AtkinsRéalis

Planning Design Report – Dublin Road Active Travel Scheme

Westmeath County Council

July 2025

0086409DG0081

MULLINGAR ACTIVE TRAVEL BUNDLE

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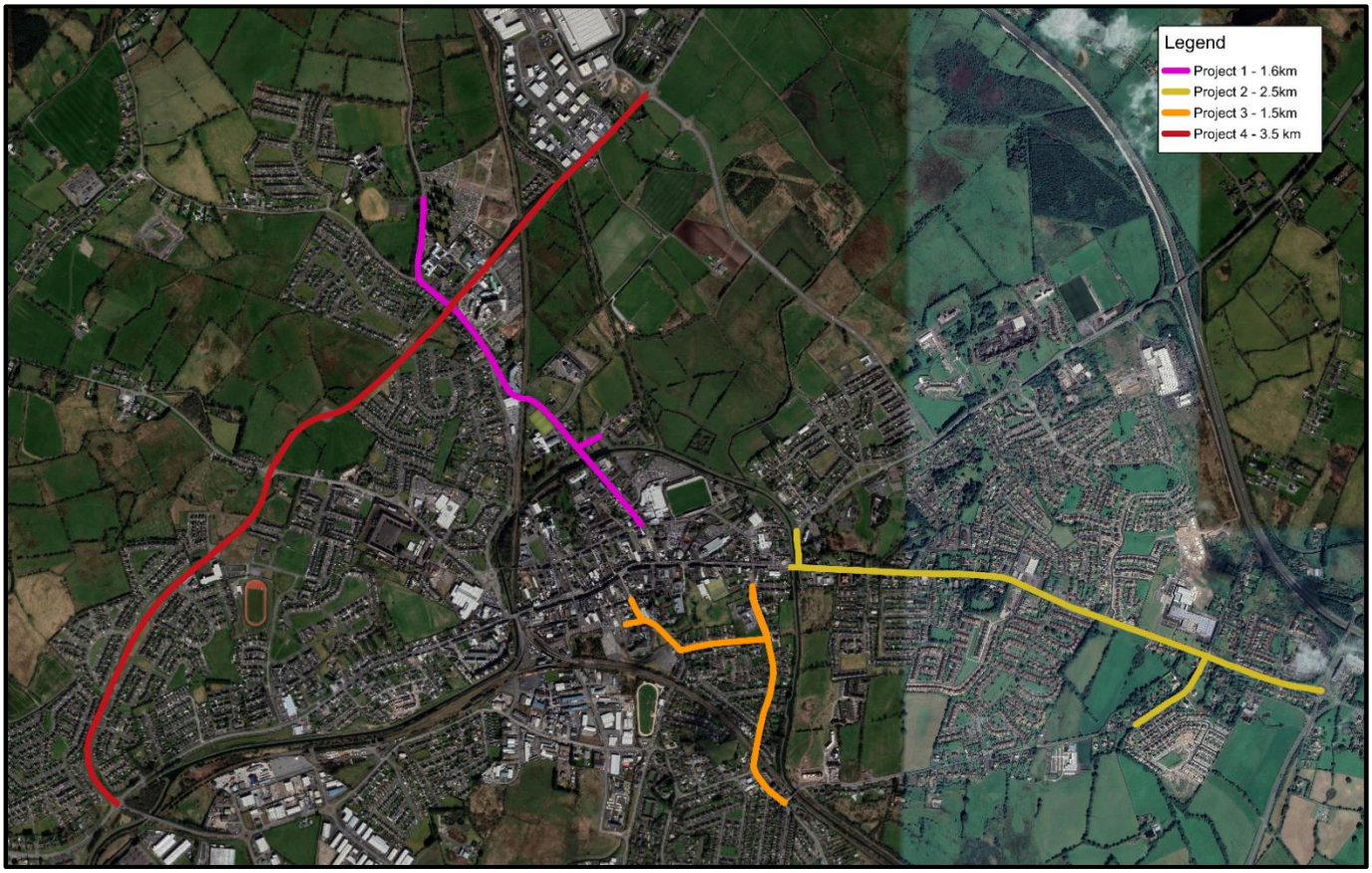
1. Project Description

Westmeath County Council (WCC) have appointed AtkinsRéalis to provide engineering services to develop the Mullingar Active Travel Bundle, which comprises of a number of Active Travel schemes along a series of roads within the town of Mullingar, Co. Westmeath.

The overall commission includes six areas within Mullingar town which will be divided into four different projects, as outlined below and in Figure 1-1:

- Project 1: St. Finian's to Harbour Street Footpath and Cycleway
- Project 2: Dublin Road Footpath and Cycleway and National Science Park Junction Improvements
- Project 3: Sundays Well Road - Lynn Road/Auburn Road - Millmount Junction Improvements and Mount Street Lower Pedestrian Interventions
- Project 4: Grange South to Orbital C-Link Segregated Cycling Scheme.

Figure 1-1 – Mullingar Active Travel Bundle Routes



Each project within the Mullingar Active Travel Bundle will be delivered independently from one another, as a stand-alone scheme complete with a full set of project appraisal and approval documentation. However, the schemes will be delivered with full consideration to provide integrated and consistent pedestrian and cycle facilities within Mullingar town.

This report refers to Project 2, named Dublin Road Active Travel Scheme, which comprises the route along Dublin Road from the junction with Delvin Road to the west to the Marlinstown Roundabout to the east and the route along Ardmore Road from the National Science Park roundabout to the north to the junction with Ardmore Hill to the south, a total of 2.5km in length. The route along Dublin Road measures 2km in length and the route along Ardmore Road measures approximately 372m. The section along Delvin Road to the access to the Royal Canal Greenway has also

been included as part of the scheme to provide improved connectivity to the greenway. Figure 1-2 shows the extent of the Dublin Road Active Travel Scheme.

Figure 1-2 – Scheme Extents

1.1 Scheme Update

The scheme has been developed from Phase 2 Option Selection stage and progressed through Phase 3 Preliminary Design in late 2024 / early 2025. A meeting with the Elected Members took place on the 13th of January 2025 in the WCC offices in Mullingar, followed by an informal public consultation section where members of the community were invited to attend to discuss the project with members of the design team and of Westmeath County Council.

The original scheme extents, as outlined above and on Figure 1-2 have been modified since the public consultation took place and the scheme has been divided into two phases. The extents of both phases are indicated in Figure 1-3. The first phase of the scheme is comprised of Dublin Road from the east of the junction between Dublin Road and Delvin Road until the approach to Marlinstown Roundabout and the section along Ardmore Road. This section will progress through a Part VIII planning process separately to the second phase.

The second phase of the scheme will comprise of the section along Delvin Road and the junction between Dublin Road and Delvin Road and will be subject to a separate planning process at a later date.

Figure 1-3 – Phases of the Scheme

2. Project Aims and Objectives

The overall purpose of the Mullingar Active Travel is to provide upgraded pedestrian and cycling facilities in addition to facilitating any necessary infrastructure provisions to cater for future public transport upgrades.

The main aims of this project are:

- To design new/upgrade existing cycleways/pedestrian footpaths in accordance with the Cycle Design Manual, in order to reduce public dependence on private vehicles as a primary mode of travel, using best practice standards and complementing the surrounding environment
- To consider WCC and stakeholder requirements
- To meet planning, statutory and procurement requirements.

The Project Objectives are:

- Reduced public dependence on private vehicles as a primary mode of travel.
- Integration of safe and convenient alternatives.
- Enhance the area and contribute to a more attractive place.
- Provide safe pedestrian and cyclist facilities for school children and students to travel to and from school.
- Create opportunities to be physically active and reduce the negative consequences of car-based commuting.
- Provide sustainable travel options.
- Enhance the safety of Vulnerable Road Users.

The objectives for the scheme are based on local, regional and national policies for the introduction of active travel measures as outlined in the following section as well as the criteria set out in the Department of Transport's Transport Appraisal Framework (June 2023)' (TAF). These-criteria headings are as follows:

- **Transport User Benefits and Other Economic Impacts**: To improve economic welfare of transport network users measuring the connectivity with existing and proposed public transport facilities as well as other economic impacts related to costs of construction and maintenance.
- **Accessibility Impacts**: To improve accessibility to key services, such as retails, healthcare and educational facilities, employment areas, etc for all road users and bring social inclusion benefits to those for whom non-motorised means are the predominate form of transit. This criterion will also assess four of the five main requirements for cycle-friendly infrastructure according to the Cycle Design Manual, which are: coherence, directness, comfort and attractiveness.
- **Social Impacts**: To improve accessibility for the socially, economically and physically disadvantaged groups; to provide increased health benefits by raising activity levels and to ensure gender impacts are addressed.
- **Land Use Impacts**: To integrate the scheme into strategic land use planning / strategies as set out in national and regional policies and guidelines.
- **Safety Impacts**: To reduce the potential for conflict between all road users along the routes through the provision of a facility which is in line with the current standards. The Scheme will seek to:
  - Improve safety and provide a better environment for vulnerable road users within the study area
  - Improve security by providing adequate lighting and visibility to deter anti-social behaviour.
- **Climate Change Impacts**: To reduce emissions in the transport sector by encouraging active travel through improved infrastructure and also to improve the robustness of infrastructure to be able to resist effects of climate change (extreme weather events).
- **Local Environmental Impacts**: To minimize impacts on the receiving environment, considering air quality, noise and vibration, biodiversity, water resources and soil quality, landscape and visual quality and cultural and heritage impacts.

3. Scheme Policy Context

3.1 Policy Overview

This chapter outlines the review of the relevant transport policies, guidance, and studies for the development of the Mullingar Active Travel Bundle. The breakdown of the policies reviewed and detailed in this section are listed in the following order:

- National Level Policy;
- Regional Level Policy; and
- Local Level Policy.

3.2 National Policy Level

3.2.1 Project Ireland 2040

The Project Ireland 2040 document, published in 2018, is the government's long-term strategy to build a more resilient and sustainable future, in order to provide an improved country for all. The policy vision is to provide a comprehensive social, economic and cultural infrastructure for all people with the aims to achieve ten strategic outcomes around the main themes of wellbeing, equality and opportunity, outlined in Figure 3-1.

The National Planning Framework and the National Development Plan 2021 – 2030, mentioned in the following sections, combine to form part in the Project Ireland 2040.

Figure 3-1 – Ten Strategic Outcomes of Project Ireland 2040

1.	Compact Growth
2.	Enhanced Regional Accessibility
3.	Strengthened Rural Economies and Communities
4.	Sustainable Mobility
5.	A Strong Economy, supported by Enterprise, Innovation and Skills
6.	High-Quality International Connectivity
7.	Enhanced Amenity and Heritage
8.	Transition to a Low Carbon and Climate Resilient Society
9.	Sustainable Management of Water and other Environmental Resources
10.	Access to Quality Childcare, Education and Health Services

3.2.2 National Planning Framework

Project Ireland 2040 – National Planning Framework (NPF) provides a high-level strategic planning framework to guide development and investment. Mullingar is located in the Midland Region, which, alongside the Eastern region, has experienced population growth at more than twice the national rate. A population of 2.85 million is forecast by 2040 in the Eastern and Midland Region, representing an increase of 500,000 people.

The following policy objectives are relevant to the Mullingar Active Travel Bundle:

- **National Policy Objective 27**: Ensure the integration of safe and convenient alternatives to the car into the design of our communities, by prioritising walking and cycling accessibility to both existing and proposed developments and integrating physical activity facilities for all ages
- **National Policy Objective 64**: Improve air quality and help prevent people being exposed to unacceptable levels of pollution in our urban and rural areas through integrated land use and spatial planning that supports public transport, walking and cycling as more favourable modes of transport to the private car, the promotion of energy efficient buildings and homes, heating systems with zero local emissions, green infrastructure planning and innovative design solutions.

3.2.3 National Development Plan, 2021 – 2030

The National Development Plan 2021-2030 (NDP) sets out the investment priorities that will underpin the successful implementation of the NPF. The NDP steers planning policy and guides investment decisions at a national, regional, and local level. Relevant priorities identified in the NDP are summarized below.

- **NSO 2 Enhanced Regional Connectivity:** The NDP lists the strategic investment priorities with active travel being the most important, followed by public transport, and finally national roads. In line with this prioritisation, the plan highlights the need to deliver high-quality greenways and additional walking and cycling infrastructure across Ireland to support the shift to active travel modes
- **NSO 4 Sustainable Mobility**: The NDP puts the highest priority for mobility investment on active travel. It notes that increasing modal share of walking and cycling is critical in ensuring Ireland meets its climate action goals
- **NSO 8 Transitioning to a Climate-Neutral and Climate-Resilient Society**: The NDP commits to encouraging a significant modal shift away from fossil-fuel based transport. A key part of this is the provision of cycling and walking routes to provide sustainable transport options.

3.2.4 National Investment Framework for Transport in Ireland (NIFTI)

The National Investment Framework for Transport in Ireland (NIFTI) defines the Department of Transport's priorities for the future investment in the transport network to support the implementation of the National Development Plan. NIFTI defines the investment priorities for transportation in Ireland as:

- Mobility of people and goods in urban areas
- Protection and renewal
- Enhanced regional and rural connectivity
- Decarbonisation.

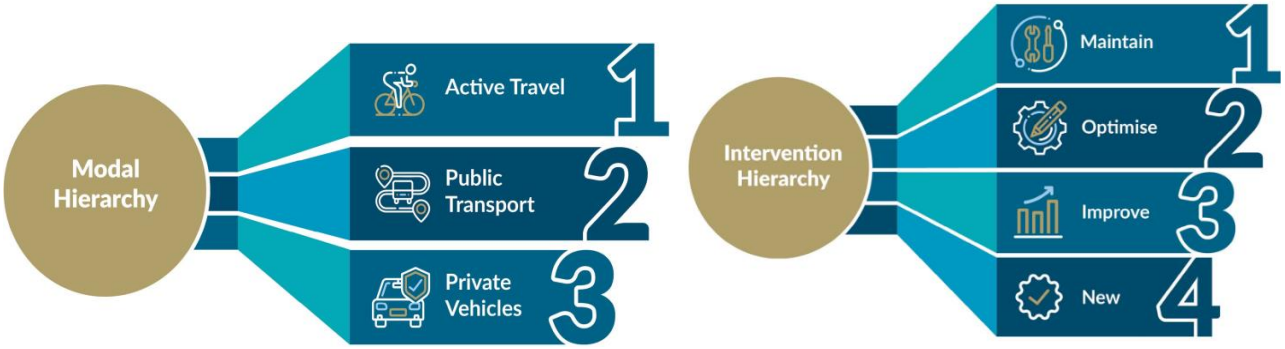
Figure 3-2 - NIFTI Four Investment Priorities *(source: gov.ie/transport)*

To achieve these goals, NIFTI defines the modal hierarchy and transportation investment priorities. NIFTI gives the highest modal priority to active travel followed by public transport and finally private vehicles. This means that, when possible, active transport options should be considered first when attempting to achieve the stated investment priorities.

In addition to modal priority, NIFTI also defines an intervention hierarchy. This hierarchy states that investments should be made in the following order:

1. Maintenance of existing infrastructures and assets
2. Optimisation of the existing network and infrastructure
3. Improvements to the existing infrastructure
4. Construction of new infrastructure.

Figure 3-3 - NIFTI Modal and Intervention Hierarchies (*source: gov.ie/transport)*



3.2.5 National Sustainable Mobility Policy

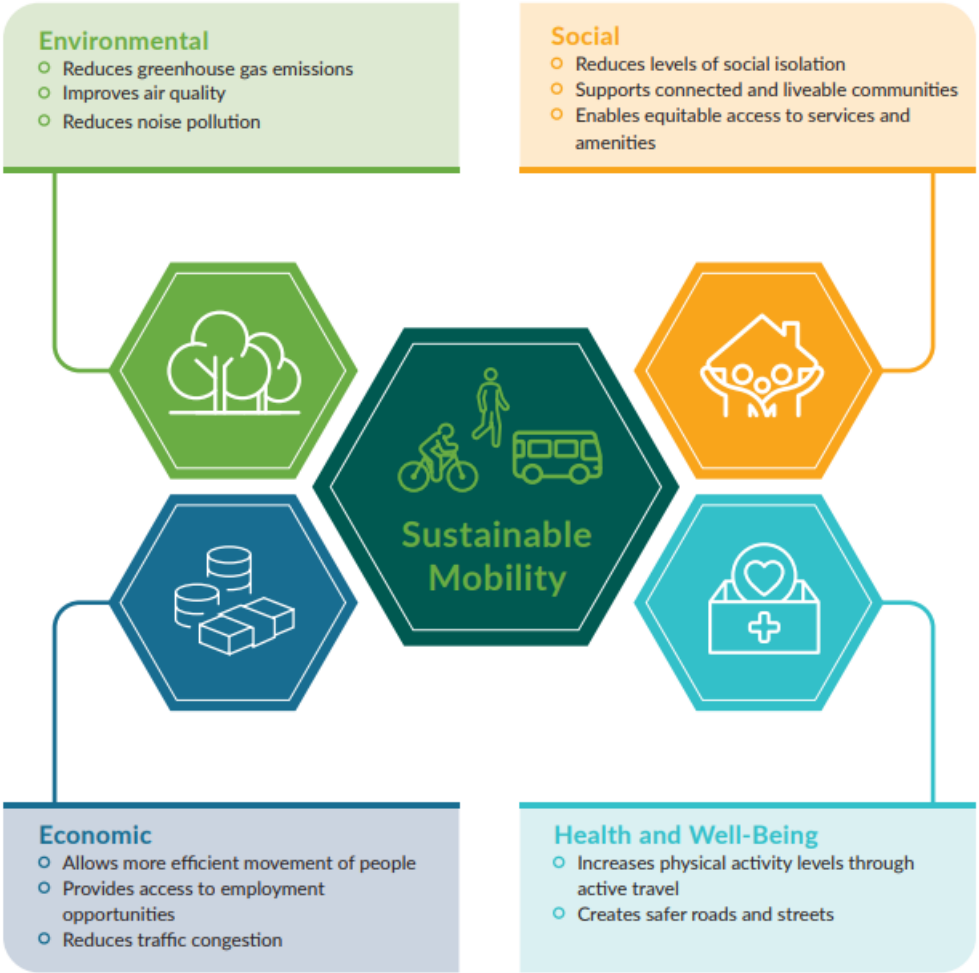
The Department of Transport published the National Sustainable Mobility Policy in April 2022. The Policy sets out the policy framework for active travel and public transport to support Ireland's overall requirement to achieve a 51% reduction in greenhouse gas emissions by 2030. The new policy primarily focuses on measures to promote and facilitate active travel and public transport for all, thereby encouraging less private car usage nationally to support the Government's climate commitment.

The policy outlines a set of actions to increase active travel infrastructure provision and improve public transport capacity and services across the country. These will be supported by behavioural change and demand management measures to make sustainable modes the preferred choice for as many people as possible. The Climate Action Plan sets out additional measures to promote other complementary transport mitigation measures such as the switch over

to electric car usage and greater use of renewable fuels for transport. The Mullingar Active Travel Bundle is in alignment with this plan and would contribute to the implementation of several key actions identified in the plan.

Figure 3-4 below illustrates the benefits of sustainable mobility which will be achieved by delivering the Mullingar Active Travel Bundle.

