



Masterplan for Active and Sustainable Transport Assessment: A5 – New Buildings to Aughnacloy



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Glossary

Term	Definition
Controlled Pedestrian Crossing	Controlled pedestrian crossings shall be taken to include Zebra, Pelican, Toucan and Puffin Crossings.
Central Refuge	A refuge island, also known as a pedestrian refuge or pedestrian island, is a small section of pavement or footway, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle.
Director of Engineering Memorandum (DEM)	Part of a suite of DfI Roads policies, procedures and documents relating to the construction, development, improvement and maintenance of the roads network.
Departure from Standard (DfS)	Except where Relaxations are permitted, any variation or waiving of a requirement contained within a DMRB or MCHW document must be considered to be a Departure from that Standard and will require approval from the appropriate Overseeing Organisation (in NI this is DfI).
Design Manual for Roads and Bridges (DMRB)	The DMRB is a series of 15 volumes that provide standards, advice notes and other documents relating to the design, assessment and operation of trunk roads, including motorways in the UK.
Greenways	Greenways are traffic-free routes connecting communities to various destinations for commuting, everyday journeys and / or leisure and recreation.
Manual for Streets	Guidance published by Chartered Institution of Highways and Transportation for practitioners involved in the design, planning and approval of new residential streets and modifications to existing ones.
Non-Motorised Users (NMU)	Non-Motorised Users (NMU) are considered to be pedestrians, cyclists and equestrians. Particular consideration should be given to the needs of disabled people, who may use any of these modes and / or other equipment such as wheelchairs
Park & Ride	The term “Park & Ride” is usually applied to a dedicated bus service linking a purpose built car park with the nearest town/city centre, or to a railway station designed or adapted to provide good access by car.
Park & Share	The term “Park & Share” is usually applied to dedicated car parks at key road junctions intended to act as meeting points for those travelling onward as part of a party of two or more in the same vehicle.
Relaxation of Standard (RoS)	A number of DMRB documents contain within them provision for Relaxations where experience has shown that certain requirements may be varied within defined limits in particular situations. Any Relaxations will require approval from the appropriate Overseeing Organisation (in NI this is DfI).
Roads Policy and Procedure Guides (RSPPG)	Part of a suite of DfI Roads policies, procedures and documents relating to the construction, development, improvement and maintenance of the roads network.

Rural Area	A rural area is a geographic area that is located outside cities and towns.
Shared Use Facility	A shared use facility is an unsegregated facility used by more than one type of NMU, for example pedestrians and cyclists, or pedestrians, cyclists and equestrians. The use of motorcycles and mopeds are normally prohibited.
Speed Table	Speed tables are a raised section of road, with a ramp on both sides. The ramps are painted with white arrows to make them visible to motorised users. The aim of the speed table is to ensure motorised users remain at a safe speed, as the ramps become uncomfortable for vehicle drivers if they are driven over too fast. A speed table is normally around 75mm high, and can vary in length.
Uncontrolled Pedestrian Crossing	Uncontrolled at grade crossings consist of dropped kerbs along with appropriate tactile paving. It should be noted that other facilities defined as uncontrolled pedestrian crossing facilities include central refuges, footway build-outs and speed tables.
Urban Area	An urban area is the region surrounding a city and is normally well developed, with a density of human structures such as houses, commercial buildings, roads, bridges, and railways.

1 Introduction

1.1 Scheme Background

The proposed A5 Western Transport Corridor (A5WTC) comprises 88km of new trunk road including 85km of new dual carriageway, from New Buildings to the border at Aughnacloy.

During the design process it was decided that the scheme would be divided into three sections:

- Section 1: New Buildings – Sion Mills;
- Section 2: Sion Mills – South of Omagh; and
- Section 3: South of Omagh – Aughnacloy.

It is currently proposed that the construction works will be progressed in five phases as funding is made available by the Executive. The phases are as follows:

- Phase 1a: New Buildings to north of Strabane (within Section 1)
 - Construction proposed 2017-2019
- Phase 1b: South of Omagh to Ballygawley (within Section 3)
 - Construction proposed 2019-2021
- Phase 2a: North of Strabane to south of Strabane (within Section 1)
 - Construction proposed 2021-2023
- Phase 2b: South of Strabane to south of Omagh (Section 2)
 - Construction proposed 2021-2023
- Phase 3: Ballygawley to Aughnacloy (comprises remainder of Section 3)
 - Construction proposed 2026-2028¹

Following completion of construction works for all phases of the A5WTC (New Buildings to Aughnacloy) the respective sections of the existing A5 will be de-trunked, categorised as a B class road and no longer form part of the 'Western Key Transport Corridor'.

In response to the publishing of Draft Orders in February 2016, representations were made to the Department for Infrastructure (DfI Roads) indicating that opportunities for the implementation of active and sustainable transport initiatives on and in the vicinity of the existing A5 had not been fully explored. Consequently the Department committed to the development of a strategic Masterplan that would seek to identify these opportunities between New Buildings and Aughnacloy.

¹ See Section 9.3 for further information regarding the proposed construction programme for Phase 3.

WSP was tasked with assessing opportunities for active and sustainable transport infrastructure on and in the vicinity of the existing A5 and the subsequent development of this strategic Masterplan; hereafter this assessment will be referred to as the A5 Active and Sustainable Transport Assessment (A5ASTA). The assessment considers potential opportunities that could be introduced following construction of the A5WTC dual carriageway in its entirety and the associated reduction in traffic flows from the existing road network, as well as the identification of possible opportunities following completion of the respective construction phases.

It should be noted that the opportunities identified in the strategic Masterplan will not be delivered as part of the A5WTC project but as separate packages of works. Implementation of these opportunities is also dependent upon the budget available to implementation bodies once the A5WTC is complete.

Any identified opportunities in the Masterplan, if progressed as discrete improvements, will be subject to a full design and consultation process in due course.

1.2 Principles

The Masterplan report (A5ASTA) aligns with advice provided in a wide range of national design and guidance documents, such as Design Manual for Roads and Bridges (DMRB), Manual for Streets (MfS), Manual for Streets 2 (MfS2), disability legislation and Departmental (DfI Roads) policy documents RSPPG's and DEM's. This list is not exhaustive and designers are encouraged to review the list of references on pages 11 - 13.

