4

It is recommended that the Guidelines for Setting and Managing Speed Limits be updated to reflect the recommendations of this review such as the 30 km/h for urban roads.

SU5

It is recommended that, as that the Speed Limit Appeals Procedure was introduced in December 2021, its implementation be monitored and that it be reviewed/updated.

SU6

It is recommended that an updated approach be developed to the definition of ‘urban area’ that takes account of the work of the CSO and the previous work in the Guidelines for Setting and Managing Speed Limits. Options in support of legislation should be considered.

SU7

It is recommended that a new Speed Assessment Framework be developed having regard to international practice and Irish research. This should align with other parts of the Guidelines for Setting and Managing Speed Limits in Ireland.

SU8

It is recommended that new Audit and Compliance Certificate procedures be introduced to support Speed Limits to help ensure consistency and appropriateness.

SU9

It is recommended that the Traffic Signs Manual and associated regulations are updated to support the Principal and Specific recommendations in this report. In support of Intelligent Speed Adaption (ISA), an inventory should be carried out of speed limits.

SU10

It is recommended that a framework guiding the approach to classification be developed and that the classification of roads be updated to reflect this to help ensure that the road network is optimised to reflect appropriate use and appropriate Speed Limits.

SU11

It is recommended that existing road user education material be reviewed and updated, where required, to ensure it contains material on the role and meaning of Speed Limits and to inform road users of changes.

SU12

It is recommended that options for a partnership structure, to support communication and engagement, involving key stakeholders and communities be investigated, piloted and rolled out.

SU13

It is recommended that training be developed for elected members in relation to Speed Limits and that the process within which the Reserved Function operates be reviewed to improve its effectiveness.

SU14

It is recommended that the use of camera enforcement technologies such as Average Speed and Variable Speed Limits be developed further in conjunction with improved administrative and back-office processes and that higher penalties should apply for at-risk zones such as for roadworks, schools and shared use zones.

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