Figure 3-4 - Benefits of Sustainable Mobility



3.2.6 Climate Action Plan, 2024

The Climate Action Plan sets out a course of action over the coming years to address climate disruption, which is acknowledged as having diverse and wide-ranging impacts. The document outlines the aims for each sector of industry in Ireland. Electricity, Transport, Built Environment, Industry, Agriculture and Land Use have all been assessed in the document with a roadmap laid out to deliver a reduction of emissions in each of these sectors between 2021 and 2030, and to reach net zero nationally by no later than 2050.

As part of the plans for a significant cut in transport emissions, the CAP24 states an objective of 125,000 extra walking, cycling and public transport journeys per day by 2030. The promotion of walking, cycling and public transport, and a modal shift from the use of private vehicles will all contribute to the achievement of the targets set out in relation to climate action.

Specific actions identified in the plan that relate to the Mullingar Active Travel Bundle are listed below.

- **Action TR/24/11**: Advance roll-out of walking/cycling infrastructure in line with National Cycle Network and CycleConnects plans
- **Action TR/24/08**: Support and promote a modal shift towards healthy active and sustainable mobility and sustainable mobility in the design and delivery of LDA developments. Plan to reduce travel by private car and design to optimise connectivity and access to sustainable and active travel. Promote mobility management planning and e-mobility as well as options for car sharing/clubs.

3.2.7 Healthy Ireland Strategic Action Plan, 2021 – 2025

The vision of the 'Healthy Ireland Strategy 2019-2025' is to create a healthy Ireland, where everyone can enjoy physical and mental health and wellbeing to their full potential, where wellbeing is valued and supported at every level and is everyone's responsibility.

This policy is developed to encourage walking and cycling by developing physical activities into daily life and decreasing dependency on private cars. Replacing these private car trips with cycling and walking will also improve local air quality and overall population health. The document sets out four central goals for improved wellbeing and outlines clear routes and strategies to achieve these goals. These goals are as listed below:

- Increase the proportion of people who are healthy at all stages of life;
- Reduce health inequalities;
- Protect the public from threats to health and wellbeing; and
- Create an environment where every individual and sector of society can play their part in achieving a healthy Ireland.

3.2.8 NTA CycleConnects

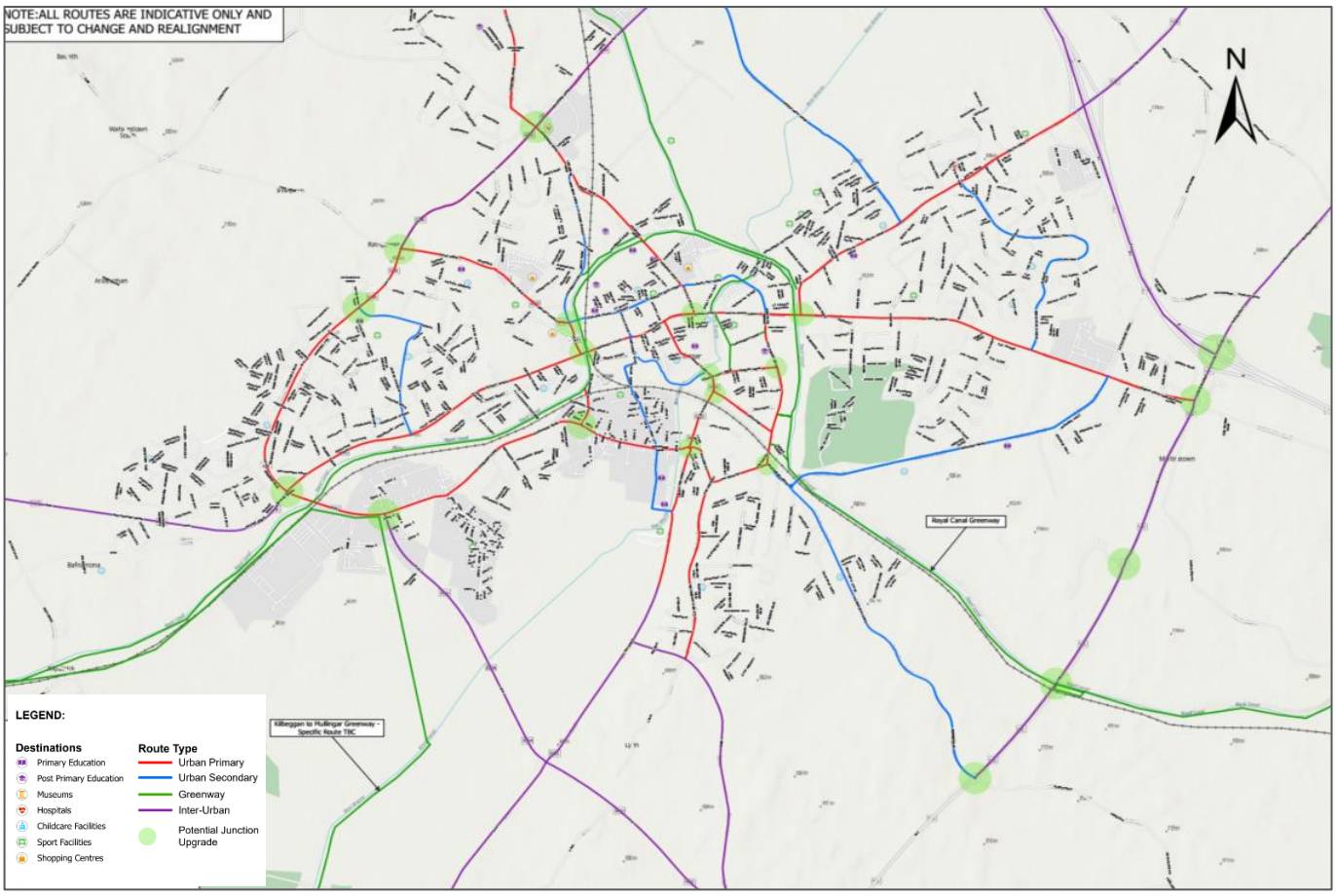
The National Transport Authority (NTA) proposed to develop new cycle networks across 22 counties, forming part of the CycleConnects: Ireland's Cycle Network programme. This includes an urban cycle network in Mullingar and a county network in the rest of Westmeath.

The proposals envisage an extensive cycling network across the 22 counties, complementing the cycling plans already developed for the Greater Dublin Area (Meath, Kildare, Wicklow and Dublin). Together these plans will create an overall comprehensive cycle network for Ireland. These proposals are in line with Action 28 of the Government's "National Sustainable Mobility Action Plan 2022-2025". They were developed following consultation with all local authorities and align with Transport Infrastructure Ireland's (TII) proposed National Cycle Network.

The Mullingar network includes existing greenways, along with proposed urban primary and secondary routes. Primary urban routes are high-quality cycle routes able to accommodate high volume of cyclists, typically located in urban areas and on major desire lines in town centres and form radial and orbital cycle routes in the major towns and cities.

The Mullingar Active Travel bundle extents form part of the following links as identified within the NTA's "Proposed Mullingar Urban Cycle Network", as shown in Figure 3-5. All routes of the Mullingar Active Travel Bundle are listed in the NTA CycleConnects network, and they are Primary Urban, Secondary Urban and Inter-Urban Routes, that will provide enhance connection to several locations across town. The main junctions listed in CycleConnects are also being proposed to be upgraded as part of the Mullingar Bundle to enhance safety to all road users.

Figure 3-5 – NTA CycleConnects Routes in Mullingar



3.2.9 Connecting Ireland – Rural Mobility Plan

The Connecting Ireland – Rural Mobility Plan, issued in 2021, is a major national public transport initiative developed by the National Transport Authority with the aim to increase connectivity for people living outside of major cities and towns of Ireland. The Rural Mobility Plan proposes several changes to the transport network in Mullingar both in regional and local corridors discussed below and illustrated in Figure 3-6.

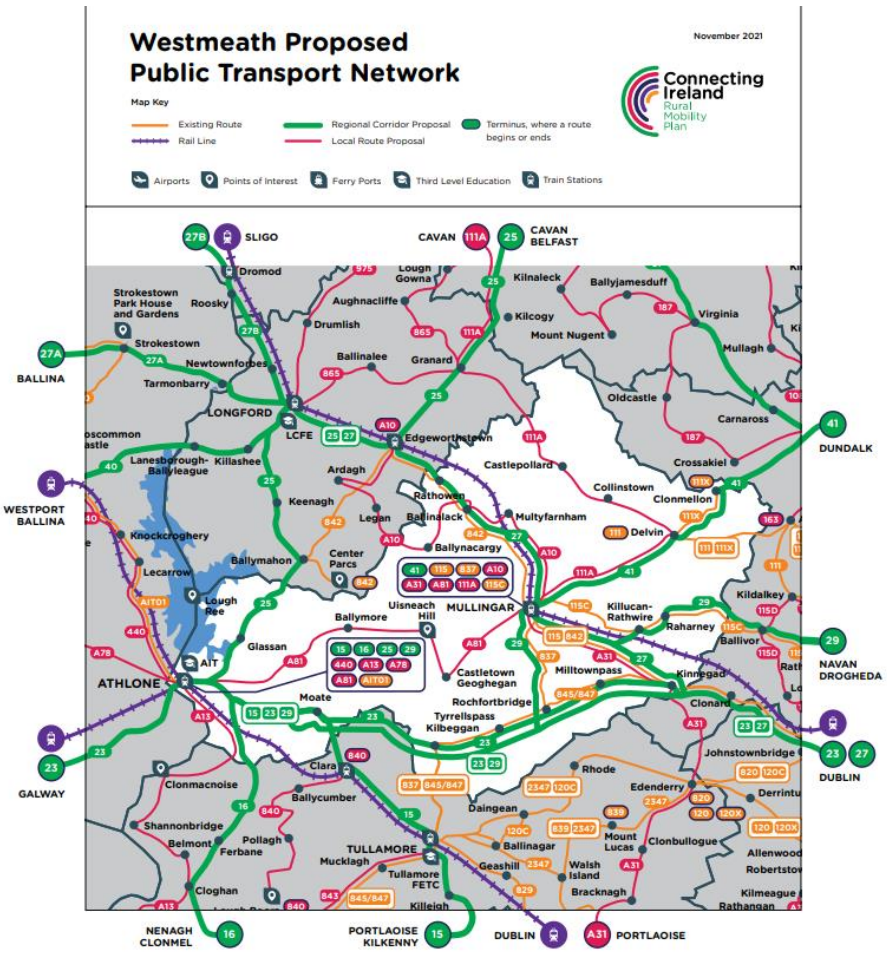
Regional Corridor Proposals:

- Routes 27A and 27B, upgrades of the existing 22 and 23 routes, are proposed to connect Ballina and Sligo to Dublin, also connecting to Mullingar. The upgraded services are to provide more frequent services and better integration along the corridor. A minimum service frequency of 2 hours is proposed between Ballina and Sligo to Dublin and a minimum frequency of once an hour is expected from Longford and Dublin for both routes.
- The 29 is proposed to connect Athlone to Drogheda, which would serve Mullingar. This would be a new corridor as only parts of the corridor are currently served by the 70 and 190 routes. Better integration of these routes is proposed, and a minimum service frequency proposed at an hour interval.
- Route 41 is proposed to link Mullingar and Dundalk. This would be a new corridor making use of the existing corridor used by the 167 route. This service would also provide better integration and connectivity between the two towns with a service proposed every 2 hours.

Local Route Proposals:

- The 111A is proposed to connect Mullingar and Cavan. This is proposed to extend the existing 111A which connects Mullingar to Delvin. The minimum service frequency of 4 daily return trips on weekdays and 3 daily return trips on weekends is proposed.
- The A31 is proposed to connect Mullingar and Portlaoise, which is a new route that would also serve Portarlington, Edenderry and Kinnegad with a minimum service frequency of 3 return trips daily.

Figure 3-6 – Westmeath Proposed Public Transport Network



3.3 Regional Policy Level

3.3.1 Eastern and Midland Regional Spatial and Economic Strategy (RSES), 2019 – 2031

The Regional Spatial and Economic Strategy is a strategic plan and investment framework to shape and manage growth in the Eastern and Midland Region. The RSES provides a roadmap for effective regional development identifying key strategic assets, opportunities and challenges and sets out policy responses to ensure the people's needs are met.

The document delivers a combination of response, design, and innovation in how the Eastern & Midlands Region does business, delivers homes, builds communities and values land-use – creating healthy places and promoting sustainable communities. The RSES introduces the concept of a Growth Framework to achieve this integration as it is considered that regional growth cannot be achieved in linear steps.

The RSES includes methods for delivering land use and transport planning objectives, whereby a range of community facilities and services are accessible in short walking and cycling timeframes from homes or are accessible by high quality public transport to services in larger settlements.

The Regional Spatial and Economic Strategy also states that the transition to a low carbon society is a key challenge facing the region. Several primary areas are at the core of the transition strategy, in particular relevance to the Mullingar Active Travel Bundle are the following areas:

- Sustainable development patterns which promote compact growth, reduce transport demand and encourage low carbon transport modes
- Sustainable transport systems (people and freight).

3.4 Local Level Policy

3.4.1 Westmeath County Council Development Plan, 2021 – 2027

The Westmeath County Development Plan, 2021-2027 states as an aim to "*achieve a sustainable, integrated and low carbon transport system with excellent connectivity within and to Westmeath*" which will be achieved by improving existing transport infrastructure in the county. The delivery and maintenance of a multi-modal transport network is essential to improve life quality and social cohesion, according to the plan.

According with the 2022 census, approximately 70% of residents of Westmeath drive or are driven to work and only around 3% make use of public transport. Regarding active travel, around 7% walk and 1% cycle to work regularly. In order to promote a modal shift into more sustainable transport modes, WCC is aiming to achieve a balanced and sustainable pattern of movement. The plan also highlights that walking and cycling are the most sustainable modes of transport and key components to movement and accessibility.

The following policies and objectives have relevance in relation to the Mullingar Active Travel bundle scheme:

- **CPO 10.1**: Promote and deliver a sustainable, integrated and low carbon transport system by enhancing the existing transport infrastructure such as cycling and pedestrian facilities.
- **CPO 10.2**: Continuation of the promotion of a modal shift away from private cars towards more sustainable forms of transport.
- **CPO 10.11**: Promote walking and cycling as efficient, healthy and environmentally friendly modes of transport by securing a direct, comfortable, convenient and safe network of cycle routes and footpaths.
- **CPO 10.15**: Improve the streetscape environment for pedestrians, cyclists and users with mobility needs by providing facilities that enhance safety and convenience and provide separation from vehicular traffic.

3.4.2 Westmeath Climate Change Adaptation Strategy, 2019 – 2024

The strategy forms part of the National Adaptation Framework (NAF) published in 2018 in response to the provisions of the Climate Action and Low Carbon Development Act, 2015. The document aims to make adjustments to minimise or avoid the existing and anticipated impacts from climate change and to build climate resilient communities and to protect people, ecosystems, infrastructure, buildings and business from the negative impacts of climate change.

The document sets out goals, objectives and actions which are divided in six different themes:

- Theme 1: Local Adaptation Governance and Business Operations
- Theme 2: Infrastructure and Build Environment
- Theme 3: Land use and development

- Theme 4: Drainage and Flood Management
- Theme 5: Natural Resources and Cultural Infrastructure
- Theme 6: Community Health and Wellbeing.

Several actions within the document are aligned with the proposed Mullingar Active Travel Bundle.

- Under Theme 2, Action number 6, the document states the intention to develop public realm infrastructure in the county to develop enhanced sustainable transport solutions.
- Under Theme 3 action number 8, the documents refer to sustainable transport solutions to encourage less use of cars and;
- Under Theme 6 action 7, the council outlines their intentions to further promote the use of active travel facilities such as cycling routes and walking trails.

3.4.3 Westmeath Climate Action Plan 2024 – 2029

The Westmeath Climate Action Plan 2024 – 2029 has been developed as part of Ireland's Climate Action and Low Carbon Development (Amendment) Act 2021 to create a low carbon and climate resilient county. The action plan aims to reduce emissions by 51% and increase energy efficiency from 33% to 50% by 2030. The plan aims to reach its goals by increasing climate literacy, implementing green public procurement and retrofitting public sector buildings.

The plan focusses on five themes:

- Theme 1: Governance and leadership
- Theme 2: Build environment and transport
- Theme 3: Natural environment and green infrastructure
- Theme 4: Communities: resilience and transition
- Theme 5: Sustainability and resource management.

Regarding transportation, the plan states that the primary source of the transport sector emissions come from burning fuel in combustion engines. One of the actions within Theme 2 is to continue the plans to guide the county in a sustainable modal shift and to integrate climate considerations into the design, planning and construction of new roads, bridges and active travel infrastructure.

The plan states that Mullingar has been designated as a Decarbonization Zone, and it is envisioned that the town will undergo several climate change mitigation measures to contribute to national climate action targets. Mullingar will act as a test bed to showcase that is feasible for decarbonization and climate action in a local and community level. The transport related carbon emissions in the town correspond to 27% of the total emissions. In order to reduce the emissions related to transport, the council will focus on sustainable mobility options and active travel, as well as installation of additional EV charging provisions. The proposed Mullingar Active Travel project is in line with the Westmeath Climate Action Plan actions.

3.4.4 Mullingar Local Area Plan, 2014 – 2020 (Extended)

The Mullingar Local Area Plan (MLAP) 2014 - 2020 (extended) sets out a strategy for proper planning and sustainable development of Mullingar. It builds upon the previous Mullingar Town Plan, 2008 – 2014. The plan outlines policies and objectives for the future development of the town and its environs.

Some objectives and policies from the MLAP that are relevant to the Mullingar Active Travel Bundle can be seen below:

- **Policy-EC10**: To continue to improve access to major areas of employment through sustainable transport modes.

- **Policy-AC2**: To create an environment in the Town Centre in which vehicles, cyclists and pedestrians can safely co-exist and share public space.
- **Policy-AC4**: To secure the creation of a safe walking and cycling environment in the Town Centre and to limit the impact of vehicular traffic on the Town Centre environment.
- **Policy-TM5**: To promote the development of walking and cycling in the Mullingar area. Cycling and walking are environmentally friendly, fuel-efficient and healthy modes of transport, and their development is in line with the principles of sustainability.
- **Policy-TM6**: To ensure that the safety of road users, including motorists, cyclists and pedestrians, will be a primary consideration in the design and/or improvement of roads and in the assessment of planning applications for new developments. Cyclists and pedestrians are especially vulnerable in road accidents and new design must pay particular attention to securing their safety.
- **Policy-TM12**: To further the development of an integrated cycle network in Mullingar.
- **Policy-FP13**: To provide a network of efficient, attractive and safe walking routes that are integrated with other movement networks.
- **Policy FP14**: To encourage the use of cycles through provision of dedicated cycle lanes on main routes, while also providing for attractive and safe cycling on secondary routes.
- **Objective-PS1**: To provide a network of interconnected pedestrian routes and alleyways through the Town Centre which link the town core, Cathedral, Town Park, Railway Station and primary public spaces.
- **Objective-AC3**: To provide enhanced pedestrian spaces and connectivity in the Town Centre including widened footpaths and well-designed crossings and public spaces.
- **Objective-TM10**: To develop a network of interlinked pedestrian routeways throughout the town.
- **Objective FP5**: To promote public transport provision to serve these Framework Plan areas and to give priority to pedestrians and cyclists in the design of movement networks.

3.4.5 Draft Mullingar Local Area Plan 2024 – 2030

The Draft Mullingar Local Area Plan, 2024-2030 will set out an overarching land use framework which will form the basis for deciding the appropriate locations for different types of future development of the area. Whilst the plan will be strategic in outlook and focus on key economic, social and environmental issues affecting Mullingar, it will also include tailored and site-specific objectives and actions to enable the town to fulfil its full development potential.