Non-Motorised User (NMU) improvement schemes within urban areas and on the rural road network normally requires DMRB standards to inform the design of highway geometry elements and ultimately it will be for DfI Roads to approve any alternative standard utilised on a site by site basis. Notwithstanding this requirement, designer flexibility is recommended with regards to using the most appropriate standard for site specific locations to facilitate the delivery of safe and sustainable (NMU) improvement opportunities identified along the existing A5 route. Consultation with DfI Roads should be undertaken during the concept development stages of the schemes.

Collaborative working is encouraged between all stakeholders. The establishment of multi-disciplinary development teams should be considered by implementation agencies and their designers who wish to deliver NMU opportunities. In the context of Northern Ireland, joint working may involve government and public sector bodies such as the Department of Communities, Local Councils, Housing Executive, Department for Infrastructure and also non-government organisations and community groups. To accommodate the provision of a successful coordinated quality design process, it is strongly recommended that discussion and joint working occurs at the earliest possible opportunity for the implementation of individual or groups of NMU opportunities.

Promotion of modal shift from private car to public transport, Park and Ride/Share use, walking and cycling is encouraged as behavioural changes of this nature have been

attributed to improvement in physical health together with evidence that transport choices can also influence mental health and well-being.

Streets should have a local distinctiveness and have a sense of “place” and “movement” functions. Designers and other stakeholders are therefore encouraged to consider the function of streets when reviewing and implementing NMU opportunities in the fifteen urban areas detailed in this report.

The development of highway improvement schemes will require assessment and justification, which normally covers aspects of the Environment, Safety, Economy, Accessibility and Integration. Implementation of some NMU opportunities may also require community consultation and Police Service of Northern Ireland (PSNI) and DfI (Roads) specific site assessments.

It is envisaged that the A5ASTA report will be used to deliver various NMU opportunities on the existing A5 over the proposed A5WTC Dual Carriageway phased construction programme period 2017 to 2028 and beyond. It is therefore, important that implementation agencies keep up to date with any new design standards or guidance published that may help inform the design process, which may also include the review of Local Area Plans, environmental improvement schemes and town centre Masterplans.

1.3 Objectives

The primary objective of the Masterplan is to review the existing A5 trunk road between New Buildings and Aughnacloy and the immediately adjacent road and Non-Motorised User (NMU) networks to seek to identify potential new opportunities for active and sustainable transport infrastructure, such as:

- Cycling routes that could be developed as a result of changes in traffic patterns along the existing A5 route;
- Potential new links between walking, cycling and public transport, considering park and ride sites in particular;
- Potential opportunities for urban cycling networks in populated areas;
- Improved facilities for equestrians;
- An examination of potential opportunities deriving from the Strategic Plan for Greenways, and
- Potential for new links between communities, and safer routes to schools initiatives.

A further objective of the Masterplan is to report upon the timing (in relation to the construction phasing of the A5WTC scheme) for delivery of potential active and

sustainable transport opportunities, as well as the estimated costs to implement the potential opportunities.

1.4 Masterplan Structure

This document is the 'Masterplan for Active & Sustainable Transport Opportunities: A5 – New Buildings to Aughnacloy'. It summarises the findings of WSP's assessment of potential active and sustainable infrastructure that could be introduced on and in the vicinity of the existing A5 trunk road between New Buildings and Aughnacloy. The Masterplan is structured as follows:

- **Section 1 'Introduction'**: Background and objectives to the A5WTC and A5ASTA,
- **Section 2 'Methods of Improving Active and Sustainable Transport'**: Outlines the types of potential opportunities that could be implemented on or around the existing A5;
- **Section 3 'Key Drivers'**: Outlines the reasons why the A5ASTA has been undertaken;
- **Section 4 'Legislation, Policy Documents and Design Standards'**: Details the various guidelines that WSP took cognisance of during the A5ASTA and states the primary clauses that have informed the potential opportunities identified;
- **Section 5 'Stakeholder Consultation'**: Outlines the extent of the stakeholder consultation exercise undertaken, lists the 3rd party organisations with whom WSP consulted during the A5ASTA, and identifies the primary outcomes of each liaison;
- **Section 6 'Existing A5 Active and Sustainable Transport Infrastructure'**: Summarises the existing active and sustainable infrastructure in place on and around the existing A5 (drawings and memos are included in Appendix 1 and 2 providing more detail of the existing facilities); and
- **Section 7 'Identified Opportunities'**: Summarises the active and sustainable infrastructure that could potentially be introduced on or around the existing A5 (drawings and memos are included in Appendix 1 and 2 providing more detail of the potential opportunities).
- **Section 8 'Traffic Figures'**: Summarises the traffic flows on the existing A5 in the Do-Minimum scenario (no scheme in place), and flows following completion of the phased delivery of the Do-Something (A5WTC scheme) scenario.
- **Section 9 'Programme and Cost'**: discusses the anticipated programme for delivery of potential transport opportunities, in relation to the phased construction of the A5WTC, and estimated costs associated with these opportunities.

- **Section 10 ‘Assumptions and Constraints’:** details the assumptions and constraints associated with determining potential opportunities.
- **Section 11 ‘Conclusions’:** outlines the report’s conclusions and recommendations.