A Pre-Draft 'Strategic Issues Paper' has been prepared to give an overview of the main issues affecting Mullingar and sets out some of the key issues that need to be addressed by the new Plan. A few key relevant challenges discussed in the report are highlighted below:

- Mullingar has been designated a Decarbonisation Zone, meaning improving active travel in Mullingar is an important area of action for Westmeath County Council to achieve this goal.
- Shifting towards sustainable transport modes is also a key consideration within the Issues Paper, to support the economic competitiveness of Mullingar, reduce the cost of congestion and to improve the attractiveness of the town.

3.5 Design Guidance

3.5.1 Design Manual for Urban Roads and Streets

The Design Manual for Urban Road and Streets (DMURS) was updated in 2019 by the Department of Transport, Tourism and Sport. This document provides guidance regarding the integrated design approach for urban roads and streets focused on balancing the needs of all users and creating places that people want to live and spend time.

DMURS seeks to put well-designed streets at the heart of sustainable communities and supports boarder government policies on the environment, planning and transportation. DMURS provides the practical measures to achieve:

- Highly connected street which allow people to walk and cycle to key destinations in a direct and easy-to find manner.
- A safe and comfortable street environment for pedestrians and cyclists of all ages.
- Streets that contribute to the creation of attractive and lively communities.
- Streets that calm traffic via a range of design measures that make drivers more aware of their environment.

DMURS also supports Government policies on climate change by facilitating more sustainable forms of transportation such as walking, cycling and public transport so the need for car-borne trips is minimised in order to reduce greenhouse gas emissions and promote healthier lifestyles.

3.5.2 Cycle Design Manual

The Cycle Design Manual (CDM) was published by the National Transport Authority (NTA) in 2023 and provides guidance on the design of both on-road and off-road cycle facilities for both urban and rural locations. The CDM is to be used for the design of all new or improved cycle facilities in Ireland unless otherwise agreed with the relevant oversight body (e.g. NTA, TII, DoT, Local Authority).

The CDM outlines the context of designing cycle facilities in Ireland and the increased emphasis on segregation of facilities from motor traffic and provides information on what designers need to be aware of in regard to every aspect of cycle infrastructure design.

The CDM outlines the five main requirements for a cycle-friendly infrastructure, which are: safety, coherence, directness, comfort and attractiveness. These requirements shall be followed to attract new users and to fulfil the needs of existing cyclists.

3.5.3 Rapid Build Guidance

In February 2023, the NTA published the advice note ‘Rapid Build Active Travel Facilities’ to provide guidance on cost-effective measures to provide high-quality walking and cycling infrastructure using rapid-build methods. Since the publication of the note, all active travel schemes are required to include rapid build options in their options selection process.

Rapid build options are typically faster to implement on the ground than traditional construction methods and do not typically involve major construction works, mostly being accommodated within kerb-to-kerb boundary of the existing roadway, with limited effect on existing drainage. These options may include road marking, traffic restrictions, narrowing the carriageway, conversion of on-street parking into active travel facilities, among others.

The proposal to use rapid build options rather than traditional construction methods has been proposed in order to increase the rollout of active travel schemes in a cost-effective manner in conjunction with goals set under the Climate Action Plan and the National Investment Framework for Transport in Ireland (NIFTI). There are five principles that guide the rapid build process:

- **Network Approach**: a focus to develop an interconnected walking and cycling network;
- **Segregation**: provide fully segregated walking and cycling facility to attract more users into active travel;
- **Everyday Mobility**: provide infrastructure suitable for everyday activities;
- **Inclusive Mobility**: design that is suitable for all users of different ages and abilities;
- **Place Making and Biodiversity**: provide facilities that protect the biodiversity and enhance the public realm.

The rapid build options process should include as a minimum:

1. The implementation of traffic calming measures, e.g., chicanes, build-outs, ramps, raised tables, etc, to reduce traffic speeds and volumes in order to accommodate pedestrians and increase safety for cyclists in mixed traffic with motorised vehicles;
2. The reduction of the carriageway width for vehicle traffic to introduce one-way or two-way protected cycle lanes;
3. The rebalance of the road space, e.g., removal of on-street parking, introduction of a one-way system, etc, to improve safety for pedestrian and cyclists and introduce dedicated cycle lanes.

3.5.4 Other Relevant Design Guidelines

In addition to guidelines from above mentioned documents, the following documents were also referred for the analysis:

- Traffic Sign Manual by Department of Transport
- Traffic Management Guidelines by Department of Transport
- Part M of the Building regulations by Department of Housing, Local Government and Heritage
- Roundabout Retrofit – Including Rapid Build Options by NTA
- Traffic Signs Advice Note: Zebra Pedestrian Crossings by Department of Transport
- Greening and Nature-based SuDS for Active Travel Schemes by NTA
- Draft Protected Cycle Lanes by NTA
- TII Standards Publications
- Safe Route to School Design Guide by NTA
- Permeability Best Practice by NTA
- Building for Everyone by the National Disability Authority
- UK DETR Guidance on the use of Tactile Paving Surfaces.

4. Existing Transport Network

4.1 Existing Road Network

The Dublin Road Active Travel Scheme comprise of Dublin Road, from the signalised T-junction with Delvin Road on the west to the Marlinstown Roundabout to the east, the section along Delvin Road until the access to the Royal Canal Greenway and the section along Ardmore Road until the zebra crossing opposite Ardmore Hills estate. The scheme extends for 2,534.16 m and has been divided into six different segments due to change in corridor characteristics, such as road width, presence of active travel infrastructure, grass verge, etc, as indicated in Figure 4-1. The following sections discuss the characteristics of each segment of the project.

Figure 4-1 – Dublin Road Active Travel Scheme Route Corridor

4.1.1 Segment 01: Access to Royal Canal to Dublin Road/Meadow Court Junction

The first segment, Segment 01, includes the section of the route from the access point to the Royal Canal Greenway, which forms part of the Dublin to Galway Greenway, to the junction with Meadow Court, circa 778m in length. The segment has one vehicular lane in each direction, and, on the approach to the signalised junction with Delvin Road, the road widens to provide additional lanes for vehicles turning into Delvin Road. There is one section of hard shoulder which acts as informal on-street parking in this segment, located adjacent to the Prospect apartments. The parking area extends for approximately 95m and caters for around 15No. vehicles and is not a pay-and-display parking area.

There are four junctions along the segment, as indicated in Figure 4-2. The major junction of the segment is the signalised T-junction between Dublin Road and Delvin Road. The junction has a right turning lane on each approach and a yellow box in the middle of the junction to avoid vehicles blocking the junction while other movements are open at the traffic lights. The remaining three junctions are priority T-junctions that mostly serve residential estates. The junction with Belview has a slip lane into Belview from vehicles traveling eastbound on Dublin Road.

There are continuous footpaths provided on both sides of the road varying in width from 1.2m to 2.6m. The segment provides a cycle lane on the northern side of the road from the junction with Delvin Road to the Bellview junction which measures approximately 1.0m wide. From the junction eastwards, the northern footpath widens to provide a shared active travel facility for approximately 60m, where a signalised crossing point is provided to allow for cyclists

to cross to the south to continue on the shared active travel facility provided. There are two in-lane bus stops in this segment, located adjacent and opposite Bellview Clinic, which serve routes 115, 115C and 190.

According to the traffic survey collected in December 2023 from Monday the 4th to Sunday the 10th, there are over 10,000 AADT vehicles recorded travelling along Segment 01 in average during the weekdays. The average HGV along the segment is approximately 530 vehicles during the weekdays, which account for over 5% of the AADT. The survey also collected speeds which indicate that on the westbound vehicles tend to travel at an average of 51km/h and on the eastbound at 48.9km/h. The 85% speed on the westbound is 62km/h while in the eastbound is 57.8km/h.

A pavement condition survey was undertaken via visual inspection of available imagery including photos and videos taken on-site on the 21st of November 2023 and supplemented where necessary with Google Street View. Segment 01 of the scheme has been classified as PSCI 5 according to the Pavement Condition Survey Index from the Urban Flexible Roads Manual (Department of Transport, Tourism and Sport, 2013) due to the presence of ravelling, potholes, alligator cracking, depressions, transversal cracking, among other defects.

The speed limit along the segment is 50km/h and the typical width between boundaries is 12m. Figure 4-2 provides an overview of the segment and Figure 4-3 shows the typical cross sections.

Figure 4-2 – Segment 01 Overview

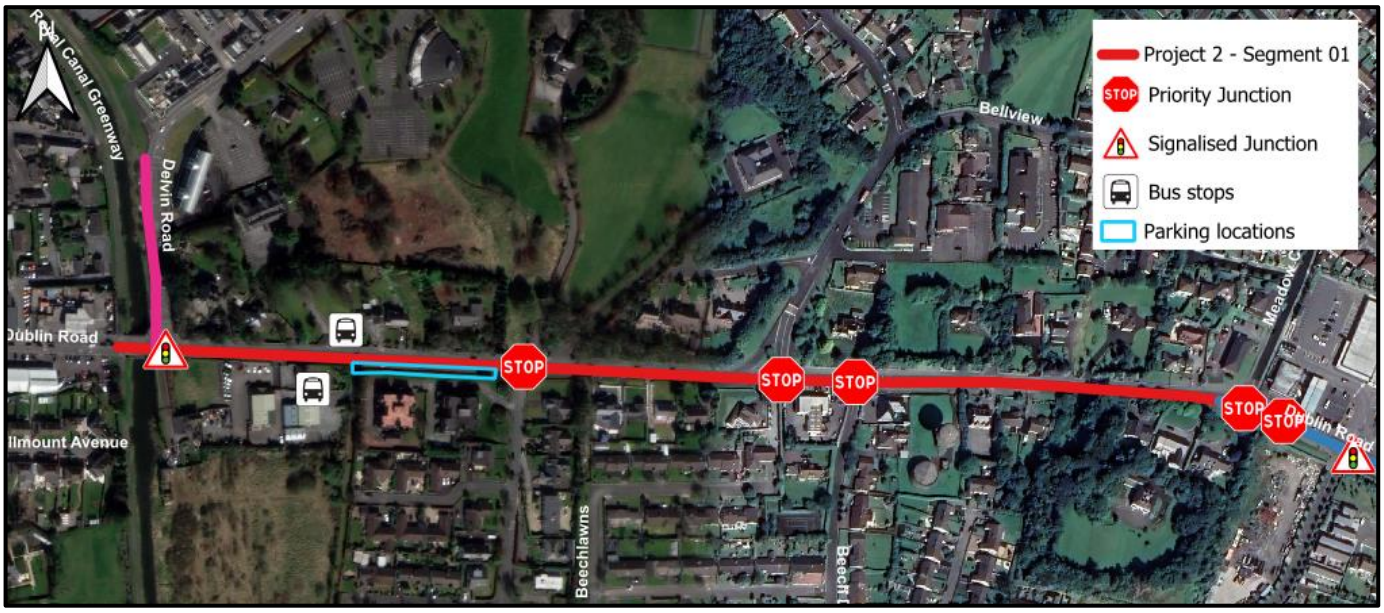


Figure 4-3 – Segment 01 Typical Cross Sections

4.1.2 Segment 02: Dublin Road/Meadow Court Junction to west of Dublin Road/Gleann Petit Drive Junction

Segment 02 extends from the junction between Dublin Road and Meadow Court until west of the junction between Dublin Road and Gleann Petit Drive, approximately 380m. The segment provides one vehicular lane in each direction, however, from the Meadow Court junction to the access to the Aspire Training building, the road widens to provide several turning lanes to the residential estates, the petrol station and the food store located along this area. There is no on-street parking along this segment.

There are five junctions along the segment, as indicated in Figure 4-4. The major junction on the segment is the signalised crossroads between Dublin Road, the Aldi access and Glenmore Wood. On the eastern end of Dublin Road, the road widens to provide four lanes and on the western end there are three lanes. On the Aldi arm, there is an additional right-turn slip lane that controlled by a yield system. The remaining junctions are priority T-junctions into residential estates and the petrol station.

The active travel facilities provided along the segment vary. A cycle lane, approximately 1.3m in width, is continuous along the northern side of the segment, as well as the footpath, measuring approximately 1.7m wide. On the southern side, there is a shared active travel facility which is segregated from the road carriageway by a grass strip that measures around 2.5m and along the frontage of the Petitswood Manor residential estate, there is also a cycle lane provided, around 1.2m wide. Similar to Segment 01, there are two bus stops, which are located adjacent and opposite Petitswood Manor residential estate and are also in-lane bus stops with no bus cage or shelter serving bus routes 115, 115C, 190 and also route 842.

An ATC survey has not been carried out along the segment, however, WCC have provided AtkinsRéalis with Junction Turning Counts (JTC) at the T-junction between Dublin Road and Meadow Cottages from Wednesday the 17th of May 2023. According to the survey, over 8,300 vehicles travelled along the junction between 07:00 to 19:00 and the majority of the movements were towards the town centre.

The pavement condition survey classified Segment 02 as PSCI rate 5, due to the presence of ravelling, potholes, shoving, longitudinal cracking, manhole defects, among others.

The speed limit along the segment is 50km/h and the typical width between boundaries in 18m. Figure 4-4 provides an overview of the segment and Figure 4-5 shows the typical cross sections.

Figure 4-4 – Segment 02 Overview

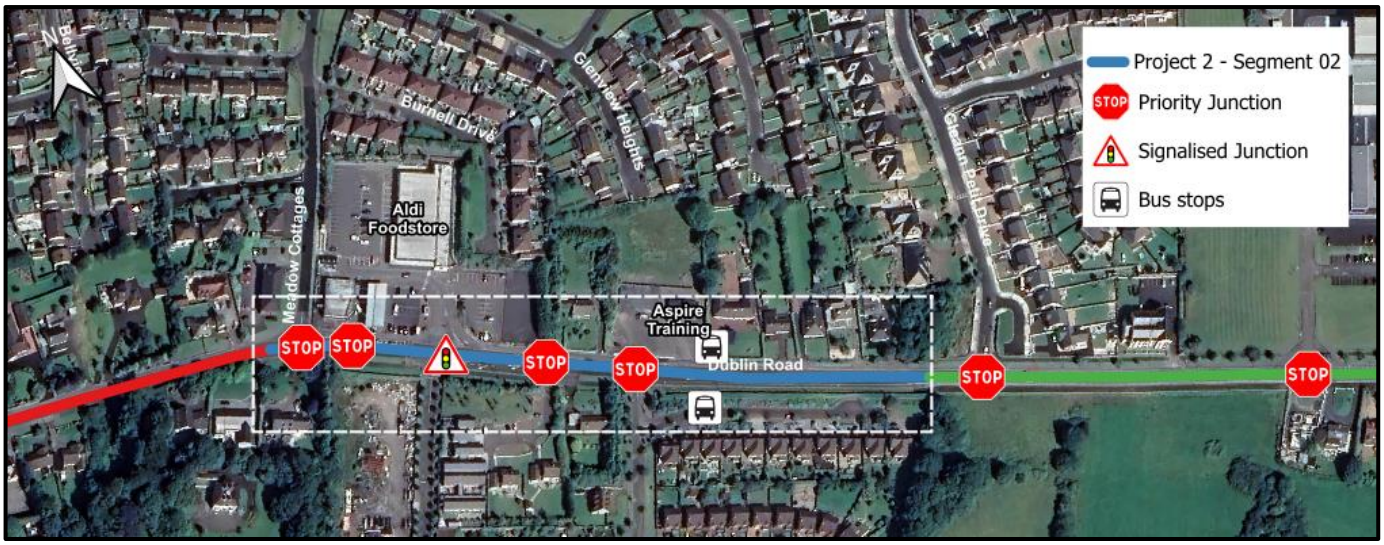


Figure 4-5 – Segment 02 Typical Cross Section

4.1.3 Segment 03: Dublin Road/Gleann Petit Drive Junction to the National Science Park roundabout

Segment 03 extends from just east of the junction with Gleann Petit Drive to the National Science Park roundabout, a total of 418m in length. The segment also provides one vehicular lane in each direction. There are three junctions in this segment, all three of which are minor priority T-junctions giving access to the Gleann Petit residential estate and the National Science Park.

On the northern side of the road, a continuous footpath is provided which is segregated from vehicular traffic by a grass verge and measures approximately 2.5m in width. Also on the northern side, a cycle lane measuring 1.2m wide and segregated from vehicular traffic by a 0.75m painted buffer, is provided until the eastern junction of the National Science Park. On the southern side, a shared active travel facility is present along the entire extent of the segment and measures around 2.5m wide. There is also a buffer zone on the southern side to provide additional safety for users of the shared active travel facility.

There is one bus stop at the segment, to the west of the National Science Park roundabout, serving routes 115, 115C, 190 and 842. Similar to the other bus stops along the corridor, the bus stop is in-line with no cage or shelter.

The ATC survey carried out in December 2023 indicates an AADT of over 9,500 vehicles during the weekdays. The HGV average over 4% which accounts for approximately 400 vehicles. The speed limit along the segment is 50km/h however, the speed survey indicates the average speed is 57.6km/h and the 85%ile speed on the westbound is 64.8km/h and on the eastbound is 68.7km/h.

Segment 03 has been classified as PSCI 6 moderate other pavement defects according to the pavement condition survey due to the presence of ravelling, manhole defects, heave, among others.

The typical width between boundaries is 21.0m. Figure 4-6 provides an overview of the segment and Figure 4-7 shows the typical cross sections.

Figure 4-6 – Segment 03 Overview

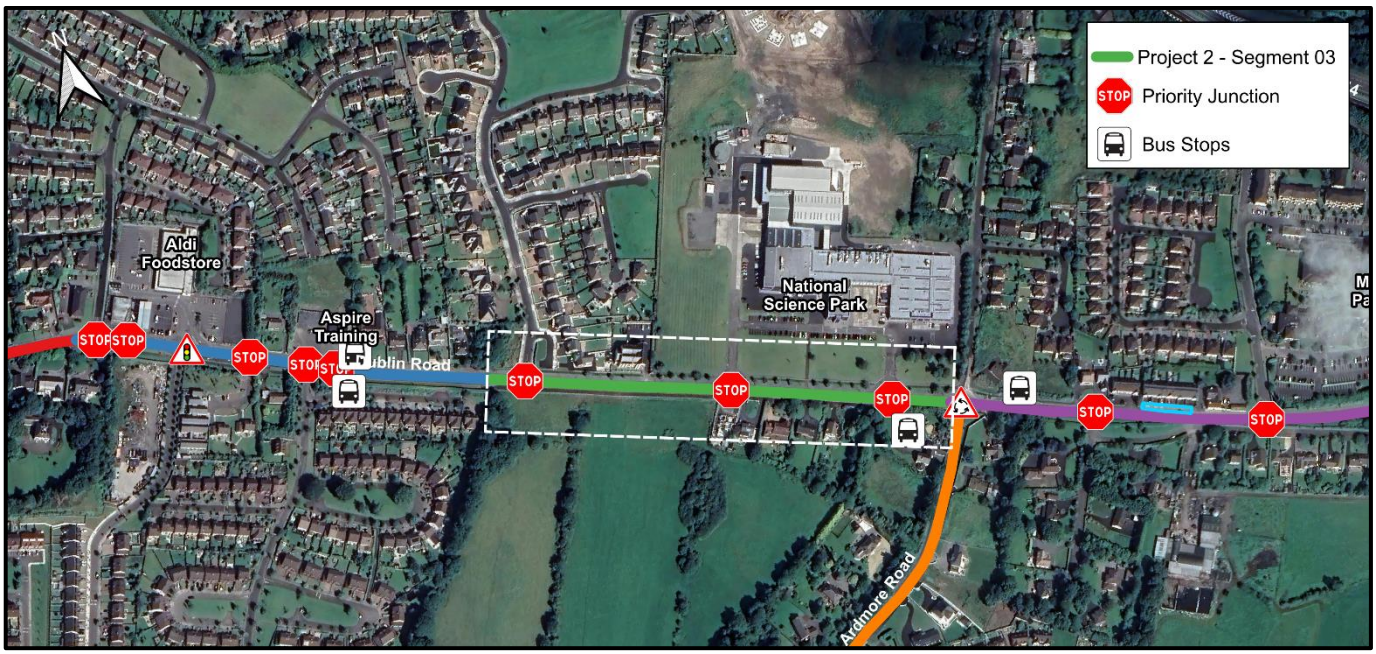


Figure 4-7 – Segment 03 Typical Cross Section

4.1.4 Segment 04: National Science Park Roundabout to Marlinstown Roundabout

Segment 04 extends for approximately 453m from the exit of the National Science Park roundabout to the Marlinstown Roundabout. There is one vehicular lane on each direction along the segment, however, a wide median strip is located along the whole extent of the segment to provide several turning lanes allowing turning movements to residential estates and the Mullingar Park Hotel. There is an on-street parking area adjacent to the Cuainín terrace houses that measure approximate 40m and can cater for up to 7 vehicles.