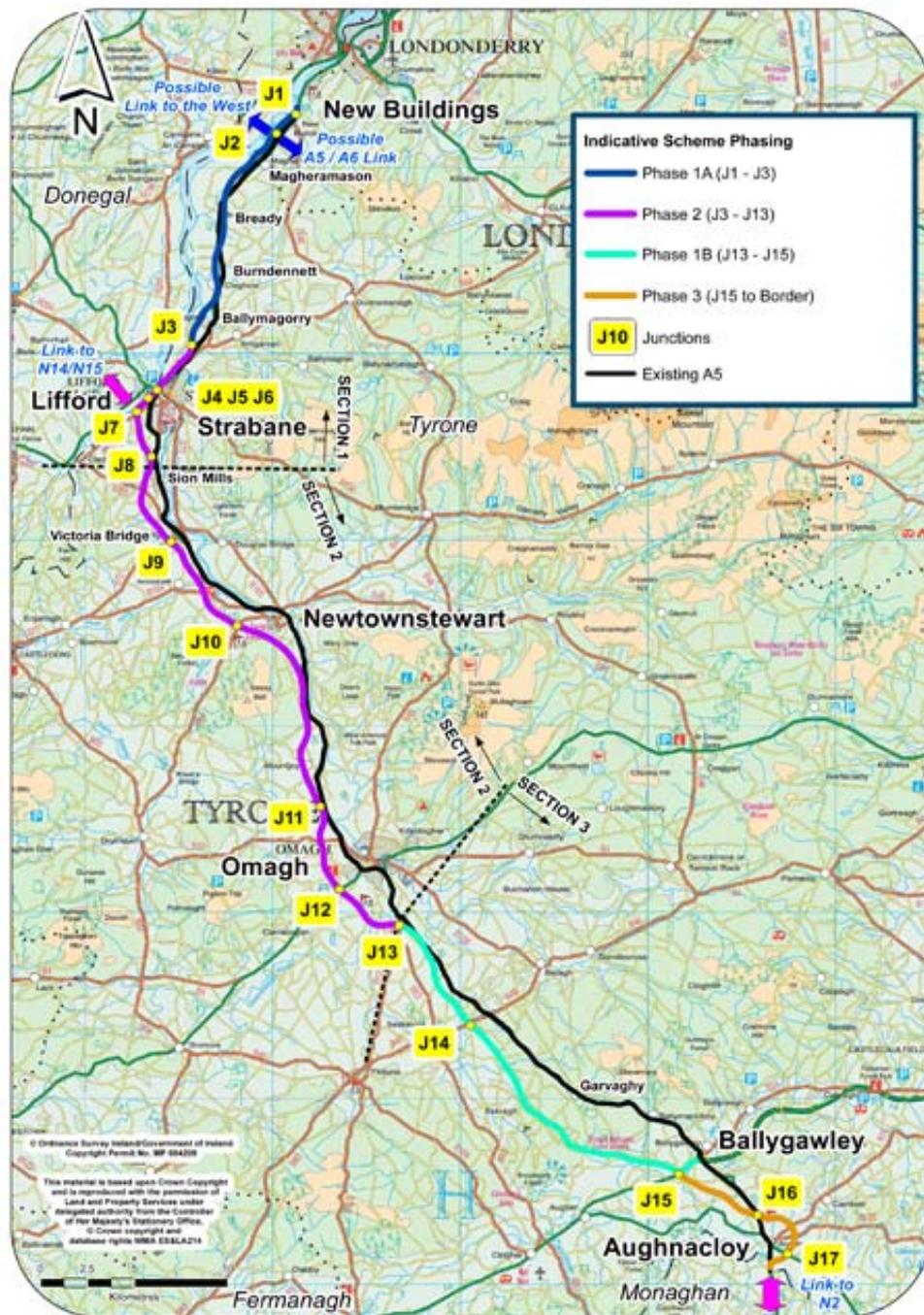


Figure 1: Location plan of the A5WTC Proposed Scheme (source: www.a5wtc.com)

2 Methods of Improving Active and Sustainable Transport

2.1 Introduction

In advance of commencing the exercise of identifying potential improvement opportunities, WSP determined that improved active and sustainable transport opportunities on and around the existing A5 could be achieved through a variety of means, described in Sections 2.2 and 2.3.

It should be noted that while the below initiatives have been referenced in this report, due cognisance was taken of all relevant and evolving Government strategies, plans, guidelines and initiatives during the development of the Masterplan.

The opportunities identified have been included in Memos included within Appendix 1 and 2.

2.2 Improved NMU Facilities

Sections 2.2.1 to 2.2.4 describe the means by which existing non-motorised user (NMU) facilities on and around the existing A5 and on adjacent road and NMU networks could be improved. The A5ASTA undertaken assessed the existing infrastructure in accordance with these potential methods of improvement. For information, please see the below map of the current cycle network in Northern Ireland.

2.2.1 *Repurposing the Existing A5 and/ or Adjacent Roads*

'Repurposing' is the term that is used in this document for opportunities which relate to reassigning part of an existing carriageway width for the sole use of NMUs e.g. an opportunity that relates to developing a cycle lane within the existing A5 carriageway width by reducing the paved surface width for vehicular traffic would be referred to as 'repurposing of the Existing A5'.

2.2.2 *Improving NMU Facilities on the Existing A5 and/ or Adjacent Roads*

Prior to commencing assessment work, a number of methods for improving the existing NMU facilities on and around the existing A5 and on and around the roads immediately adjacent to the existing A5 were identified:

- Improved pedestrian and cycle facilities such as provision of adjacent shared use facilities, upgrading of existing NMU facilities in accordance with current standards if applicable, upgraded provisions for NMUs at junctions, etc.;
- Enhanced connections to existing and suitable connections to planned NMU facilities, including works associated with the proposed A5WTC;
- Improved NMU crossing facilities in urban areas, such as signal controlled crossings;

- Provide additional parking provision at discrete locations along the route to enable pedestrian access to places of interest, where deemed necessary;
- Improved signage for NMUs;
- Suitable positioning of street furniture so as to avoid obstruction of NMU routes;
- Improved facilities for vulnerable NMUs including disabled persons, the elderly and young persons;
- Consider incorporating appropriate actions from the Northern Ireland Road Safety Strategy to 2020; i.e. Action 4 – 20mph speed limits on approaches to schools;
- The implementation of suitable drainage facilities where new paved areas for NMUs are identified as possible improvement options;
- Improved geometry to provide adequate visibility, appropriate longitudinal gradients and crossfalls for NMUs;
- Designs that alleviate personal safety concerns;
- Simplification of layouts to avoid confusion to NMUs;
- Review of interaction with private accesses along the route in respect of improving safety for cyclists;
- Reduced speed limits for motorised vehicles at discrete locations along the route due to the potential provision of adjacent NMU facilities; and
- Facilitating connections to leisure and tourist NMU routes such as the Ulster Way particularly where it crosses the existing A5, and the Foyle Valley Cycle Route.