There are four junctions along the segment, as Figure 3-8 shows. Two are major junctions, the National Science Park roundabout and the Marlinstown Roundabout with the remaining two being minor priority T-junctions into Marlinstown Lawns and the Mullingar Park Hotel.

The footpaths are only continuous on the north side of the road, which measure approximately 1.7m in width. On the southern side, the footpath is only from the National Science Park roundabout to the junction with Marlinstown Lawns and measures approximately 0.75m wide. Cycle lanes are provided on both sides of the road for only approximately 100m from the National Science Park roundabout to the Marlinstown Lawns junction and measure 1.1m in width. On the approach to the National Science Park roundabout, there is a controlled crossing point with a ghost island, whereas on the Marlinstown Roundabout, there is only one uncontrolled crossing point with tactile paving on the northern arm, the remaining two arms does not have the provision of a crossing.

There is one bus stop in this segment, located to the east of the National Science Park roundabout which has the provision of a bus cage and a shelter and serves bus routes 115, 115C, 190 and 842.

The speed limit along the segment is mostly 50km/h and changes to 60km/h on the approach to the Marlinstown Roundabout. The speed survey conducted in December 2023 indicates that the average speed along the segment is 45.5km/h and the 85%ile speed is 53km/h. The AADT along the segment during weekdays is approximately 12,200 and the HGV average is 3.5%, around 430 vehicles.

Segment 04 has also been classified as PSCI 5 significant other pavement defects in the pavement condition survey. The survey noted the presence of alligator cracking, manhole defects, bleeding, and so on.

The typical width of the segment is 12.5m. Figure 4-8 provides an overview of the segment and Figure 4-9 shows the typical cross sections.

Figure 4-8 – Segment 04 Overview

Figure 4-9 – Segment 04 Typical Cross Section

4.1.5 Segment 05: National Science Park Roundabout to Ardmore Hills

Segment 05 extends north-south along Ardmore Road from the National Science Park roundabout to just north of the junction with Ardmore Hills, approximately 372m in length. The segment connects to Segment 03 and 04 to the north, at the National Science Park roundabout and to the Footpath and Cycle Path works at Ardmore Road (Phase 3) scheme to the south. There is one priority T-junction in this segment which connects to the Ardmore Hills estate, as indicated in Figure 4-11

Ardmore Road is the only link north-south on the eastern side of the town. There is one vehicular lane in each direction and the footpath is only provided on the southbound, which for the most part, is segregated from vehicular traffic by a grass verge. From the roundabout to the northern boundary of Ardmore Hills, the footpath is wider and measures from 2.6 to 4.4m, whereas, along Ardmore Hills, the footpath measures 1.5m. There are no cycle facilities along this segment nor are there any bus stops. There is also no on-street parking.

The AADT along the segment is approximately 5,800 vehicles a day during the weekday according to the traffic survey from December 2023. The HGV percentage along the segment is 3.8%, approximately 220 vehicles. The average speed limit recorded along the segment is 45km/h and the 85%tile speed is 52km/h on both directions.

Segment 05 has been classified as PSCI rate 7, extensive surface defects, with little defects compared to the other segments. The defects notes were ravelling, alligator cracking, bumps and manhole defects.

Typical cross-sectional width between boundaries in this segment 11.5m. Figure 4-10 provides an overview of the segment and Figure 4-11 shows the typical cross sections.

Figure 4-10 – Segment 05 Overview

Figure 4-11 – Segment 05 Typical Cross Section

4.1.6 Segment 06: Delvin Road to Royal Canal Greenway

Segment 06 have been included as part of the scheme to improve connection with the Royal Canal Greenway and was not initially included in the tender scope.

The segment extends from the junction with Dublin Road at Segment 01 to the access to the greenway, at the toucan crossing, approximately 130m in length. There is one lane of traffic for vehicles travelling north and two lanes for vehicles travelling south, to accommodate both right and left turning movements at the junction with Dublin Road.

The footpath on the southbound has and average width of 1.6m and on the northbound the path is generally 4m wide and connects to the Royal Canal Greenway. There are three benches and vegetation located adjacent the path on the northbound that separate the path to the canal. There are no cycle facilities, bus stops or junctions at this segment.

There were no ATC counts along the segment, however, the JTC counts from May 2023 at the Dublin Road / Delvin Road junction indicate that approximately 8,000 vehicles travelled along the junction towards / from the segment between 07:00 and 19:00.

The typical cross sectional width is 17.6m. Figure 4-12 provides an overview of the segment and Figure 4-13 shows the typical cross sections.

Figure 4-12 – Segment 06 Overview

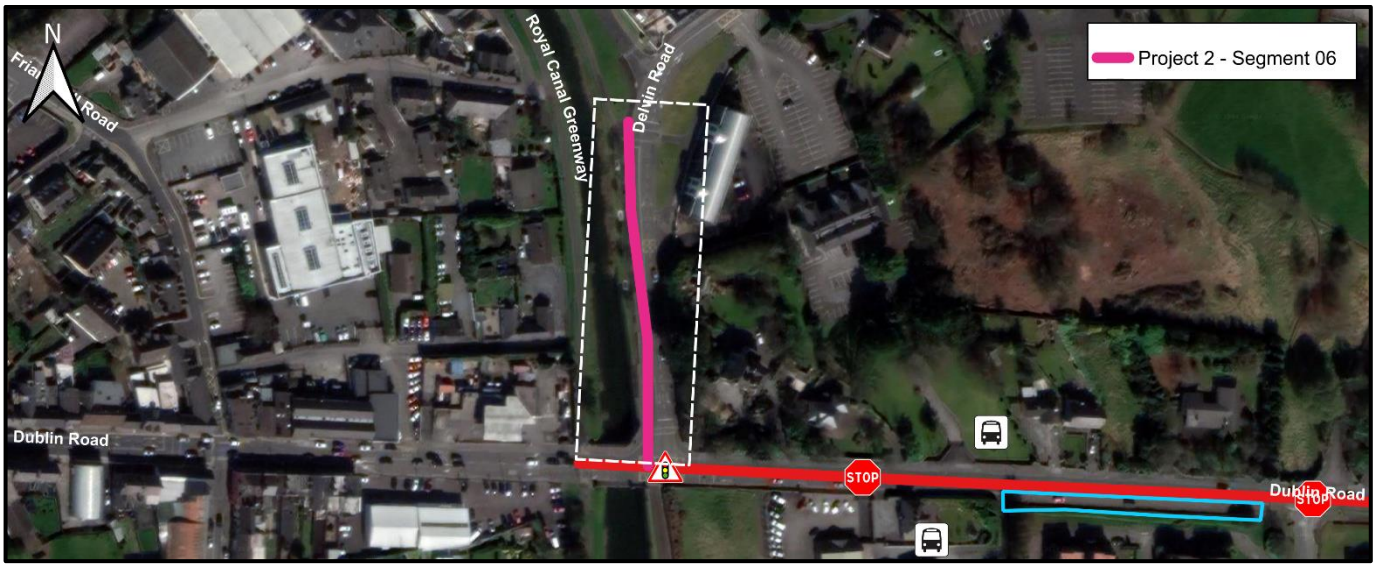


Figure 4-13 – Segment 06 Typical Cross Section

4.2 Road Collision Data

At the time of the constraints study being completed, historical collision data, which is provided by the Road Safety Authority (RSA), was not available. Therefore, no collisions analysis has been completed. At this time, the RSA has not indicated when the collision data will be available. Should this data become available during the continued progression of this project, the information will be evaluated, and a supplemental safety assessment addendum will be included as part of a future project-related report.

5. Options Assessment Process

5.1 Option Selection

A Feasibility Study, Option Selection and Appraisal Report was compiled by AtkinsRéalis with the following aims and objectives:

- To consider the context of the scheme in terms of Local and Regional Planning Policy.
- To identify significant engineering and environmental constraints.
- To set out the route options considered and to summarise their feasibility and relative ranking in terms of various relevant criteria.
- To appraise the route options and make a recommendation in relation to a preferred concept route option.

5.1.1 Methodology for Options Selection

As mentioned previously, the corridor has been divided into six segments. Each segment has been assessed separately through a Detailed Option Assessment. The first stage of the assessment is called Option Identification which is the preliminary analysis to identify feasible options that can be implemented at each segment according to the available width. The second stage is the Detailed Option Assessment, which is a complete Multi Criteria Assessment (MCA) of the different cross sections brought forward from Option Identification for each segment with the goal of determining the general link type arrangement.

The major junctions have also gone through a Detailed Option Assessment with bespoke options for each. The corridor has four major junctions, two being signalised junctions, one a roundabout and one a priority T-junction. Based on this, appropriate options have been considered for each junction based on traffic volumes, speeds, existing junction type and existing land available in and around the junctions.

Each option was assessed in a comparative manner to each other, and the highest ranked option carried forward to become the Emerging Preferred Option (EPO). The full detail of this options assessment process is included in the Feasibility Study and Options Selection & Appraisal Report (AtkinsRéalis document ref. 0086409DG0015).

5.1.2 Link Types Options

The options assessed for each segment of the corridor were as follows:

- Do-Nothing
- Standard Cycle Track (one-way on both sides or two-way on one side, traditional build) and upgrades of the existing footpaths on both sides of the road
- Standard Cycle Track (one-way on both sides or two-way on one side, rapid build) and retention of the existing footpaths on both sides of the road
- One-way Stepped Cycle Track (traditional build) and upgrades of the existing footpaths on both sides of the road
- Protected Cycle Lanes (rapid build) and retention of the existing footpaths on both sides of the road
- Shared Active Travel Facilities on one side of the road (both traditional and rapid build) and footpath on the other side of the road
- Cycling in Mixed Traffic (both traditional and rapid build) and footpaths on both sides of the road.

5.1.3 Junction Options

The options assessed for the major junctions of the corridor were:

- Do-nothing (all junctions)
- Upgrade Junction into a Fully Signal Control Protected Junction (Dublin Road / Delvin Road signalised junction)
- Removal of Slip Lane and Provide a Standard Side Road Crossing (Dublin Road / Bellview priority T-junction)
- Removal of the Slip Lane and Full Signal Control Junction (Dublin Road / Aldi / Glenmore Wood signalised junction)
- Rapid Build Roundabout Upgrade (National Science Park roundabout)
- Protected Roundabout with Cycle Priority (National Science Park roundabout)
- Replace Roundabout with Full Signal Control Junction (National Science Park roundabout).

5.2 Emerging Preferred Options

The Emerging Preferred Options (EPOs) for the link types and the junctions are summarised in Table 5-1. Please refer to Appendix A for the Preliminary Design Drawings for details of the proposals at each segment and junction.

The scheme will also improve existing bus stops in accordance with the Cycle Design Manual and provide additional bus stops facilities for the Mullingar Town Bus Service, provide additional green areas with opportunities for landscaping and public realm, improvements to drainage and public lighting, provision of additional crossing points to safely accommodate pedestrians wishing to cross the road, provision of connectivity with the Royal Canal Greenway at three points along the scheme and provision of bicycle parking at appropriate locations

Table 5-1 – Scheme Preferred Option

Location	Proposal
Segment 01	2.3m two-way cycle track on the south side of the road, locally changed to shared active travel paths at constrained locations 1.8m footpath on both sides of the road 6.5m carriageway
Segment 02	3.5m two-way cycle track on the south side Retention of the existing 1.8m+ footpaths on both sides of the road 6.5m carriageway
Segment 03	4.0m two-way cycle track on the south side Retention of the existing 1.8m+ footpaths on both sides of the road 6.5m carriageway
Segment 04	2.3m two-way cycle track on the south side Retention of the existing 1.8m+ footpath on the north side 6.5m carriageway
Segment 05	2.3m two-way cycle track on the east side 2.0m footpath on the east side 6.0m carriageway
Segment 06	3.3m shared active travel path on the western side Footpath on the eastern side Removal of left turning lane into Dublin Road 6.0m carriageway
Dublin Road/Delvin Road Signalised Junction	Upgrade Junction into a TL505 Protected T-Junction – Full Signal Control as per the Cycle Design Manual

Location	Proposal
	Removal of turning lanes on all three approaches Crossing facility on the western arm to be upgraded into a raised toucan crossing Removal of the yellow box
Dublin Road/Bellview Priority Junction	Removal of Slip Lane Tightening of the radii Provision of a raised uncontrolled pedestrian crossing facility
Dublin Road/Aldi Food Store/Glenmore Wood Signalised Junction	Removal of the Slip Lane off Aldi Upgrade Junction into a TL503 Protected Junction – Full Signal Control as per the Cycle Design Manual Removal of turning lanes along Dublin Road
National Science Park Roundabout	Upgrade into a TL703 Segregated Roundabout with Shared Active Travel Facilities as per the Cycle Design Manual Removal of the toucan crossing on the eastern arm and inclusion of raised zebra crossings on all arms

6. Preliminary Design

Key design features, common to all options are discussed in sections 6.1 to 6.10, denoting various links that emerged from the Options Selection Process, the treatment of junctions, entrances and pedestrians and cyclists crossings.

The Preliminary Design Drawings are contained within Appendix A.

A Stage 1 Road Safety Audit and a Quality Audit will be prepared for the scheme by a qualified audit team. Any problems arising from the audits will be delt by the design team and, if applicable, the design will be updated to reflect the findings of the audit.

6.1 Link Design

As noted in Chapter 5, the Emerging Preferred Options for the link types align with the link options in Cycle Design Manual Section 4.2. The proposed scheme will provide, for the most part, a segregated two-way cycle track, which is in line with Section 4.2.6 of the CDM. At sections constrained in width, the scheme will provide shared active travel paths, which are in accordance with Section 4.2.7 of the CDM. The existing speed limit throughout the scheme is 50km/h, which is proposed to be maintained, and is also in accordance with Table 2.1 of the CDM.

On the side roads approaches to the scheme, appropriate road markings and signage will be provided to indicate the presence of cyclists on the road in a cycling in mixed traffic regime, according to Section 4.2.9 of the CDM. The speed limit at these locations will continue to be 50km/h. Table 2.1 of the CDM indicates that mixed traffic regime is only appropriate to speeds 30km/h or less. However, the addition of the road markings and signage and the tightening of the junctions' radii will improve safety for all roads users, when compared to the existing scenario.

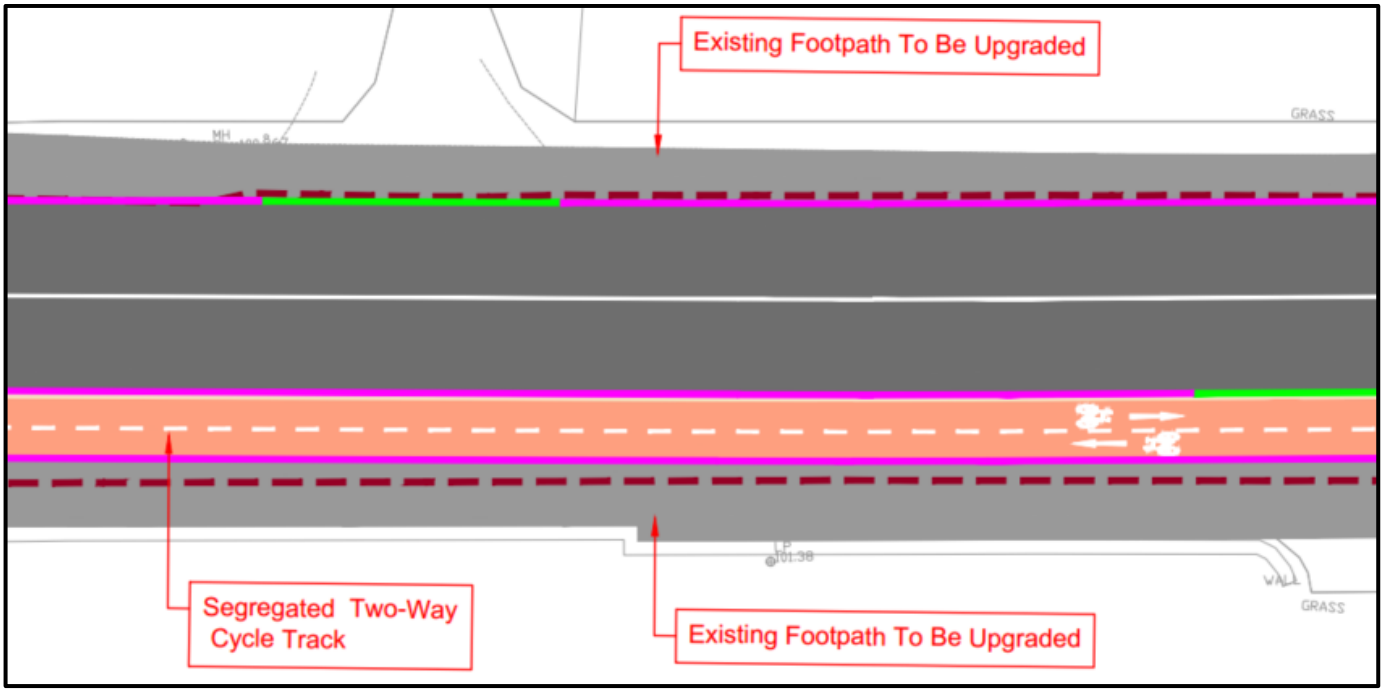
The desirable widths of each element of the links shall be as per Table 6-1. Widths which still comply with the minimum required in the design standards (CDM and DMURS) are denoted in brackets. The desirable widths are achieved at a minimum, unless noted otherwise within the Preliminary Design Drawings.

Footpaths will also be upgraded throughout the scheme to provide a desirable minimum width of 2m and with a minimum of at least 1.8m provided.

Table 6-1 - Table of Desired Widths

Link Type	Footway Width	Cycle Track Width	Trafficked Width	Total Width
Standard Two-way Cycle Track	2m (min. 1.8m)	3.5m (min. 2.3m)	2 x 3.25 lanes (2 x 3m lanes)	14m (min. 11.9m)
Cycling in Mixed Traffic	2m (min. 1.8m)	N/A	2 x 3.25 lanes (2 x 3m lanes)	10.5m (min. 9.6m)
Shared Active Travel Path	4.5m (min. 3.3m)		2 x 3.25 lanes (2 x 3m lanes)	13m (min. 11.3m)

Figure 6-1 – Example of Links



6.2 Junctions and Entrances

The major signalised junctions have been designed as TL503 and TL505 Protected Junctions according to the CDM. Details of the design of the junctions are provided below:

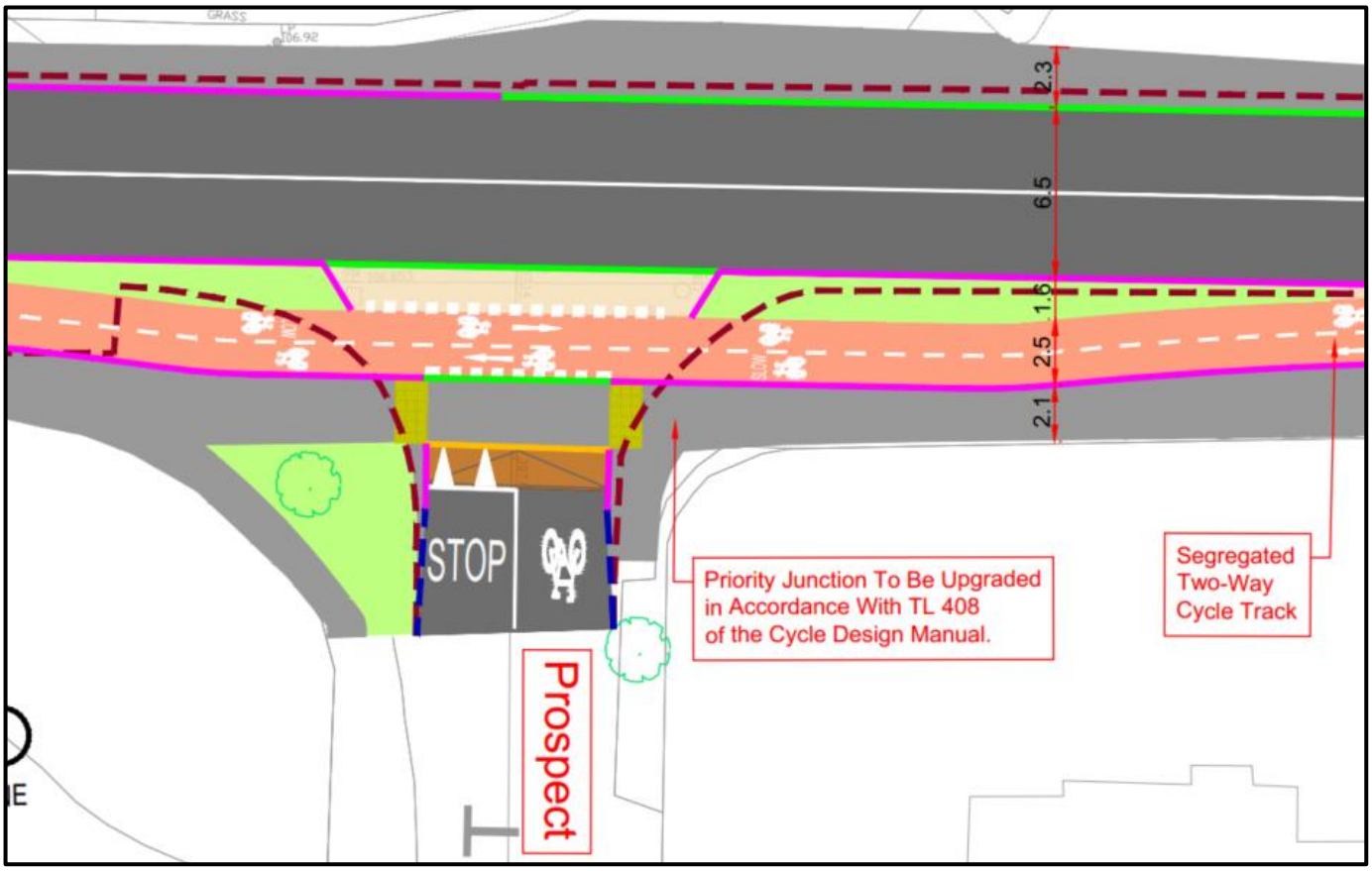
- The junctions will have reduced corner radii throughout with dedicated segregated islands provided to protect cyclists from left turning vehicles. The cyclists passing through the junction will do so on their own cycle tracks with dedicated traffic signal phases which are separate to the pedestrian phasing.
- Pedestrians will have dedicated controlled pedestrian crossings on all arms. Tactile paving will be provided at the crossings to advise visually impaired pedestrians.
- Along the links, a vertical separation will be provided between cyclists and traffic, with further vertical segregation provided between pedestrians and cyclists. At the junctions, cyclists will be at the same level as the carriageway but protected by physical islands as far as possible.
- Design considerations such as kerbline tapering and radii which are larger than that on other corners have been supplemented by careful consideration of the phasing to allow as much green time as possible for both junctions to maximise efficiency while improving cycle and pedestrian facilities and safety.

The side road junctions will be upgraded with features as follows:

- Side junctions on the southern side of the road are designed as TL408 Two-Way Cycle Track Crossing Side Road with Priority - Partial Set Back, as shown in Figure 6-2, and TL409 Two-Way Cycle Track Crossing Side Road with Priority - No Set Back. Cyclists and pedestrians will have priority over vehicle traffic at these junctions.
- Bevelled kerbs have been included at the above junction types to allow for vehicles to cross the cycle track and footpath.
- Radii of side junctions on the northern side of the road will be tightened between 4.0m to 6.0m, depending on the levels of traffic and the function of the side road.
- All side roads will have raised entry treatment to slow approaching traffic and to remove the need to dish-down pedestrian crossings
- Tactile paving shall be provided at the crossing to advise visually impaired pedestrians.

- A minimum 2m long flush kerb shall be provided for right turning cyclists from the two-way cycle track facilities to access to/from junctions on the opposite side of the road.

Figure 6-2 – Example of Side Road Junction



6.3 Crossings

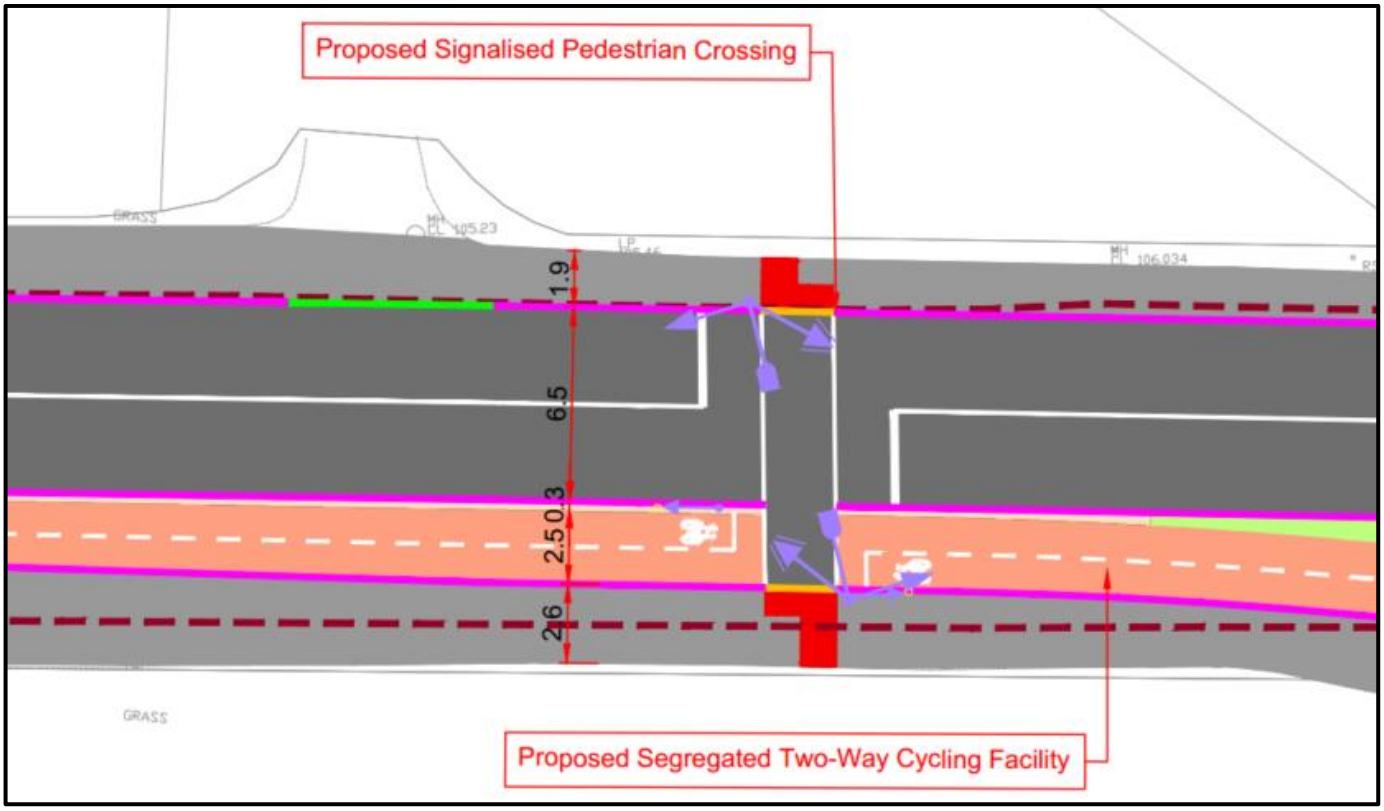
Toucan crossings, zebra crossings and uncontrolled crossings are proposed to encourage slower speeds and make easier movement of pedestrians and cyclist along the scheme.

Given the location of the scheme in an urban area it is anticipated to have high pedestrian and cyclists' activity. The widths of crossings are as per the minimum required within DMURS (Section 4.3.2), the Traffic Sign Manual (Section 7.16) and Cycle Design Manual (Section 4.5).

The major junctions will provide crossing facilities on all arms for both pedestrians and cyclists. The existing signalised crossing point to the east of Bellview is to be retained and amended to align with the proposed kerbline and the existing signalised crossing along Delvin Road is to be widened to cater for pedestrians and cyclists. The existing zebra crossing at the southern end of Ardmore Road is to be widened to 4.0m to cater for both cyclists and pedestrians to safely traverse from one side of the road to the other, as the active travel facilities are provided on different sides of the road.

In addition to the junctions and the existing crossings, a new signalised crossing facility is proposed to the west of the junction between Prospect and Dublin Road. The crossing will measure 2.4m and will cater for pedestrian movements and is indicated in Figure 6-3.

Figure 6-3 – Proposed Pedestrian Crossing



6.4 Drainage

Typically, drainage will be provided using the existing surface water drainage system with existing gullies relocated into the realigned carriageway channel. The new footpaths and cycle tracks will generally slope towards the road in order to remove the need for additional drainage collection measures. Where kerb types are used for the cycle track which do not allow water to drain onto the carriageway, additional gullies may be used within the cycle track or localised gaps in kerb heights may be required.

Alternatively, and where the proposed scheme results in a marked increase in catchment area (due to an increased hard-standing area), sections of footway and/or cycle track will be constructed using either porous surfacing; or where appropriate, the cross-fall will fall towards an adjacent grass verge (thus not discharging into the surface water network).

The details of this will be developed as part of the detailed design.

6.5 Lighting

All footpaths, cycle tracks and roads will be lit, in line with current best practice and design guidance in relation to public lighting.

All existing lighting within the scheme will be upgraded to new energy-efficient LED lighting; the details of which will be developed as part of the detailed design.

6.6 Pavements

In order to give the highest quality of service for cyclists, it is envisaged that a smooth asphalt surface course will be used as recommended by the Cycle Design Manual, with sufficient base and foundation layers to prevent failure. Shared spaces and footpaths are intended to be a concrete surface, to provide colour-contrast when compared to road and cycle surfaces, to aid people with visual impairments. The exact construction depth for the footpath and cycle track pavements is subject to detailed design.

The existing road surfaces have been assessed visually for deficiencies, as noted in Section 4. This report recommends that:

- Routine maintenance and if necessary, restoration of skid resistance, is carried out
- Sections of surface renewal are recommended to restore smooth surface characteristics.
- In certain areas where alligator cracking or other structural distresses are evident, it is recommended that a structural treatment is considered.

As such it is envisaged that at a minimum a new surface course will be provided as part of the proposed scheme. The exact construction depth for the road construction in areas that need targeted interventions is subject to detailed design.

6.7 Services

At the outset of the project, utility companies were contacted seeking information relating to their plant and ducting within the route corridor. The following information was received:

Table 6-2 - Existing Utilities in Mullingar town

Utility Provider	Description
Electricity Supply Board (ESB)	Electricity
Eircom Ltd. (EIR)	Telecoms
Gas Networks Ireland	Gas distribution and transmission
Irish Water	Water Main and Wastewater
E-net	Telecoms
Aurora Telecoms	Telecoms
Virgin Media	Telecoms
BT Telecoms	Telecoms
Westmeath County Council	Stormwater
Siro	Telecoms

A Ground Penetrating Radar (GPR) has not been undertaken and the information have been obtained from the service providers only. Given the nature of the scheme, which is contained within the existing boundary extents for the majority of the length of the routes, service diversions are expected to be minimal.

6.8 Land Take

In order to complete the scheme, a section of land acquisition is required at one location as the available road width reduces significantly compared to the remaining of the scheme. The remainder of the scheme have been designed in a way to avoid the requirement for land take.

The section where land acquisition is required comprises from the east of the junction with Prospect to the junction with Bellview. An existing wall is required to be set back approximately 2m and the vegetation along the boundary wall will be required to be removed in order to provide sufficient space for the active travel facilities. A slight reduction in car park area is also required opposite Bellview junction, where a maximum of 0.4m is required and would not impact the functionality of the business. At the remainder of the section, the proposal is to reduce the existing grassed area between the existing footpath and the boundary walls, and it is not required any changes to the existing property boundaries.

AtkinsRéalis has prepared maps for each affected folio and WCC has been in contact with the landowners in respect of the proposals for the area.

The scheme proposes to place a new bus stop at the current entrance to the Applegreen Petrol Station, which would require it to be closed and vehicles accessing the petrol station will have to make use of the signal-controlled junction into Aldi Foodstore, currently used as the exit from the petrol station.

6.9 Tree Removal and Proposed Landscaping

No trees are envisaged to be removed as part of the proposed scheme.

A targeted tree survey has been undertaken during Phase 2 and the expert advice of an arboriculturist has been used to determine the value, age and condition of all trees along the scheme and any mitigation required where affected. A tree impact statement has produced by the arboriculturist, the values from which are summarised in Appendix B.

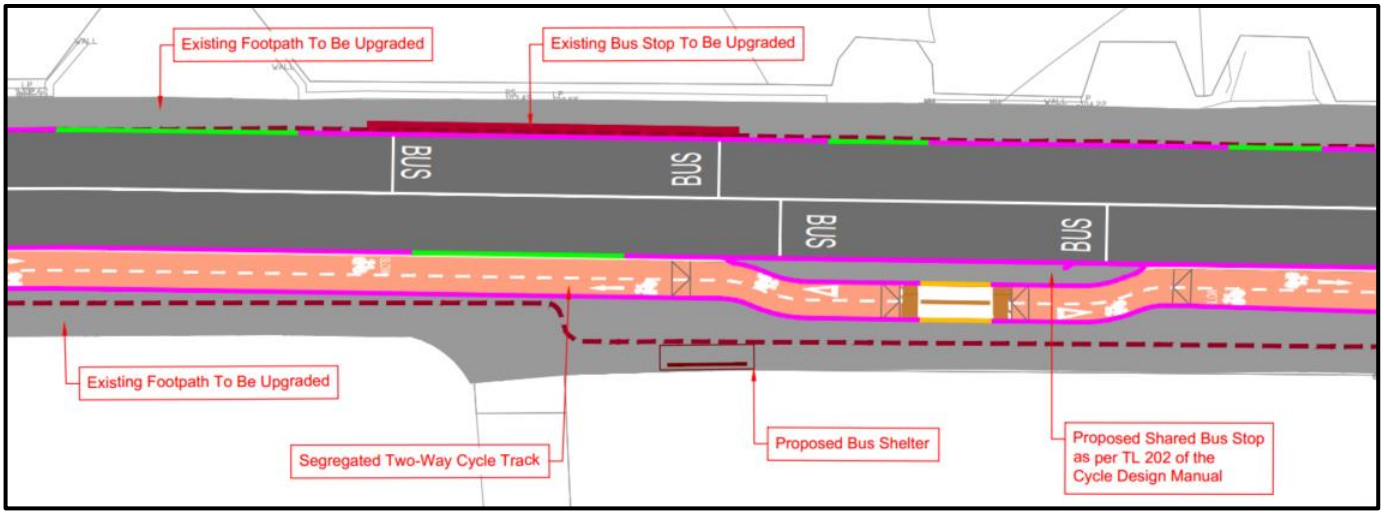
Some sections of grassed area are intended to be removed to allow the space to be converted into footpaths and cycle tracks, and landscaping, in the form of proposes grassed areas, are proposed at various locations, where noted on the Preliminary Design Drawings, included in Appendix A, such as at the existing slip lane into Bellview that will be closed as part of the scheme.

6.10 Bus Stops

A total of ten bus stops are included as part of the scheme, of which six are existing and four are proposed. The additional bus stops are proposed as part of the proposed local bus services in Mullingar which are being proposed by the NTA and WCC.

The bus stops adjacent the two-way cycle track are designed as TL201 Island Bus Stops and, at locations constrained in width, as TL202 Shared Bus Stop Landing Zone. On the northern side of the road, with the exception of the existing stop to the east of the National Science Park roundabout, that is a layby bus stop with a shelter, the stops will be designed as standard in-line bus stops with bus cage and kerbs.

Figure 6-4 – Example of Proposed Bus Stops



6.11 Key Features

Further to the scheme-wide design features noted in Sections 6.1 to 6.10, the following is noted below and should be read in conjunction with the Preliminary Design Drawings.

Table 6-3 – Key Features

Location	Details
Delvin Road	From the junction with Dublin Road to the toucan crossing, a footpath will be provided on the east side and a two-way cycle track with buffer accompanied with footpath will be provided on the west side. At the toucan crossing, the two-way cycle track will connect to the shared active travel path of the Royal Canal Greenway. Tramline and ladder tactile paving will be provided at the transition between cycle track, shared path and footpath. From the toucan crossing until the end of the scheme on Dublin Road, footpaths will be provided on both sides of the road.
Dublin Road, west of signalised junction	The crossing on the western arm will be widened and raised to tie in with the Royal Canal Greenway on both sides of the road and tramline tactile paving will be provided. To the west of the junction, cyclists travelling west will be accommodated in a mixed traffic regime and road signs, markings and a change in the road surface will be provided to indicate motorists of the presence of cyclists on the road. A taper will be provided west of the crossing to slow vehicular speeds and ensure safety for all users as cyclists re-join traffic, past the taper, the road will continue to provide two directional lanes.
Dublin Road, from signalised junction to the east of Prospect	The junction will be upgraded according to the CDM. Cyclists travelling between Dublin Road / Delvin Road will have dedicated cycle stages in the traffic signal. Turning lanes will be removed on all arms of the junction to reallocate space for active travel facilities. Along Dublin Road, a two-way cycle track with buffer will be provided on the south side and footpaths will be provided on both sides of the road. Two existing bus stops are proposed to be upgraded, the southern as a TL202 and the northern as a standard in-line stop. A shelter is proposed on the southern bus stop. The existing on-street parking is to be removed to reallocate space for the active travel facilities. A crossing facility is proposed to the west of Prospect. The junction with Prospect is to be narrowed and designed as a TL408.