2.2.3 *NMU Connections to the Northern Ireland Greenway Network*

- The Northern Ireland Greenway Network is a proposal to construct an approximate 600 mile network of pathways throughout Northern Ireland. The pathways would utilise, where possible, the network of Northern Ireland's disused railway lines and also disused towpaths. Refer to Figure 2 overleaf for the proposed Greenway network as defined in Exercise, Explore, Enjoy. A Strategic Plan for Greenways, published by the Department for Infrastructure.



Figure 2: Map of Primary and Secondary Greenway Routes
(source: *Exercise, Explore, Enjoy – A Strategic Plan for Greenways*)

The plans for Greenways have been assessed to determine if their implementation would improve the NMU provisions on and in the vicinity of the existing A5 between New Buildings and Aghnacloy, and where possible would negate the requirement to improve existing NMU facilities in their locality. Furthermore, the potential to connect existing and identified potential NMU routes in the vicinity of the existing A5 between New Buildings and Aghnacloy to the proposed Northern Ireland Greenway Network is a further possible active and sustainable transport opportunity that has been assessed during this work. It should be noted that one of the proposed Greenways is located between Londonderry and Omagh, an area also covered by the existing and proposed A5 roads.

The Department for Infrastructure published 'A Strategic Plan for Greenways' on 9th November 2016; this document has been used to inform the active and sustainable transport opportunities during assessment work, in addition to other information received from stakeholders relating to Greenways.

2.2.4 Connecting Communities/ Active School Travel

Creating new links between communities in the vicinity of the existing A5 is another potential active and sustainable transport opportunity that has been assessed during this work.

Part of this assessment work involved reviewing potential opportunities relating to both creating and improving cycling and pedestrian facilities for school children travelling to and from school, the aim of which is to encourage sustainable travel to school and discourage the use of motorised travel to school.

The 'Rural Safe Routes to Schools' initiative by Sustrans has two key objectives, which are:

- "Reducing car use on the school run by 10%; and
- Increasing levels of cycling and walking."

The 'Rural Safe Routes to Schools' initiative attempts to satisfy the range of policies produced by the government departments responsible for school travel, including the Department for Infrastructure and Department of Education. The initiative² has so far trialled pilot Active School Travel programmes for eighteen primary schools across Northern Ireland, with the aim of further Active School Travel programmes being rolled out across more schools in Northern Ireland. This work has taken cognisance of the two key objectives of the 'Rural Safe Routes to Schools' initiative.

2.3 Improved Park & Ride and Park & Share Facilities

The use of Park & Ride (P&R) facilities is a sustainable transport initiative. Existing and desirable locations for P&R facilities in the vicinity of the existing A5 have been assessed during this study work through liaison with Translink and local authorities.

The use of Park & Share facilities is another sustainable transport initiative. Existing and desirable locations for Park & Share facilities in the vicinity of the existing A5 have been assessed during this study work through liaison with DfI.

A strategic report has been prepared for DfI Network Development on new locations for park and share and park and ride facilities in DfI Western Division. The report has been produced by Amey and is entitled "Preliminary Options Appraisal Report – Western Division Park and Ride/Share Sites (CO401467/PLOR-001)".

² Full details of the initiatives review have been published by Sustrans "Rural Safe Routes to Schools Project Review" (January 2009) and is available at the following location: <http://www.sustrans.org.uk/sites/default/files/images/files/migrated-pdfs/Rural%20Safe%20Routes%20to%20Schools%20Project%20Review%20Jan09.pdf>

3 Key Drivers

3.1 De-trunking of the Existing A5

The A5WTC scheme was essentially the main driver for this work. Following completion of the construction phases of the A5WTC between New Buildings and Aughnacloy the respective sections of the existing A5 will be de-trunked and also no longer carry the status currently accorded to it as part of the 'Western Key Transport Corridor' (KTC). It is anticipated that there will be a significant reduction in the number of motorised vehicles (particularly heavy goods vehicles) utilising the existing A5, potentially making the road more attractive to NMUs.

It was deemed prudent to develop this Masterplan as a consequence of the above, with the aim to identify potential new opportunities deriving from the construction of the A5WTC for active and sustainable infrastructure on and in the vicinity of the existing A5 trunk road between New Buildings and Aughnacloy.

4 Legislation, Policy Documents and Design Standards

4.1 Document Review

Prior to commencing assessment work, a review of the applicable legislation, policy documents and design standards relating to active and sustainable infrastructure was undertaken. This exercise ensured that opportunities were identified and assessed in accordance with the relevant published guidance.

The following documents were reviewed in order to inform the Masterplan:

- 'Ensuring a Sustainable Transport Future – A New Approach to Regional Transportation' : This document is used to guide strategic transport interventions beyond 2015
- 'Changing Gear – A Bicycle Strategy for Northern Ireland' : This document sets out the DRD's Bicycle strategy for NI between 2015 and 2040
- 'Regional Development Strategy (RDS) 2035' : This document is the Executive's overarching spatial planning strategy for the future development of NI to 2035
- 'United Kingdom – Rural Development Programme (Regional) - Northern Ireland'
- 'Sustainable Development Strategy' : This document was agreed across Government Departments and outlines strategic objectives and targets for sustainable development, with varying timescales for achieving targets
- 'Tourism Strategy' - public consultation on a Draft Tourism Strategy took place in spring 2017. The Department for Economy website refers the reader to the 'Draft Programme for Government Framework 2016 – 2021' : This document outlines 14 strategic outcomes supported by 42 indicators, which include active and sustainable transport initiatives
- 'Regional Transportation Strategy for Northern Ireland 2002 – 2012' : Not current
- 'Investing for Health', covers the period 2002 to 2012 : Not current
- 'Sustainable Rural Communities' : This document refers the reader to 'United Kingdom – Rural Development Programme (Regional) - Northern Ireland' (see above)
- 'Building an Active Travel Future for Northern Ireland' : This document is essentially the 'Northern Ireland Active Travel Strategy' which sets out targets for improving active travel in NI by 2020
- 'An Action Plan for Active Travel in Northern Ireland' : This document details walking and cycling initiatives delivered between 2012 and 2015, and is the follow-up document to the 'Building an Active Travel Future for Northern Ireland' (see above)