Location	Details
Dublin Road, east of Prospects to Beech Drive	This is a pinch point area. The southern side will provide a 3 shared active travel path with 0.3m buffer as the width is not sufficient to provide segregated facilities. The footpath on the north side is to be upgraded to a minimum of 1.8m. The junctions with Bellview and Beech Drive will be upgraded with raised entry treatment and appropriate crossing facilities. The pedestrian crossing will be upgraded to align with the proposals.
Dublin Road, from Beech Drive to Signalised Crossroads	A small section will have a shared active travel path on the southern side and a reduced footpath on the northern side, as the section is protected and constrained in width. The remaining will have segregated facilities with the desirable minimum width. Four bus stops are proposed along this section, the two on the south side will be TL201 and the two on north side a standard in-line stop. The entrance to the petrol station is proposed to be closed off as this space will be turned into a bus stop and vehicles entering the station will have to make use of the northern arm of the signalised junction.
Dublin Road, from Signalised Crossroads to National Science Park roundabout	The signalised junction will be upgraded as a TL503. The slip lane out of Aldi will be closed and all the turning lanes will be removed to reallocate space to the active travel facilities. Dedicated pedestrian and cycle crossings will be provided on all arms of the junction. On the northern and southern arms, cyclists will be accommodated on segregated facilities on the approaches to the junction and on mixed traffic regime in the remaining of the roads. A two-way cycle track with buffer will be provided on the south side and the footpaths on both sides will be retained. The junctions on the south side will be upgraded to TL408 as per the CDM and on the north side they will be tighten and raised crossing facilities will be provided. Three bus stops are provided. On the south side they are TL201 and TL202 and on the north side is a standard in-line bus stop. The vegetation on the north side will be retained. On the south side, a slight reduction in the green area is required in order to install the proposed active travel facilities.
Dublin Road, from the National Science Park to the Marlinstown roundabout	The roundabout will be upgraded to a TL703 according to the CDM. Raised zebra crossings will be provided on all arms of the junction. Shared active travel paths will be provided on the southern side and footpaths on the north side. Where the paths transition from segregated to shared paths, tramline and ladder tactile paving will be provided. The radii will be reduced to ensure motorists drive at reduced speeds along the junction to ensure safety for all road users. The existing signalised crossing on the eastern arm will be removed. Two-way cycle tracks with buffer will be provided on the south side along Dublin Road. No footpath is proposed on the south side, as there is none at present. The footpath on the north side will be retained. The on-street parking bays on the north side will be retained. There is one bus stop along this section, one the north side, an existent layby stop. The footpath adjacent to the stop is proposed to be widened to meet standards. The two-way cycle track will terminate into the residential street to the west of the Marlinstown roundabout, where cyclists will be brough into a mixed traffic regime. The existing hedgerow will be removed to allow for the cycle track and new hedgerow will be installed. The side junctions will be upgraded to have tighter radii and raised crossing facilities.

Location	Details
Ardmore Road	A two-way cycle track with buffer is proposed on the southbound which will be accompanied with a footpath. No facilities are proposed on the northbound as there is none at present. The zebra crossing at the end of the Ardmore Road section is to be widened to 4.0m and the proposed scheme will connect to the constructed Footpath and Cycle Path Works at Ardmore Road (Phase 3)

7. Preliminary Design Process Traffic Management Plan

7.1 Introduction

The following outlines the Preliminary Design Process Traffic Management Plan. This plan shall be updated as the Detailed Design Phase as required, to be included within the Tender Documentation, whereby the Contractor shall develop it in a Construction Stage Traffic Management Plan.

7.2 General Requirements

The Contractor shall develop the Design Stage Traffic Management Plan into a Construction Stage Traffic Management Plan prior to undertaking the works.

The Construction Stage Traffic Management Plan must be submitted to the Employer's Representative and Westmeath County Council for review and agreed prior to work commencing and shall include drawings detailing all proposed temporary traffic management arrangements including those listed below:

- The location and details of all proposed temporary traffic management measures including any lane closures and construction vehicle accesses
- Separate detailed plans in AutoCAD format showing all significant construction stages and phases
- The location and details of all temporary signage in full compliance with Chapter 8 including the potential for mobile VMS's (if deemed appropriate by the contractor) and road markings
- Bespoke designs for each phase or stage must be included, standard traffic management layouts from Traffic Signs Manual Chapter 8 are not acceptable
- The location and details of all temporary safety barriers should be shown
- Details of any temporary traffic diversions including location and details of all diversion signage
- Details of any temporary pavement surfaces required to facilitate the works should be described.

The Construction Stage Traffic Management Plans including details of all proposed temporary traffic management measures to facilitate traffic movements during the works must be lodged with the Employer's Representative and Westmeath County Council for consideration, a minimum of 14 days prior to the date on which it is proposed to commence the works.

The Project Supervisor for the Construction Stage (PSCS) / Contractor shall supply, erect, and maintain, for the duration of the Works, adequate warning and diversion signs and any other signs or traffic signals which may be considered necessary.

The PSCS/Contractor shall keep clean and legible at all times all traffic signs, lamps, barriers, and traffic control signals and shall re-position, cover or remove them as necessary during the progress of the works.

7.3 Road Surfaces

The Contractor shall be responsible for the restoration of existing carriageways, in the event that they are damaged as a result of the Works, temporary reinstatement will be put in place until permanent restoration is carried out. Any restoration in roads shall be carried out to the satisfaction of the Employer's Representative and the Local Authority.

It is the duty of the Contractor to ensure temporary signage in erected prior to permanent reinstatement of surfaces to ensure road users are aware of temporary surfaces.

7.4 Footpath / Cycle Track Surfaces

The Contractor shall be responsible for ensuring that temporary footpaths must be sealed using either a bituminous bound material or concrete surfacing. Temporary footpaths consisting of compacted aggregates will not be permitted. Temporary reinstatement can be put in place until the permanent restoration is carried out, to the satisfaction of the Employer's Representative and the Local Authority.

7.5 Special Events

The Contractor must ensure that the Programme and Construction Stage Traffic Management Plan is cognisant of and flexible to accommodate spikes in traffic flows on the project routes associated with planned major events in Mullingar.

Notwithstanding any consents or approvals granted for the Construction Stage Traffic Management Plan by Westmeath County Council, An Garda Síochána and the emergency services; Westmeath County Council and An Garda Síochána reserve the right to modify, remove or postpone the implementation of a particular Construction Stage Traffic Management system if deemed necessary by traffic conditions at any time during the works.

Regular meetings between the Employer's Representative, the Contractor, Westmeath County Council, the Gardaí and other emergency services shall be arranged by the Contractor and shall take place throughout the Construction Period; as well as at initiation or changes of Traffic Management layouts and at any other time deemed necessary by any of these parties. Such meetings shall take account of any special events that may require particular Traffic Management Operations.

7.6 Public Notices to be Managed by the Contractor

Information on proposed Temporary Traffic Management measures, including potential delay times, locations and duration of lane closures etc. should be announced in advance using various media e.g. press releases, local/national radio stations and AA Roadwatch.

The provision of Variable Message Signs (VMS) shall be considered by the contractor on all vehicular approaches to the site for a minimum of two weeks in advance of the proposed temporary traffic management works

Appropriate signage, in accordance with Chapter 8 of the Traffic Signs Manual, shall be provided on all pedestrian approaches to the site to warn pedestrian of the construction works and inform them of any Temporary Traffic Management in place.

Letters should also be issued to residents and business premises impacted directly by the works to inform them of upcoming changes to traffic arrangements on the project roads or affected side roads.

7.7 Liaison Officer

The Contractor will be required to appoint a Liaison Officer who will be responsible for advising local residents, businesses and property owners of proposed traffic management plans. The Liaison Officer is required to carry out a leaflet drop to all residences and businesses affected by any proposed traffic restrictions, 2 weeks prior to implementing any traffic management plan, and prior to any and all subsequent changes to traffic management.

The PSCS shall also provide information including qualifications of the Traffic Operations Supervisor, who shall be responsible for the implementation of the developed TMP onsite.

Where access to residences or property directly impacted upon by the works, then a suitable access/egress procedure should be agreed with the relevant parties and coordinated through the Temporary Traffic Operations Supervisor.

7.8 Routing of Construction Vehicles

Construction traffic shall only be permitted along the proposed scheme route, as outlined in Figure 7-1. Any road which outside the proposed scheme boundary is to be off limits for routing of construction vehicles, thus reducing the impacts to the local road network.

Figure 7-1 - Routing of Construction Vehicles

7.9 Phasing of Works

During the phasing of works it is essential that there is a maximum of one lane closure and where possible allow two-way traffic flow as work is being carried out. This will minimise delays and disruption caused by the works. This requirement will be included as part of the specification for the works at detailed design stage.

The ultimate phasing of the works will be determined during the detailed design stage in consultation with WCC with sectional completion possibly being utilised to ensure the appointed contractor can only work in one area at a time if so desired. The sequence of construction will depend on the contractor's proposed method statements, plant, materials and will be the responsibility of the PSCS.

8. Summary and Conclusions

8.1 Pedestrians

The new routes will provide safe, accessible and attractive routes for pedestrians with minimum 1.8m wide footpaths for all areas where new paths are to be provided, with the exception of a limited number of narrowed sections, as noted on the Preliminary Design Drawings. New and improved crossings will allow pedestrians to cross all of the roads within the scheme extents in a safe manner. The location of many of these crossings will improve access and permeability for pedestrians to the residential, commercial and educational areas within the scheme extents; and onwards to the commercial, educational and transport hubs closer to the town centre.

Facilities for those users with visual or mobility impairments will be much improved, with tactile paving, flush kerbs and raised crossings provided throughout.

8.2 Cyclists

The provision of new cycling facilities and improvement of existent facilities will be very beneficial to cyclists travelling along the route which connects to the town centre, the Royal Canal Greenway, several residential areas, educational units, commercial areas, among others. The provision of this high-quality cycle infrastructure will provide attractive routes for cyclists linking many residential, educational and commercial areas.

8.3 Vehicular Traffic

In general, there will be limited impacts to the existing vehicular traffic on the surrounding road network, however given the nature of the proposals (e.g., reduction in carriageway width, reduction in junction radii and an increase in pedestrian crossings) there will be a slowing of traffic speeds compared to that existing, and therefore some increase in journey time. This however is a necessity in order to provide a scheme which is safe and in line with best practice and guidelines. These proposals will help to reduce the likelihood of conflicts between all road users. The improvements to pedestrian and cycling infrastructure will encourage a modal shift away from the private vehicle, which should have a corresponding effect on reducing traffic volumes locally.

8.4 Environmental Impacts

8.4.1 Environmental Impact Assessment Screening

As part of the Preliminary Design Phase an Environmental Impact Assessment Screening Report was prepared (AtkinsRéalis ref. 0086409DG0038). The purpose of this report is to determine whether the project requires the preparation of an Environmental Impact Assessment Report (EIAR), the key findings of which were as follows:

- Due to the limited nature of the works it is considered that there will be no significant cumulative impacts with other developments in the general area;
- Limited noise, vibration and dust emissions may be generated during construction; however, this is anticipated to be minimal in effect and will cause no significant impact;
- Soil and waste may be generated during construction; however, this is not anticipated to have significant effect;
- There will be no significant impact on biodiversity, groundwater, surface water or traffic; and,
- There will be no impact on recorded monuments or historic features.

In summary, no significant adverse impacts to the receiving environment will arise as a result of the proposed project.

Accordingly, we consider that the preparation of an EIAR is not required for the Mullingar Active Travel Bundle – Dublin Road Active Travel Scheme. However, the competent authority will ultimately determine whether an EIA is required or not.

8.4.2 Screening for Appropriate Assessment

As part of the Preliminary Design Phase a Screening for Appropriate Assessment Report was undertaken (AtkinsRéalis ref. 0086409DG0036). The purpose of the Screening for Appropriate Assessment Report is to determine the likelihood of significant effects, if any, that the proposed project could have on Natura 2000 sites either alone or in combination with other plans or projects.

This Screening for Appropriate Assessment report is based on the best available scientific information. It is concluded by the authors of this report that with the absence of any mitigation measures the proposed scheme, either alone or in-combination with other plans or projects, will not result in likely significant effects on Lough Ennell SAC, Lough Ennell SPA, Lough Owel SAC or any other European site. Thus, it is recommended that it is not necessary for the scheme to proceed to Appropriate Assessment.

8.4.3 Trees

No trees are envisaged to be removed as part of the scheme.

A tree survey has been undertaken for the scheme by a qualified arboriculturist and the tree impact statement is included in Appendix B.

Some sections of grassed area are intended to be removed to allow the space to be converted into footpaths and cycle tracks, and landscaping, in the form of proposes grassed areas, are proposed at various locations, where noted on the Preliminary Design Drawings, included in Appendix A, such as at the existing slip lane into Bellview that will be closed as part of the scheme.

8.5 Statutory Process

The proposed Statutory Process at this Phase is subject to change; however, it is envisaged that the scheme will progress through a Part 8 Process, in accordance with the Planning and Development Regulations. Details of the process shall be reviewed and agreed in Phase 4 (Statutory Process).

8.6 Indicative Procurement Strategy

The procurement strategy for this Project is subject to change at this Phase, however it is envisaged that a Contractor shall be appointed from either a pre-existing Framework or appointed via a two-stage process in line with the Capital Works Management Framework. The form of Contract is envisaged at this Phase to be *PW-CF3 – Contract for Building & Civil Engineering Works designed by the Employer*.

Details on the Procurement Strategy shall be reviewed and updated as the project progresses

8.7 Conclusion

The Preliminary Design for the scheme has been undertaken in line with the Cycle Design Manual and the Design Manual for Urban Roads and Streets, developing the preferred options as outlined in the *Feasibility Study, Options Selection and Appraisal Report*.

The proposed improvements as part of the scheme align with the aims and objectives, as follows:

- **Safety Impacts:**
  - The potential for conflicts shall be reduced through the provision of formalised crossing facilities throughout.
  - The potential for conflicts shall be reduced by the segregation of cyclists from vehicular traffic.
  - The potential for conflicts between cyclists and pedestrians shall be reduced through the implementation of segregated facilities for most of the scheme.
  - Cyclists' priority shall be improved at all junctions.
  - Vulnerable road users shall be catered for through formalised crossing facilities, footways and the provision of kerbing and tactile paving in line with best practice.
- **Transport User Benefit and Other Economic Impacts:**
  - The scheme will provide improved connections to existing public transport located adjacent the route. The scheme will reduce the travel time as it will provide dedicated cycle facilities segregated from vehicular traffic and with priority over vehicles at junctions.
- **Accessibility Impacts:**
  - The provision of the proposed facilities shall bring enhancements for pedestrians and cyclists, particularly for those travelling to the adjacent residential, recreational, commercial and educational areas
- **Social Impacts:**
  - To improve accessibility for all road users and bring social inclusion benefits to those for whom non-motorized means are the predominate form of transit.
- **Land Use Impacts and Economic Impacts**:
  - From these benefits the proposals will offer good value for money, both at a strategic level, and also to those individual users for whom the scheme shall enable a modal switch from the private car to walking / cycling; and aligns with national, regional and local policies, as outlined in Section 3.
- **Local Environmental Impacts and Climate Change Impacts:**
  - The impact on the environment will be minimal, and the scheme is recommended to be screened-out for EIAR and AA.
- **Localised objectives:**
  - Pedestrian and cyclist permeability will be improved to several residential and commercial areas along Dublin Road and Ardmore Road as well as link with the town centre.
  - The scheme will provide safer bus stops along Dublin Road with the inclusion of dedicated waiting areas and bus shelters.
  - The Ardmore Road section, in conjunction with the existent Ardmore Road improvement works, will provide safe and sustainable access to the Holy Family Primary School.
  - The additional crossing point near Prospect will improve connectivity with St. Colman's National School and St. Paul's Church as it will provide an improved connection with the locally known 'mass path' that links Dublin Road with Delvin Road.
  - Alongside the remaining routes of the Mullingar Active Travel Bundle and the Royal Canal Greenway, the scheme will provide sustainable a mode of active travel for all users and has the potential to reduce car usage in the town.
  - The scheme will provide additional recreational links by linking the local communities to future active travel routes in Mullingar (as identified in the GDA Cycle Network Plan).

APPENDICES

Appendix A. Preliminary Design Drawings

Appendix B. Tree Impact Survey

TREE SURVEY AND REPORT

FOR

MULLINGAR ACTIVE TRAVEL ROUTES

JULY 2024

COMMISSIONED BY

ATKINS REALIS

Dr Philip Blackstock

PB

TREE SURVEY AND REPORT

On trees growing in the grounds of

Mullingar Active Travel Routes

For

Atkins Realis

Terms of reference

This report was commissioned to record information on trees growing on or immediately adjacent to the above site (as defined in BS5837:2012). Obvious defects in these trees were noted, as were features that may create an impediment to a statutory provision or cause a nuisance. Recommendations for tree works that will eliminate, as far as is possible, the risk from dead or dangerous trees, abate nuisance and address the legal requirements of statutory providers have been included.

Methodology

Trees growing on the above site were subject to a visual inspection carried out from the ground. The base of each trunk was 'sounded' to identify significant basal decay and evidence of recent alterations to site conditions was noted. Measurements, distinguishing features and evidence of defects were collated electronically on site. No other methods for establishing the condition of these trees were used.