- 'Rural Safe Routes to Schools' - Published by Sustrans
- Roads Service Policy & Procedure Guide (RSPPG): RSPPG_E070 'Road Safety at Schools
- Cycling and Walking to/from work in Northern Ireland 2015/16 - DfI
- Cycling in Northern Ireland, 2015 - DfI
- Bus stop design guide 2005 - DfI
- MfS2007 "Manual for Streets" (2007) - Thomas Telford
- MfS2010 "Manual for Streets 2: Wider Application of the Principles" (2010) - Chartered Institution of Highways and Transportation
- Interim Advice Note 195/16 - Cycle Traffic and the Strategic Road Network. Also refer to the normative and informative references listed on pages 67 and 68 of this document
- Section 75 - Equality of Opportunity
- Human Rights Act
- Inclusive Mobility
- RSPPG-E005 'Controlled Crossings: Assessment Procedures'
- DMRB TA91/05 'Provision for Non-Motorised Users'
- RSPPG_E010 'Use of Tactile Paving Surfaces'
- RSPPG_E009 'Pedestrian Facilities for the Visually Impaired at Signal Controlled Crossings'
- RSPPG_E043 'Provision of Dropped Kerbs'
- DMRB HD 42/17 'Walking, Cycling & Horse-Riding Assessment and Review'
- DMRB TA 90/05 'The Geometric Design of Pedestrian, Cycle and Equestrian Routes'
- DMRB TA 68/96 'The Assessment and Design of Pedestrian Crossings, Local Transport Notes 1/95 and 2/95'
- RSPPG_E027 'Road Safety Engineering Procedures'
- DMRB TA 57/87 'Roadside Features'
- Beuret K and Koch A (2015). *Involving the Public and Other Stakeholders*. Chartered Institution of Highways and Transportation.

- Ewens A, Pinkett B, Wylie, D and Ross, A (2016). *A Transport Journey to a Healthier Life*. Chartered Institution of Highways and Transportation.
- Gallagher R and Parkin J (2014). *Planning for cycling*. Chartered Institution of Highways and Transportation.
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- York I, Bradbury A, Reid S, Ewings T and Paradise R (2007). *The Manual for Streets: Evidence and Research*. TRL Report TRL 661.
- Department for Infrastructure (2016). *Exercise, Explore, Enjoy. A Strategic Plan for Greenways*.
- London Cycling Design Standards, Published by Transport for London (2014).
- Sustrans: *Health and Active Travel*. Available from: DfI <https://www.sustrans.org.uk/policy-evidence/related-academic-research/health-and-active-travel>
- Sustrans: *Physical Activity and Health*. – Facts and Figures. Available from: <https://www.sustrans.org.uk/policy-evidence/the-impact-of-our-work/related-academic-research-and-statistics/physical-activity>
- Sustrans: *Economic benefits of Active Travel*. Available from: <https://www.sustrans.org.uk/policy-evidence/related-academic-research/economic-benefits-active-travel>
- Sustrans: *Sustainable travel to everyday destinations*. Available from: <https://www.sustrans.org.uk/policy-evidence/related-academic-research/sustainable-travel-everyday-destinations>

Due cognisance was taken of relevant and evolving Government strategies, plans, guidelines and initiatives during the development of the Masterplan.

5 Stakeholder Consultation

5.1 A5ASTA Stakeholder Consultation

To inform the identification and assessment of potential active and sustainable transport opportunities' and the subsequent development of the Masterplan, a consultation exercise was undertaken.

The A5WTC Stakeholder Consultation was used as a starting point for establishing a list of stakeholders to be contacted in relation to the A5ASTA i.e. the list of A5WTC consultees was assessed with the aim of identifying which of these consultees would have an interest in active and sustainable transport initiatives that could potentially be introduced on and in the vicinity of the existing A5 between New Buildings and Aughnacloy. This initial list of stakeholders was developed through liaison with DfI, and formed the basis for the A5ASTA consultation exercise, with the list being supplemented through further liaison with DfI.

5.2 Stakeholder Consultation Meetings

After establishing the list of consultees to be contacted in relation to the A5ASTA, it was agreed with DfI that a formal meeting would not require to be held with all consultees. The consultees who attended formal meetings are as follows:

- Sustrans
- Derry & Strabane District Council (a joint meeting was held with Sustrans)
- DfI Cycling and Inland Waterways Unit
- Translink
- DfI Traffic Management & Network Development
- Mid Ulster District Council

5.3 Additional Stakeholder Consultation

Those consultees identified as not requiring a formal meeting were contacted via e-mail and/or telephone. The consultees who were contacted in this manner are as follows:

- Northern Ireland Tourist Board;
- Ulster Federation of Rambling Clubs;
- British Horse Society;
- Disability Action;
- Fermanagh and Omagh District Council;
- Sion Mills Anglers;
- Strabane and Lifford Anglers Association;
- Department Agriculture, Environment & Rural Affairs (Inland Fisheries);
- Department for Communities (Equality Unit);
- Department of Education Northern Ireland;
- Education Authority Southern;
- Education Authority Western;

- Loughs Agency, and
- The Police Service of Northern Ireland (PSNI)

Cognisance has been taken of feedback received from stakeholders during the identification and assessment of potential active and sustainable transport opportunities' and the subsequent development of the Masterplan. Every effort has been made to incorporate stakeholders' ideas/ needs when identifying potential improvement options. Particular attention has been paid to designing for the needs of vulnerable NMUs such as disabled persons, the elderly and young persons.

6 Existing A5 Active and Sustainable Transport Infrastructure

6.1 Introduction

The extents of the current NMU provisions on and in the vicinity of the existing A5 generally varies between urban and rural areas i.e. there are generally more provisions in urban areas compared to rural areas.

6.2 Urban Areas

The following urban areas were assessed in order to inform the Masterplan report:

- New Buildings;
- Magheramason;
- Bready;
- Grangefoyle / Burdennett;
- Cloghcor;
- Ballymagorry;
- Strabane;
- Sion Mills;
- Victoria Bridge;
- Newtownstewart;
- Mountjoy;
- Omagh;
- Garvaghy;
- Ballygawley; and
- Aghnacloy.

In many of the urban areas within the extents of the study area, the following infrastructure is commonly found:

- Footways (of varying widths);
- Online parking provision (i.e. immediately adjacent to the existing A5) and offline parking (i.e. not immediately adjacent to the existing A5);
- NMU crossing facilities on both the existing A5 and on immediately adjacent roads (both controlled e.g. pelican crossings, and uncontrolled e.g. non signalised crossings with or without refuge islands); and
- Bus stops (with or without a bus lay-by).

Details of the existing NMU provisions within the fifteen urban areas assessed as part of the A5ASTA are contained within the memos and accompanying drawings which can be found in Appendix 1.

6.3 Rural Areas

In many of the rural areas within the extents of the study area, the following infrastructure is commonly found (note that this infrastructure is not always in the immediate vicinity of the existing A5 i.e. existing cyclist facilities are sometimes offset

over 100m from the existing A5, but do influence the decision making along the existing A5):

- National Cycle Network Routes – refer to Figure 3 below
- Regional Cycle Routes
- Local Cycle Routes
- The Ulster Way;

Refer to Figure 3 below for the current National Cycle Network in Northern Ireland.



Figure 3: National Cycle Network
(source: www.cycleni.com)

Details of the existing NMU provisions within the rural areas assessed as part of the A5ASTA are contained within the memos and accompanying drawings which can be found in Appendix 2.

7 Identified Opportunities

7.1 Introduction

As outlined in Section 2, improved active and sustainable transport opportunities on and around the existing A5 between New Buildings and Aughnacloy could be achieved through a variety of means including: repurposing the existing A5 (at discrete locations) and/or adjacent roads; improving NMU facilities on the existing A5 and/or adjacent roads; the implementation of the Greenways plans on or in the vicinity of the existing A5; and the construction of suitable connections (from both existing and identified potential NMU routes in the vicinity of the existing A5) to the proposed Northern Ireland Greenway Network.

7.2 Urban Areas

A range of potential opportunities have been identified during the assessment work undertaken; these vary from relatively minor improvements such as enhancing existing gateways to urban areas to the potential introduction of 3m wide shared use NMU facilities.

Details of the potential opportunities within the urban areas listed in Section 6.2 are contained within the memos and accompanying drawings which can be found in Appendix 1.

7.3 Rural Areas

The main focus of the assessments of the rural areas, the areas located between the urban areas discussed in Section 7.2, was a review of the Greenway proposals received from stakeholders during the consultation exercise. The assumption was made during the assessment that where the Greenway proposals show a facility either immediately adjacent to the existing A5 or broadly parallel to (but offset from) the existing A5, such facilities will generally negate the requirement to repurpose the existing A5. Where no Greenway facilities are proposed an assessment of whether the existing A5 can be repurposed in order to provide enhanced NMU facilities has been undertaken.

Details of potential opportunities within the rural areas are contained within the memo and accompanying drawings which can be found in Appendix 2.

7.4 Connections between Urban and Rural Areas

Part of the assessment undertaken involved evaluating potential connectivity between NMU facilities in urban and rural areas. Generally, this involved assessing the connectivity between the existing and/or potential NMU facilities in the urban areas (identified in Appendix 1) and potential NMU facilities in the rural areas (identified in Appendix 2). The potential connections between these urban and rural facilities are labelled as potential opportunities on the rural areas drawings with supporting text in the respective memo, which can be found in Appendix 2.

8 Traffic Figures

8.1 Introduction

Following the construction of all phases of the A5WTC between New Buildings and Aughnacloy, the respective sections of the existing A5 will be de-trunked and will no longer form part of the 'Western KTC'. It is expected that this will result in strategic traffic no longer utilising the existing A5, potentially making the road more attractive to NMUs. Traffic figures have been extracted from the A5WTC traffic model (Mark 1 Model), used to report traffic figures at the 2016 Public Inquiry, to assess the expected reduction in traffic using the existing A5.

Table 8.1 shows the estimated traffic flows on the existing A5 between New Buildings and Aughnacloy for four different periods and for two scenarios. The years specified in Table 8.1 below represent the following:

- 2013: existing traffic on the existing A5
- 2019: traffic flows following the completion of the first phase (Phase 1a / 1b)
- 2023: traffic flows following the completion of the second phase (Phase 2a / 2b)
- 2028: traffic flows following the completion of Phase 3 (the complete scheme)

The two scenarios are *Do Minimum* which assumes the A5WTC will not be constructed, whereas the *Do Something* represents the construction of the A5WTC as outlined earlier in the report. The difference in traffic flows between the two scenarios is also specified for 2019 and 2028. Please also refer to the drawings in Appendix 3 for the further detailed traffic figures.

Location	Phase	Year	Do Minimum		Do Something		Reduction	
			AADT	HGV	AADT	HGV	AADT	HGV
New Buildings	Phase 1a	2013	13,100	8.8%	-	-	-	-
		2019	15,200	7.8%	2,500	4.0%	83.0%	92.0%
		2028	16,500	7.6%	3,100	3.5%	81.0%	91.0%
Magheramason		2013	12,900	9.0%	-	-	-	-
		2019	16,100	7.7%	3,100	1.0%	81.0%	91.0%
		2028	16,500	7.6%	3,100	3.5%	81.0%	91.0%
Bready		2013	12,200	9.4%	-	-	-	-
		2019	14,200	8.2%	2,200	1.0%	84.0%	98.0%
		2028	15,400	8.1%	2,400	1.0%	84.0%	98.0%
Grangefoyle / Burndennett	2013	12,200	9.4%	-	-	-	-	
	2019	14,200	8.2%	2,200	1.0%	84.0%	98.0%	
	2028	15,400	8.1%	2,400	1.0%	84.0%	98.0%	
Cloghcor	2013	12,200	9.7%	-	-	-	-	
	2019	14,200	8.5%	2,200	2.4%	84.0%	96.0%	
	2028	15,400	8.3%	2,400	2.4%	84.0%	95.0%	
Ballymagorry	2013	11,900	10.2%	-	-	-	-	
	2019	15,100	8.3%	3,900	2.5%	74.0%	92.0%	
	2028	16,200	8.2%	3,900	2.7%	76.0%	92.0%	

Table 8.1 (i) Anticipated Traffic Flows on the Existing A5 : New Buildings to Ballymagorry