Site surveyed on

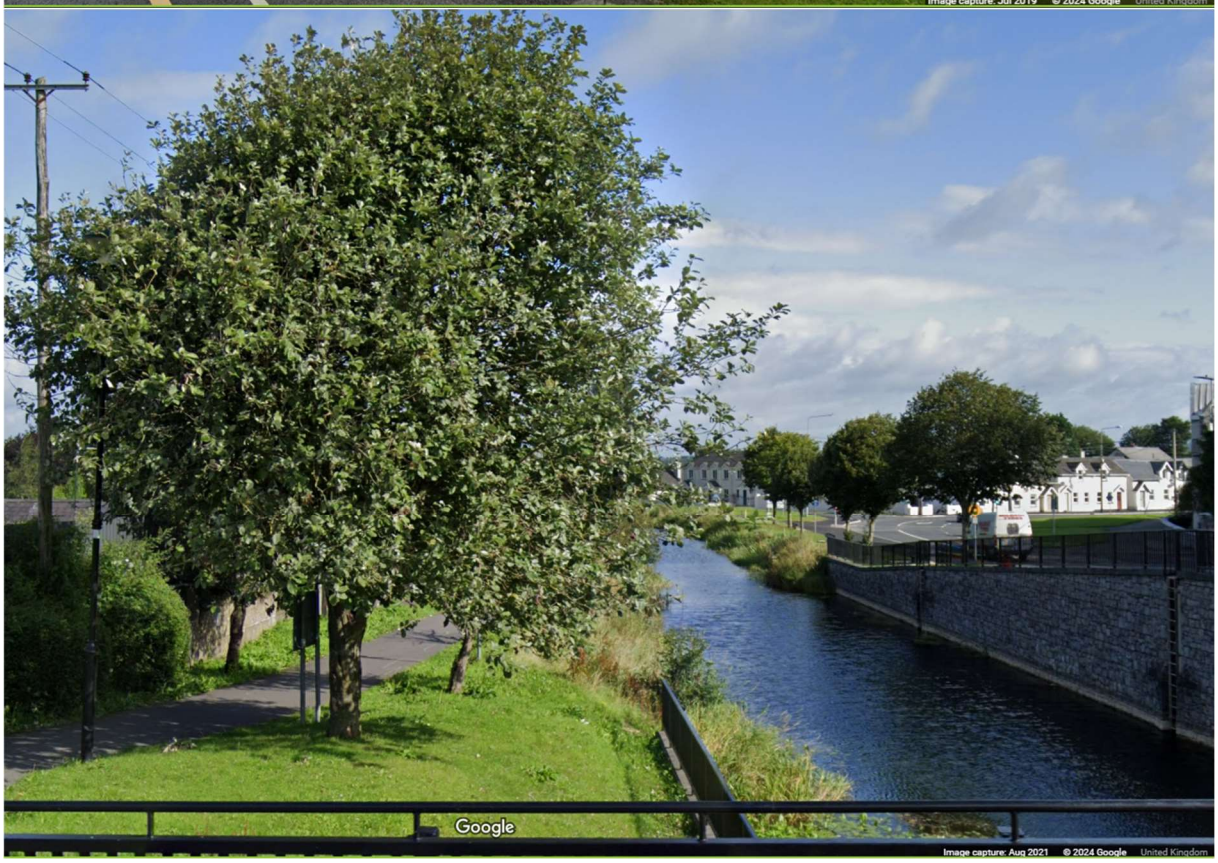
24th & 25th June 2024

(It is recommended that the trees reported on here are re-surveyed within three years of this report, or where significant deterioration has become evident, whichever is sooner)

Survey carried out and report compiled by

Dr Philip Blackstock, 26 Tullynahinnion Road, Portglenone BT44 8EL
Telephone 02825 821202, Fax 02825 821295, Mobile 07767 393075,
Email: trees@philipblackstock.com

TREES AT MULLINGAR ACTIVE TRAVEL ROUTES



Google Streetviews of trees growing on the above site, taken from the Dublin Road

TREES AT MULLINGAR ACTIVE TRAVEL ROUTES

Google Streetviews of trees growing on the above site, taken from Millmount Road (top) and Harbour Street (Bottom)

REPORT ON TREES GROWING AT MULLINGAR ACTIVE TRAVEL ROUTES JULY 2024

1. **Location & visual impact of the trees**. Mullingar is an attractive regional town in the centre of Ireland. It is understood that, as part of ongoing improvements to the infrastructure, a number of cycle routes are being considered. These routes connect the town centre to industrial, educational and healthcare centres. They all pass through a mix of commercial and residential development. Most of the trees reported on here are managed as street trees and are growing within roadside verges or pavements. They add to the general treescape of the town and should be considered significant in the local landscape.
2. **Historical development of the site**. There are a number of mature trees reported on here that were planted or have grown from naturally dispersed seeds about one hundred years ago. Most of these trees, however, have been planted within the last forty years or so. All these younger trees seem to have been planted as street or park trees as part of civic improvements.
3. **Tree condition & recommendations**. Most of the trees reported on here have been subject to ongoing management and are in a fairly good condition. As street trees, there is a need to clear branches and foliage back from lamps, footpaths and the carriageways. There are a few smaller trees that have reached the end of their safe useful life expectancy, and these trees should be felled to ensure site safety. It is understood that plans are being considered for the development of the above site. To ensure that trees to be retained are not damaged during construction, the Arboricultural method statements (that are included in this report) relevant to this project should be adopted.

All other recommendations are as per attached tree survey report sheets.

Dr Philip Blackstock

ARBORICULTURAL METHOD STATEMENTS

Protection of trees. A protective barrier, 2.3m high and comprising a vertical and horizontal framework of scaffolding, well braced to resist impacts and securely supporting weldmesh panels, (as illustrated in Figs 2 & 3 of BS5837:2012) shall be erected around the base of all trees to be retained on site. This barrier shall be clearly identified on site by the attachment of all-weather signs of suitable dimension stating: 'CONSTRUCTION EXCLUSION ZONE – NO ACCESS'. The line of this fence shall be at least the distance defined in the attached plan, or as otherwise directed by Dr Philip Blackstock. No construction traffic, materials or debris will be permitted within this zone of protection.

Access facilitation pruning. If it is deemed appropriate to trim back retained trees to provide adequate access to approved construction works, all such tree works should be undertaken by a competent and suitably qualified tree surgeon (with associated support, as defined in the Health and Safety section of this report). Such works shall remedy any tree related conflict with proposed structures or access in a way that ensure that not less than 70% of live buds are retained within the tree canopy. The aim of the tree works shall be to retain the general form of the tree by a combination of crown thinning, reduction of end weight (tipping back of outermost branches) and the re-forming of the trees crown to create a pleasing and balanced crown. No branch, limb or trunk greater than 100mm diameter shall be cut in the process of reducing end weight.

Temporary surfaces within zone of protection. Where temporary access is to be established within the 'zone of protection' surrounding retained trees, (for example, during demolition of existing buildings), ground surfaces will be protected by a layer of sharp sand, approx. 50 mm thick, overlaid with a geotextile membrane on which a temporary surface of no fines granular material, at least 150 mm thick, (as detailed by a competent Civil or Structural Engineer) is laid. Where traffic is turning on these surface, stout planks will be laid over the geotextile membrane and below the granular material. The trunks of adjacent trees shall be suitably protected as indicated on site by Dr Philip Blackstock.

Demolition within the zone of protection. If it is deemed necessary to carry out demolition works within a construction exclusion zone surrounding retained trees, (for example, to remove existing paths), or kerbs, only pedestrian operated plant, or low ground pressure plant that is less than 2 tonnes gross weight fully loaded, shall be permitted. Such plant shall only be operated on existing hard surfaces, or where temporary surfaces have been established. In any case, no excavations within the root protection zone of these retained trees shall be permitted, except only, under close supervision, with the use of an 'Air Spade' or by the careful use of hand tools in a way that retains, without damage, all exposed roots with a diameter greater than 25mm.

Scaffolding within zone of protection. Where scaffolding is to be established within the 'zone of protection' surrounding retained trees, the existing undisturbed ground surfaces shall be protected by a layer of sharp sand, approx. 50 mm thick, overlaid with a geotextile membrane. Stout planks, such as closely side-butted scaffold boards, will be laid over the geotextile membrane and scaffolding will be constructed on these planks with additional stays, as directed by a competent person. Adequate protective fencing, as Illustrated in Figs 2 & 3 of BS5837:2012, will be maintained between scaffolding and adjacent trees.

Construction of hard surfaces close to retained trees. Where permanent surfaces are to be constructed close to retained trees, within the zone of protection as defined by BS5837: 2012, (and plotted on the attached Tree Constraints Plan) carefully remove accumulated organic material and loose soil, leaving existing topsoil in situ. Protect root zone with a layer of sharp sand and, on this, establish a firm sub-base of no-fines granular material supported on a geotextile membrane and a three-dimensional cell product (as defined by a competent Civil or Structural Engineer). Construct the paved area on this sub-base using established design guidelines (and no-fines granular material) with a porous surface finish such as pavers or porous bitmac.

Alterations of levels on lands adjoining construction exclusion zones. Where it is deemed appropriate to lower ground levels on land adjoining a root protection zone established around a retained tree, all excavations and the subsequent construction of supporting structures shall be managed in a way that excludes access by construction traffic to the construction exclusion zone. Where such alterations result in the lowering of existing surfaces, the existing ground water environment within the root protection zone shall be maintained by the insertion of a root barrier behind proposed supporting structures. This shall consist of a non-porous barrier carefully inserted in a way that maintains the existing soil moisture regime surrounding the retained tree. Where alterations result in the raising of levels, these shall be designed and detailed by a competent Civil or Structural Engineer to ensure no alterations to ground conditions within the root protection zones.

Landscaping within the root protection zone. If it is deemed necessary to carry out landscaping, planting or re-instatement works within a construction exclusion zone surrounding retained trees, only pedestrian operated plant, or low ground pressure plant that is less than 2 tonnes gross weight fully loaded, shall be permitted. Such works should be supervised by competent Horticulturalists and be timed and designed to ensure that no soil compaction occurs. In any case, no excavations within the root protection zone of these retained trees shall be permitted, except only, under close supervision, with the use of an 'Air Spade' or by the careful use of hand tools in a way that retains, without damage, all exposed roots with a diameter greater than 25mm.

Construction of garden walls or fences within the root protection zones of retained trees. No trench foundations are to be permitted within the root protection area of a retained tree. If walls, railings or other light structures are to be constructed within the root protection area of retained trees, these structures should be supported on point foundations excavated using a 300mm diameter drill or augur. (If in situ concrete foundations are to be constructed, the sides of the foundation pit, to 1.0m deep, should be lined with a non-porous lining.) In any case, no excavations for point foundations are to be permitted within 1.5m of a retained mature or semi mature tree. Excavations for these point foundations should be more than 2.0 apart and the wall or railings should be supported on a beam, or similar, constructed so that its underside is at least 50mm above exiting topsoil level. As the roots of large, retained trees may cause some movement within the top 1.0 m of the soil profile, all foundations should be designed by a competent Structural or Civil Engineer and be constructed to account for this.

HEALTH AND SAFETY

Working with trees is a hazardous occupation. It is important that competent tree surgery contractors are employed to carry out the tree works recommended in the attached tree survey report sheets. These contractors should carry all relevant insurance cover and should comply with the recommendations outlined below.

Notwithstanding the following recommendations, all tree surgeons and accompanying staff should comply with all the requirements contained in the Safety, Health and Welfare at Work Act 1989 (SHWW Act, 1989) and the Safety, Health and Welfare at Work (General Applications) Regulations, (GAR Regs, 1993) for forestry operations, Part 4 – work at height of the Safety, Health and Welfare at Work Regulations (2007), the Code of Practice for Managing Safety and Health in Forestry Operations and all subsequent legislation made thereunder.

Staff qualifications, experience and training

Only skilled operatives should be employed for all the work specified in the attached tree survey report sheets. These skilled operatives should have a proven expertise and experience in the areas of work specified and should hold all relevant certificates of competence.

Operatives using chain saws to fell trees must have National Proficiency Test Council (NPTC) certificate of competence Units CS 30, 31*, 32*, 33* (* whichever is appropriate for the size of tree being felled) if they are working from the ground and, in addition, Units CS 38, 39, 40 & 41 if they are climbing.

All operatives undertaking work near underground or overhead electric cables must have attended an Electricity Safety Awareness course, (such as UA1 Utility Arborist 1 Ireland). They must comply with the guidelines laid down in the Guidelines for Safe Working near Overhead Electricity lines in Agriculture (2010, published by the Health and Safety Authority), Code of Practice for Avoiding Danger from Overhead Electricity Lines (2019, published by ESB). Where there is a risk of a climber, equipment or parts of a tree touching or coming close to overhead cables, the advice of ESB must be sought, and adhered to, before work commences.

Work wear

All operatives should wear the appropriate safety clothing for the task being performed as specified in the relevant safety codes. Where operatives are employed on tree work near public roads, or when the available lighting is poor, they should wear high visibility 'florescent' jackets or waistcoats

Tools and Equipment

Tree surgeons should use such tools and equipment deemed suitable to complete the specified task. All bladed tools should be sharp and in a serviceable condition. All plant and machinery operated by the tree surgeon should be tested and certified to comply with all current legislation. All vehicles should be taxed and roadworthy. Machinery and vehicles should carry operational fire extinguishing equipment to the standards required by insurers.

All machinery should be used in accordance with the manufacturers' instructions. These machines should carry warning notices as specified by the relevant Health and safety guide.

Climbing and lifting equipment for tree work is subject to the provisions outlined in Chapter 2, Part 2 (updated 2010) of the Guide to the Safety, Health and Welfare at Work (General Application) Regulations 2007. Operatives using climbing or lifting equipment should be familiar with, and comply with, these and all other relevant regulations.

First aid
All chain saw operatives should have a current First Aid Certificate. No chain saw operative should be left working on site without an additional first aider present. These operatives should be familiar with FISA Safety Guide 802: Emergency Planning and First Aid or similar.

All operatives should have immediate access to a first aid kit conforming to the recommendations contained in BS8599 – 1 (2019) and, in addition, carry a personal first aid kit which includes a large sterile wound dressing.

Site Organization
Tree surgeons should ensure that a team of at least three people carry out all tree climbing, pruning and tree felling operations. When undertaking tree climbing work, one of the grounds staff must be competent to perform aerial rescue and be conversant with AFAG Safety Guide 402: Aerial Tree Rescue. In addition, one of the ground staff must be made responsible for ensuring that there is no trespass into the working zone when tree pruning or felling operations are taking place. Adequate staff should be available during tree work operations to ensure that no unauthorized persons or livestock enter the working area.

Tree surgeons should provide and constantly maintain all necessary warning and direction notices, cones and barriers when carrying out tree works that are adjacent to a road or footpath used by the public. These should conform to the recommendations and directions given in;

- Chapter 8 of the Traffic Signs Manual 1993,
- Temporary Traffic Management Design Guidance 2019
- Temporary Traffic Management Operations Guidance 2019 (all published by Department of Transport, Tourism and Sport)
- Guidelines for Working On Roads – issued by the Health and Safety Authority
- Any other relevant legislation and guidance

Where tree works are to be carried out over, or adjacent to, public roads, the contractor should arrange the work to avoid traffic congestion and public inconvenience. They should make arrangements with the Garda Siochana and the local county council as may be found necessary.

KEY TO SURVEY SHEETS

TITLE	DESCRIPTION
Tag No	The identification number of the tree, as indicated on site by a metal identification tag attached to the tree and defined with the prefixes; **'T'** (tree), **'G'** (group of trees) **'S'** (shrubs), **'H'** (hedge) and **'W'** (area of wood)
Species	The common English name of the tree, as used by Alan Mitchell in 'A field Guide to the trees of Britain and Northern Europe' (Collins, London, 1974)
Height	The height of the tree, given in metres
Stem Diameter	The diameter of the tree trunk, measured at approximately 1.3 metres above ground level and given in centimetres
Crown spread	The radial crown spread of the tree for each of the four cardinal points, given in metres
Crown clearance	The height above ground to the first significance foliage, given in metres
Age	The life-cycle age of the tree, described as **Y** = young (vigorous growth, non-flowering), **YM** = young-mature (vigorous growth, some flowering, maturing crown), **AM** = almost mature (vigorous growth; mature crown), **M** = mature (slowing growth, full crown, flowering) and **OM** = over-mature (Little growth, heavy flowering, thinning crown or dieback)
Crown form	A general description of the tree as seen on site, including distinguishing features
Condition	The condition of the tree, as assessed by a visual inspection on site and described as **Good** (near perfect form and condition), **Fair** (normal form, sometimes requiring remedial works), **Poor** (significant weakness or rot, requiring substantial remedial works or felling) **Dying** (a tree within a year or two of death) and Dead (dead standing tree or stump)
Defect	The presence of weakness, rot or infection within the tree. This supports the recommendations given for appropriate tree works
Obstacle	The presence of a manmade structure that is, in some way, being affected or obstructed by the tree
Action	An outline tree management plan identifying the level and type of tree works that would be appropriate to ensure that the site remains safe and that the tree develops in a safe and satisfactory manner
ULE	The remaining useful life expectancy on the tree, based on age, condition and the likely presence of significant diseases
Priority	An assessment of the priority of recommended tree works, based on the likelihood of tree failure and described as **urgent** (immediate action is required, often entailing control of access until work is completed), **High** (work to be completed within the existing budget year; and before expected autumn or winter storms), **Medium** (work to be included in the next budget year) and **routine** (non-urgent tree work)
Target	The use made of the land on which the tree would fall, if it suffered a root plate failure, given as **High** (Road or Building) **Medium** (path or lawn) and **Low** unmanaged or farm land)

ARBORICULTURAL TERMS

The following interpretation of the terms used in the attached tree survey report sheets should be adopted when fulfilling their recommendations.

Crown clean

The removal of broken, diseased, dying or dead branches or snags that are either over 50 mm in diameter or are more than 200 mm in length.

Remove ivy

The cutting of ivy stems at their point of entry into the soil, taking care not to damage the tree. Al branches, stalks and creepers of both alive and dead ivy should be removed from the crown of the tree.

Trim or remove branch stumps

The cutting of all branch stumps or snags back to just outside the branch collar and branch bark ridge.

Remove swing / tree hut / sign etc.

The removal of structures within the crown or attached to the tree, including nails or other fastenings.

Trim / tidy / remove epicormics

The removal of all soft growth or epicormics growing from the trunk of the tree, up to a height of 2.4 m.

Crown lift to above eye level / over footpath.

The removal of all soft growth, including epicormics and all lateral branches, up to a height of 2.4 m above ground level. When lifting the crown, upright laterals may be retained.

Crown lift over carriage / driveway etc

The removal of all lateral branches and soft growth that are overhanging, or within 1.0 m of, a road or lane, up to a height of 5.5 m.

Trim back from building

The removal of all lateral branches and soft growth growing within 2.0 m from the wall and from within at least 3.0 m from a window and above the roof of a building.

Clear overhead cables

The removal of all branch growth from within, or likely to come within, 1.0 m from overhead telephone cables.

All operatives undertaking work near underground or overhead electric cables must have attended an Electricity Safety Awareness course, (such as UA1 Utility Arborist 1 Ireland). They must comply with the guidelines laid down in the Guidelines for Safe Working near Overhead Electricity lines in Agriculture (2010, published by the Health and Safety Authority), Code of Practice for Avoiding Danger from Overhead Electricity Lines (2019, published by ESB). Where there is a risk of a climber, equipment or parts of a tree touching or coming close to overhead cables, the advice of ESB must be sought, and adhered to, before work commences.

Reduce / remove competing leaders

The trimming back or removal of all but one dominant, upright stem in a way that creates an apical crown angle of less than 90^0. Competing stems should be trimmed well back to a side branch showing strong horizontal growth patterns or should be removed to just above the branch collar and branch bark ridge.

Reduce end weight

The reduction of the crown of a tree by trimming back the branch tips by the described amount. Branch tips should be trimmed back to a suitable lateral twig or branch (in strict accordance with the recommendations contained in BS3998:2010: Tree Work, in a way that maintains the general crown characteristics of the tree and its species. **In all cases, no branch, limb or trunk greater than 100mm diameter shall be cut in the process of reducing end weight.**

Re-form Crown

The carrying out of such trimming and branch removal as is necessary to create (or recreate) a tree crown architecture capable of supporting additional tree growth and that complies with the normal crown form for that species. **In all cases, no branch, limb or trunk greater than 100mm diameter shall be cut in the process of reducing end weight.**

Topping, Re-Pollarding, Re-Coppicing

The removal of all growth back to the required height. In most circumstances, it will not be possible to trim back to a suitable lateral branch and, because of this; cuts should be cleanly executed and should produce a sloping surface that will not collect water.

Prune as per Belfast Street Tree

The complete pruning of a tree, which is a combination of crown reduction, crown lifting and crown thinning in a way that preserves the characteristics of the tree and its species. All growth removed during pruning must be taken back to an appropriately sized lateral branch, twin or bud to leave an acceptable crown form. **In all cases, no branch, limb or trunk greater than 100mm diameter shall be cut in the process of reducing end weight.**

Retrenchment Pruning

The phased reduction of the crown of veteran and old pollarded trees, removing or reducing end weight in the upper crown and spreading branches to emulate the natural decline of tree crowns with age. In most circumstances, it will not be possible to trim back to a suitable lateral branch and, because of this; cuts should be cleanly executed and should produce a sloping surface that will not collect water.