Location	Phase	Year	Do Minimum		Do Something		Reduction	
			AADT	HGV	AADT	HGV	AADT	HGV
Strabane	Phase 2a	2013	14,400	12.1%	-		-	
		2023	19,900	3.8%	10,200	3.7%	49.0%	50.0%
		2028	20,300	3.6%	10,200	3.8%	50.0%	53.0%
Sion Mills	Phase 2b	2013	13,900	12.1%	-		-	
		2023	15,600	7.8%	11,900	4.5%	24.0%	56.0%
		2028	16,100	7.4%	12,400	4.5%	23.0%	53.0%
Victoria Bridge	Phase 2b	2013	10,700	13.7%	-		-	
		2023	11,500	8.6%	2,500	11.9%	78.0%	70.0%
		2028	11,700	8.2%	2,600	11.7%		
Newtownstewart	Phase 2b	2013	9,100	14.1%	-		-	
		2023	10,600	12.9%	2,000	3.1%	81.0%	95.0%
		2028	11,100	12.8%	2,200	2.9%	80.0%	95.0%
Mountjoy	Phase 2b	2013	11,800	12.7%	-		-	
		2023	13,600	11.5%	4,900	5.7%	64.0%	82.0%
		2028	14,200	11.4%	5,300	5.8%	63.0%	81.0%
Omagh	Phase 2b	2013	20,800	9.0%	-		-	
		2023	25,900	8.6%	19,500	5.6%		
		2028	27,100	8.9%	20,600	5.8%		
Garvaghy	Phase 1b	2013	11,500	13.7%	-		-	
		2019	12,500	12.9%	3,500	44.2%	72.0%	4.0%
		2028	14,100	12.3%	2,000	33.1%	86.0%	62.0%
Ballygawley	Phase 1b	2013	11,800	13.0%	-		-	
		2019	13,000	12.3%	4,000	38.0%	69.0%	5.0%
		2028	14,800	11.7%	2,800	22.8%	81.0%	63.0%
Aughnacloy	Phase 3	2013	8,200	17.6%	-		-	
		2028	10,500	15.2%	7,200	24.5%	31.0%	-12.0%

Table 8.1 (ii) Anticipated Traffic flows on the Existing A5: Strabane to Aughnacloy

9 Programme and Cost

9.1 Introduction

This section of the Masterplan discusses the anticipated timing, for delivery of potential active and sustainable transport opportunities, in relation to the construction phasing of the A5WTC scheme, and the estimated costs associated with implementing these opportunities.

9.2 A5WTC Construction Phasing

As outlined in Section 1.1, it is currently proposed that construction of the A5WTC will be progressed in five phases; the currently anticipated periods of construction for each phase are listed below:

<i>Phase</i>	<i>Anticipated Construction Period</i>
Phase 1a: New Buildings to north of Strabane;	2017 - 2019
Phase 1b: South of Omagh to Ballygawley;	2019 - 2021
Phase 2a: North of Strabane to south of Strabane;	2021 – 2023
Phase 2b: South of Strabane to south of Omagh; and	2021 – 2023
Phase 3: Ballygawley to Aughnacloy.	2026 – 2028

Table 9.1: Proposed Construction Phasing for the A5WTC

9.3 Potential Construction Phasing of Identified Opportunities

It is proposed that construction of the identified opportunities could be considered following the completion of each discrete phase.

The Department will not be proceeding with Phase 3 at this time, reflecting the recommendation of the 2011 public inquiry not to do so until the Irish government decides to proceed with the N2 Improvement Scheme south of the border.

9.4 Costing

Current market value rates were used for the costing of the potential opportunities described in the memos included in Appendix 1. For a complete schedule of the costings, please refer to Appendix 4. It should be noted that not all opportunities presented within the memos have been costed as some are subject to third party detailed design and consultation.

It is important to note that when carrying out this exercise, there were certain aspects that were not considered due to the level of uncertainty associated with that particular element at this stage of development. More detailed, accurate costings would be required when opportunities are taken forward and further detailed design is carried out. The costs not considered at this stage include:

- Any impacts on statutory undertaker's apparatus, including road lighting.
- Site clearance.

- Land acquisition.
- All street furniture and existing infrastructure if affected, is assumed to have been replaced as new. Costs have not been included for removal and disposal/storage of existing infrastructure.
- Removal of existing road markings.
- Provision of Park and Ride Facilities.
- Incorporation of Strategy 2020 (change of speed limits).
- Design fees and surveys.

Following the costing exercise, the opportunities were then placed into price bands to illustrate the opportunities in an order of magnitude. Placing the opportunities in bands, may help the planning of future works within budget constraints. The pricing bands selected are as follows:

- < £2.5k
- > £2.5 < £5k
- > £5k < £7.5k
- > £7.5k < £10k
- > £10k < £12.5K
- > £12.5k < £15k
- > £15k < £50k
- > £50k

The total number of costed opportunities per pricing band, per location are shown in Table 9.2 below.

Location	Cost Banding							
	<2.5K	>2.5 & <5K	>5 & <7.5K	>7.5 & <10k	>10k & <12.5k	>12.5k & <15k	>15k & <50k	>50k
New Buildings	9	2	-	-	-	-	2	1
Magheramason	2	2	-	-	-	-	1	-
Bready	6	2	2	-	-	-	3	-
Grangefoyle / Burdennett	7	4	3	2	-	-	-	1
Cloghcor	5	-	1	1	-	-	1	1
Ballymagorry	4	2	3	2	-	-	-	1
Strabane	3	2	1	-	1	1	1	5
Sion Mills	8	4	-	1	-	-	2	2
Victoria Bridge	3	1	-	-	1	-	-	1
Newtownstewart	1	1	-	1	-	1	1	2
Mountjoy	7	3	1	-	1	-	3	1
Omagh	8	3	1	2	-	-	8	8
Garvaghy	2	9	1	-	1	-	-	-
Ballygawley	5	1	-	1	-	-	1	1
Aughnacloy	14	5	1	5	-	-	2	3
Total Nr of Opportunities Per Cost Band	84	41	14	15	4	2	25	27

Table 9.2: Number of Opportunities per Cost Banding per Location

Table 9.3 provides an indication of the cost of incorporating the opportunities identified in the memos and drawings included in Appendix 1, per location.

<i>Urban Area</i>	<i>Memo Ref.</i>	<i>Total No. of Opportunities Costed</i>	<i>Total Cost</i>
<i>New Buildings</i>	<i>DM04</i>	<i>14</i>	<i>£ 170,308.19</i>
<i>Magheramason</i>	<i>DM05</i>	<i>5</i>	<i>£ 52,476.50</i>
<i>Bready</i>	<i>DM06</i>	<i>13</i>	<i>£ 101,900.91</i>
<i>Grangefoyle/Burndennett</i>	<i>DM07</i>	<i>17</i>	<i>£ 123,743.61</i>
<i>Cloghcor</i>	<i>DM08</i>	<i>9</i>	<i>£ 179,782.36</i>
<i>Ballymagorry</i>	<i>DM09</i>	<i>12</i>	<i>£ 99,859.00</i>
<i>Strabane</i>	<i>DM10</i>	<i>14</i>	<i>£ 704,624.01</i>
<i>Sion Mills</i>	<i>DM11</i>	<i>17</i>	<i>£ 296,257.94</i>
<i>Victoria Bridge</i>	<i>DM12</i>	<i>6</i>	<i>£ 177,542.00</i>
<i>Newtownstewart</i>	<i>DM13</i>	<i>7</i>	<i>£ 236,271.00</i>
<i>Mountjoy</i>	<i>DM14</i>	<i>16</i>	<i>£ 371,942.10</i>
<i>Omagh</i>	<i>DM15</i>	<i>30</i>	<i>£ 1,233,045.40</i>
<i>Garvaghy</i>	<i>DM16</i>	<i>13</i>	<i>£ 58,926.52</i>
<i>Ballygawley</i>	<i>DM17</i>	<i>9</i>	<i>£ 149,892.00</i>
<i>Aughnacloy</i>	<i>DM19</i>	<i>30</i>	<i>£ 511,398.94</i>
		212	£ 4,457,970.48

Table 9.3: Total Cost of Opportunities per Location

10 Assumptions and Constraints

10.1 A5WTC

10.1.1 A5WTC Funding/ Public Inquiry Outcome

As stated in Section 9.3, it has been assumed during the development of this Masterplan that the A5WTC will be constructed in accordance with the dates indicated in Table 9.1: Proposed Construction Phasing for the A5WTC.

As indicated in section 8, it is anticipated that construction of the A5WTC will result in the removal from the existing A5 of a significant proportion of the strategic traffic currently using the route, potentially making the existing A5 more attractive to NMUs. If there is a decision not to construct one or more of the five phases of the A5WTC then it may result in there being no requirement to implement the corresponding active and sustainable transport opportunities identified in the Masterplan. This will depend on the nature of each improvement option identified, as some of the improvement opportunities may still be deemed worthy of implementation in spite of the corresponding Phase of the A5WTC not being progressed i.e. implementation of the active/ sustainable transport opportunities may not rely upon the removal of a significant amount of the strategic traffic from the corresponding section of the existing A5 in order to justify their implementation.

10.1.2 A5WTC Programme

Any delay to the construction programme for one or more of the five Phases of the A5WTC could result in a delay to constructing the corresponding active and sustainable transport opportunities identified in the Masterplan (this could occur where implementation of the active/ sustainable transport opportunities relies upon the removal of a significant amount of the strategic traffic from the corresponding section of the existing A5 in order to justify their implementation). In this case, construction of the active/ sustainable transport opportunities would likely be delayed until the corresponding section of the A5WTC has been constructed.

The Masterplan has been developed assuming that construction of the A5WTC will be constructed in accordance with the dates indicated in Table 9.1: Proposed Construction Phasing for the A5WTC.

10.2 Northern Ireland Greenway Network

As mentioned in section 2.2.3, the construction of approximately 600 miles of pathways throughout Northern Ireland is proposed, utilising the network of disused railway lines and disused towpaths.

The Masterplan was developed assuming that the Northern Ireland Greenway Network will be constructed i.e. WSP's identified potential opportunities have assessed the practicalities of connecting to the proposed Greenway Network.

11 Conclusion

11.1 Way Forward

As stated at the start of this report, the objective of this Masterplan is to identify potential new opportunities that could be taken forward as a result of the A5WTC scheme. The realisation of these opportunities may be taken forward upon completion of works and opening to traffic of each phase, and upon publication of a De-trunking Order for the applicable length of existing A5 in some instances.

The Department has made no commitment to deliver any of the opportunities identified in the strategic Masterplan, as further detailed assessment work will be required for each identified opportunity. Agreement on proposals, including identification of sufficient funding, have yet to be agreed with potential implementation agencies (identified in the strategic Masterplan).

The cost banding of the opportunities outlined in Section 9, will allow the Department to consider a plan of delivery, whether it be Location-driven or Opportunity-driven. However, it is important to note that the principle of selecting 'quick wins' in isolation should be avoided where possible, so that the strategic delivery of beneficial infrastructure/facilities for non-motorised users is achieved.

Appendix 1: Urban Area Memos

- DM04 – A5 Active & Sustainable Transport Assessment : New Buildings
- DM05 – A5 Active & Sustainable Transport Assessment : Magheramason
- DM06 – A5 Active & Sustainable Transport Assessment : Bready
- DM07 – A5 Active & Sustainable Transport Assessment : Grangefoyle / Burdennett
- DM08 – A5 Active & Sustainable Transport Assessment : Cloghcor
- DM09 – A5 Active & Sustainable Transport Assessment : Ballymagorry
- DM10 – A5 Active & Sustainable Transport Assessment : Strabane
- DM11 – A5 Active & Sustainable Transport Assessment : Sion Mills
- DM12 – A5 Active & Sustainable Transport Assessment : Victoria Bridge
- DM13 – A5 Active & Sustainable Transport Assessment : Newtownstewart
- DM14 – A5 Active & Sustainable Transport Assessment : Mountjoy
- DM15 – A5 Active & Sustainable Transport Assessment : Omagh
- DM16 – A5 Active & Sustainable Transport Assessment : Garvaghy
- DM17 – A5 Active & Sustainable Transport Assessment : Ballygawley
- DM19 – A5 Active & Sustainable Transport Assessment : Aughnacloy

Appendix 2: Rural Area Memo

Appendix 3: Traffic Figures

Appendix 4: Cost Estimates