Fell

The complete felling of a tree in a safe manner, leaving a smoothly surfaced stump that is cut as close to ground level as is possible

Any other terms used

If they are in any doubt, the tree surgeon should contact Dr Philip Blackstock on 00447767 393075 for clarification of these or any other terms used in the attached tree survey report sheets.

Statement of truth

I Dr Philip Blackstock confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.

Signed:

Date:
8th August 2024

QUALIFICATIONS
National Diploma of Horticulture (R.H.S) Inter.
Diploma in Industrial Management
M.Sc. in Environmental Management (A Field Survey of Unmanaged Roadside Cuttings in South Antrim)
D.Phil. in Forestry (Broad-Leaved Tree and Shrub Invasion of Conifer Plantations in Ireland)

Professional member of the Arboricultural Association
Registered Forestry Consultant with the Irish Forest Service

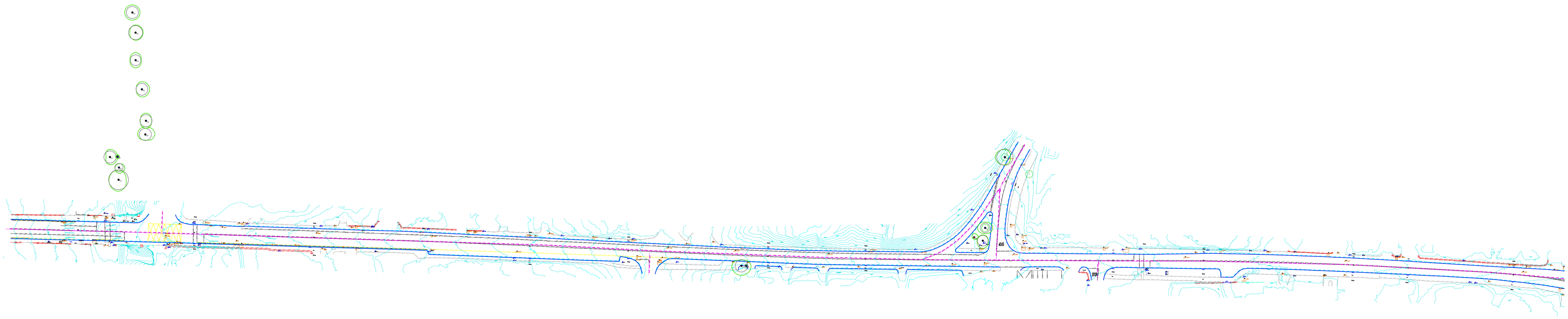
EMPLOYMENT
1996 to present
Arboricultural and Woodland Consultant
Duties include carrying out tree and vegetation surveys and providing tree and woodland management plans, completing reports and liaising with clients, providing court appearances etc. for public and private clients.

ARBORICULTURAL AND FORESTRY EXPERIENCE AND EXPERTISE
I have carried out surveys and produced reports on the health, condition, amenity value and landscape value of more than 250,000 trees since 1983. Since 1996 I have been fully employed as an Arboricultural and Forestry Consultant. Clients have now included most of the Local Authorities, Health Trusts and Government Departments within Northern Ireland. Private clients have included Solicitors, Architects and Developers. I have also lectured, to foundation degree level, on arboriculture and forestry.

I have provided expert opinion (including Court appearances) for many clients involved in litigation or in planning appeals since 1996. Topics covered by these opinions have included the predictability of failure in trees, amenity and financial evaluation of damage to trees, evidence of subsidence caused by trees, evidence of unsafe tree surgery practices leading to injury, and tree related evidence in boundary and planning disputes.

I have maintained a research interest in the effects of environmental influences on tree and shrub regeneration in Ireland and on the development of woody biodiversity in recently planted woods. I have also a research interest in the distribution of and environmental influences on deciduous tree diseases, tree stability and in the incidence of dangerous roadside trees.

Dr Philip Blackstock



KEY

45	Position, number and actual crown spread of tree, with BS 5837:2012 tree category central ring colour coded as follows; Category A - light green, Category B - mid blue, Category C - Grey, Category U - dark red
45	Area of Tree Protection Zone (if described as a perfect circle)

Dr.Philip Blackstock
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Website: www.philipbblackstock.com

Title:

Tree Constraints Plan

Plan indicating position, actual crown spread of trees and notional tree protection zones (based on a map produced by the client)

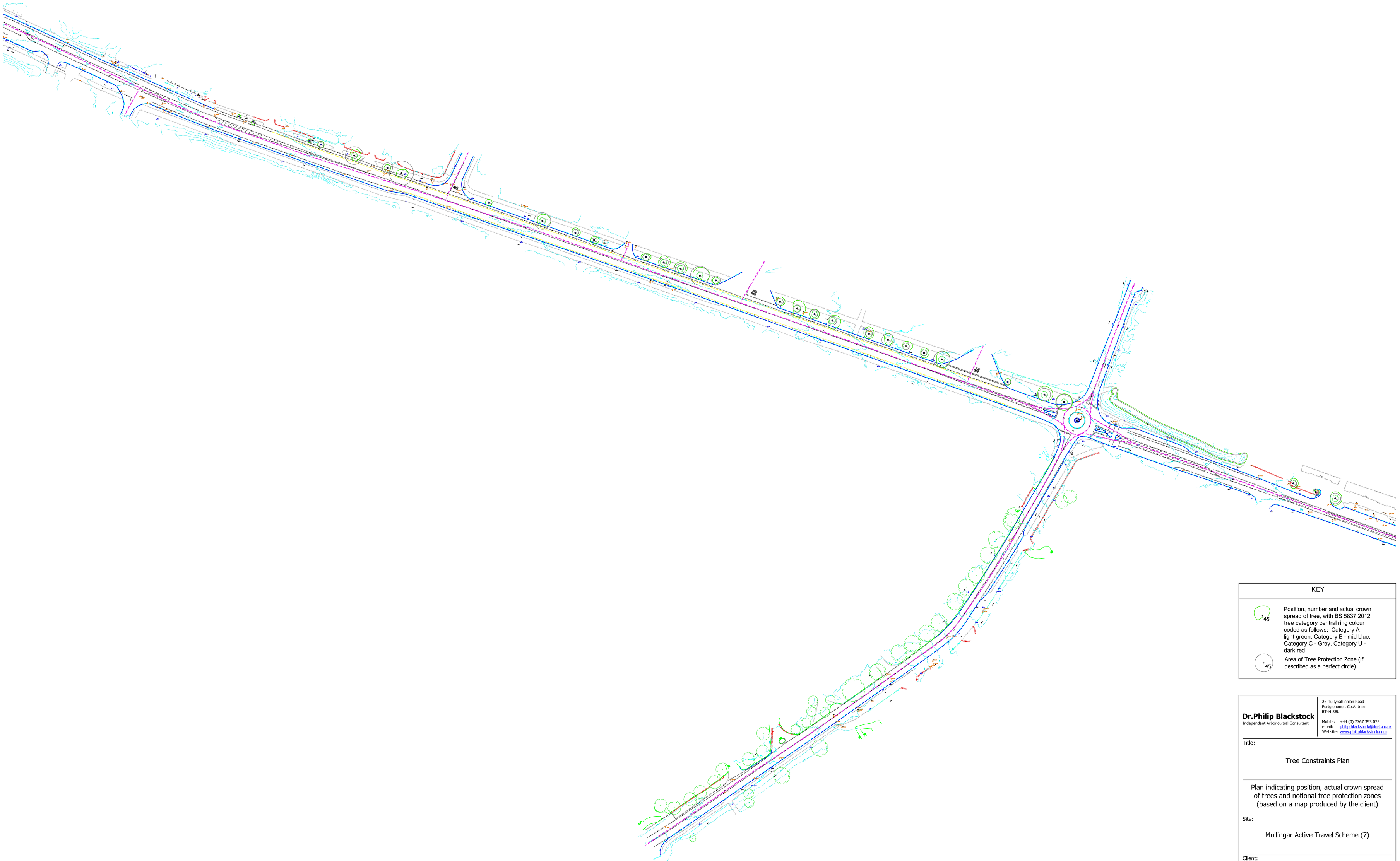
Site:

Mullingar Active Travel Scheme (6)

Client:

Atkins Realis

Scale:	Drawn By:	Date:
1:1000	Philip	02.08.2024



KEY

45 — Position, number and actual crown spread of tree, with BS 5837:2012 tree category central ring colour coded as follows; Category A - light green, Category B - mid blue, Category C - Grey, Category U - dark red

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email: philip.blackstock@dnet.co.uk
Website: www.philipblackstock.com

Title:

Tree Constraints Plan

Plan indicating position, actual crown spread of trees and notional tree protection zones (based on a map produced by the client)

Site:

Mullingar Active Travel Scheme (7)

Client:

Atkins Realis

Scale:	Drawn By:	Date:
1:1000	Philip	02.08.2024

Tag No.	Species	Height (m)	Stem Diameter (mm)	Crown spread (m)				Crown Clearance (m)	Age	General Observations				Action	*ULE*	*Category*	*Priority*	*Target*
				N	E	S	W			Crown form	Condition	Defect	Obstacle					
T75	Lime	6	280	4	2	2	3	2	SM	Multi stem from 4.0m, Recently trimmed	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T76	Lime	9	230	3	3	5	4	2	SM	Multi stem from 2.0m, Recently trimmed	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T77	Flowering cherry	7	150	2	3	2	2	2	M	3 stems from 2.0m, Recently trimmed	Poor	Excessive deadwood	None	**Monitor for death, Crown clean**	*Less than 10*	*C1*	*Routine*	*High, road or building*
T78	Lime	11	240	3	3	3	4	1	SM	2 stems from 3.0m, Recently trimmed	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T79	Lime	10	260	2	4	4	3	2	SM	2 stems from 2.0m, Recently trimmed	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T80	Lime	7	280	4	4	4	3	2	SM	Multi stem from 3.0m, Recently trimmed	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T81	Plum	8	270	4	4	4	2	2	M	Multi stem from 2.0m	Poor	Basal rot	None	**Monitor for death**	*10 to 20*	*C1*	*Routine*	*Medium, path or lawn*
T82	Lime	3	50	1	1	1	1	2	Y	Single stem	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*Medium, path or lawn*
T83	Hawthorn	5	180	2	3	3	2	2	M	Multi stem from 2.0m, One sided crown	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*Medium, path or lawn*
T84	Whitebeam	9	430	5	4	6	5	1	M	Multi stem from 2.0m, Spreading crown	Fair	None	None	**Crown lift to 2.4m over lawn**	*20 to 40*	*B1*	*Routine*	*Medium, path or lawn*
T85	Lime	8	270	4	5	3	4	2	SM	Multi stem from 2.0m, Spreading crown	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T86	Lime	8	270	4	3	4	3	2	SM	Multi stem from 2.0m, Spreading crown	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T87	Lime	8	260	4	4	4	3	2	SM	Multi stem from 2.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T88	Lime	8	230	4	3	4	3	2	SM	Multi stem from 3.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*

ULE: Estimated and approximate Useful Life Expectancy

Tag No.	Species	Height (m)	Stem Diameter (mm)	Crown spread (m)				Crown Clearance (m)	Age	General Observations				Action	*ULE*	*Category*	*Priority*	*Target*
				N	E	S	W			Crown form	Condition	Defect	Obstacle					
T89	Lime	9	310	4	4	4	3	2	SM	Multi stem from 2.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T90	Lime	8	270	4	4	4	4	2	SM	Multi stem from 2.0m	Fair	None	Path	**Crown lift to 2.4m over path**	*More than 40*	*B1*	*Routine*	*High, road or building*
G91	Sycamore	8	330	3	5	5	5	1	SM	3 stems from the ground, Spreading crown	Fair	None	None	**No action is required, Confirm ownership**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
H92	Privet	4	100	1	0	0	0	8	M	Multi stem	Fair	None	None	**Maintain as hedge**	*20 to 40*	*B1*	*Routine*	*Medium, path or lawn*
T93	Sycamore	11	360	4	3	4	5	1	SM	3 stems from 1.0m	Fair	None	Lamp	**Clear lamp**	*More than 40*	*B1*	*Routine*	*High, road or building*
T94	Flowering cherry	5	210	3	4	3	4	2	AM	Multi stem from 2.0m, Spreading crown	Fair	None	Road	**Crown lift to 5.1m over road**	*20 to 40*	*B1*	*Medium*	*High, road or building*
T95	Flowering cherry	5	80	2	2	1	1	3	SM	2 stems from 3.0m	Poor	Almost dead	None	**Fell**	*Less than 10*	*U*	*Medium*	*High, road or building*
T96	Flowering cherry	5	230	3	3	4	3	1	AM	Multi stem from 2.0m, Spreading crown	Fair	Recent crown failure	Road	**Crown lift to 5.1m over road, Remove hung up branches**	*20 to 40*	*B1*	*Medium*	*High, road or building*
T97	Rowan	3	40	1	1	1	1	2	Y	Single stem	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T98	Flowering cherry	4	50	1	1	2	1	1	Y	Multi stem from 2.0m	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T99	Flowering cherry	5	60	1	1	1	1	2	Y	Single main stem with heavy side branches	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T100	Apple	5	160	2	2	2	2	2	AM	Multi stem from 2.0m	Fair	Excessive deadwood	None	**Crown clean**	*20 to 40*	*B1*	*Routine*	*High, road or building*
T101	Flowering cherry	5	440	4	4	3	2	1	M	Multi stem from 2.0m, Recently trimmed	Fair	None	Road	**Crown lift to 5.1m over road**	*20 to 40*	*B1*	*Routine*	*High, road or building*
T102	Hawthorn	5	260	2	2	2	2	1	M	Multi stem from 2.0m	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*

ULE: Estimated and approximate Useful Life Expectancy

Tag No.	Species	Height (m)	Stem Diameter (mm)	Crown spread (m)				Crown Clearance (m)	Age	General Observations				Action	*ULE*	*Category*	*Priority*	*Target*
				N	E	S	W			Crown form	Condition	Defect	Obstacle					
T103	Flowering cherry	6	600	2	4	3	3	1	M	Multi stem from 1.0m, Recently trimmed	Fair	Excessive ivy	Road	**Crown clean, Remove ivy, Crown lift to 5.1m over road**	*20 to 40*	*B1*	*Medium*	*High, road or building*
T104	Flowering cherry	5	50	2	2	2	2	2	Y	Single main stem with heavy side branches	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T105	Flowering cherry	5	420	4	5	3	3	2	M	Multi stem from 2.0m, Spreading crown	Fair	None	Road	**Crown lift to 5.1m over road**	*20 to 40*	*B1*	*Medium*	*High, road or building*
T106	Lime	5	170	3	3	2	2	1	Y	3 stems from 2.0m	Fair	None	None	**Crown lift to 2.4m over lawn**	*More than 40*	*B1*	*Routine*	*High, road or building*
T107	Hawthorn	5	100	2	3	2	2	2	SM	3 stems from 2.0m, Spreading crown	Fair	Bark damage	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T108	Norway maple	6	170	2	3	2	3	2	Y	Multi stem from 2.0m, Recently trimmed	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T109	Norway maple	7	230	4	4	3	3	2	SM	Multi stem from 3.0m, Spreading crown, Recently trimmed	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T110	Swedish whitebeam	7	250	4	4	3	4	2	AM	Multi stem from 3.0m, Spreading crown	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T111	Flowering cherry	7	470	5	6	2	4	2	M	3 stems from 2.0m, Spreading crown, One sided crown	Fair	None	Path	**Crown clean, Crown lift to 2.4m over path**	*20 to 40*	*B1*	*Medium*	*High, road or building*
T112	Lime	7	220	2	2	2	2	2	Y	2 stems from 3.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T113	Lime	6	170	3	3	2	2	2	Y	Multi stem from 3.0m, Spreading crown	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T114	Flowering cherry	7	180	5	5	5	2	2	AM	2 stems from 2.0m, Spreading crown	Poor	Thinning crown, Bark death	Road	**Crown clean, Crown lift to 5.1m over road**	*10 to 20*	*C1*	*Medium*	*High, road or building*

ULE: Estimated and approximate Useful Life Expectancy

Tag No.	Species	Height (m)	Stem Diameter (mm)	Crown spread (m)				Crown Clearance (m)	Age	General Observations				Action	*ULE*	*Category*	*Priority*	*Target*
				N	E	S	W			Crown form	Condition	Defect	Obstacle					
T115	Swedish whitebeam	6	230	3	3	3	3	2	AM	Multi stem from 2.0m, Spreading crown	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*
T116	Flowering cherry	5	220	3	5	5	2	2	AM	Multi stem from 2.0m, Spreading crown	Fair	Thinning crown	None	**Crown clean**	*10 to 20*	*B1*	*Routine*	*High, road or building*
T117	Lime	8	180	4	3	3	3	2	Y	2 stems from 3.0m, Spreading crown	Fair	None	Path	**Crown lift to 2.4m over path**	*More than 40*	*B1*	*Routine*	*High, road or building*
T118	Swedish whitebeam	7	310	4	3	3	2	2	AM	Multi stem from 2.0m, Spreading crown	Fair	None	Path	**Crown lift to 2.4m over path**	*20 to 40*	*B1*	*Routine*	*High, road or building*
T119	Flowering cherry	5	170	3	4	2	2	2	AM	3 stems from 2.0m, Spreading crown	Poor	Thinning crown	None	**Crown clean**	*10 to 20*	*C1*	*Medium*	*High, road or building*
T120	Lime	6	140	3	3	3	2	2	Y	2 stems from 3.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T121	Flowering cherry	6	410	5	5	5	3	2	M	3 stems from 2.0m, Spreading crown	Fair	Thinning crown	Path	**Crown clean, Crown lift to 2.4m over path**	*10 to 20*	*B1*	*Medium*	*High, road or building*
T122	Apple	5	150	2	2	2	1	2	SM	3 stems from 2.0m	Fair	None	None	**No action is required**	*20 to 40*	*B1*	*Not applicable*	*Medium, path or lawn*
T123	Lime	12	310	5	5	4	4	2	SM	2 stems from 2.0m	Fair	None	None	**No action is required**	*More than 40*	*B1*	*Not applicable*	*High, road or building*
T124	Flowering cherry	7	390	5	5	5	5	2	M	3 stems from 2.0m, Spreading crown	Fair	None	Road	**Crown clean, Crown lift to 5.1m over road**	*20 to 40*	*B1*	*Medium*	*High, road or building*
H125	Ash, Sycamore, Hawthorn	3	150	2	0	0	0	0	M	Multi stem, Recently trimmed	Fair	None	None	**Maintain as hedge**	*More than 40*	*B1*	*Routine*	*Medium, path or lawn*
T126	Sycamore	6	170	3	3	3	2	1	Y	2 stems from the ground, Spreading crown	Fair	None	Overhead electric cables	**Clear overhead cables**	*More than 40*	*B1*	*Routine*	*High, road or building*
T127	Birch	5	140	1	2	2	1	1	Y	3 stems from 1.0m	Fair	None	None	**Crown clean**	*20 to 40*	*B1*	*Routine*	*High, road or building*

ULE: Estimated and approximate Useful Life Expectancy

Tag No.	Species	Height (m)	Stem Diameter (mm)	Crown spread (m)				Crown Clearance (m)	Age	General Observations				Action	*ULE*	*Category*	*Priority*	*Target*
				N	E	S	W			Crown form	Condition	Defect	Obstacle					
T128	Birch	12	270	4	4	4	3	2	AM	Single stem	Fair	None	Path	**Crown lift to 2.4m over path**	*20 to 40*	*B1*	*Not applicable*	*High, road or building*

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