Maynooth and Environs Area Based Transport Assessment

Volume 1 – Main Report

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Prepared for:

Kildare County Council

AECOM Ireland Limited
4th Floor
Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin A96 T927
Ireland

T: +353 1 238 3100
aecom.com

Table of Contents

Figures

Tables

I. Introduction

AECOM have been appointed by Kildare County Council (KCC) to prepare an Area Based Transport Assessment for Maynooth and Environs, known as the MEABTA. The Maynooth and Environs ABTA (MEABTA) provides a multi-modal framework for future transport infrastructure planning, investment and implementation as well as integrated land-use-transport planning.

The MEABTA is focused on sustainable travel, which in practice means supporting compact urban growth, encouraging modal shift from car to sustainable transport modes and improving access to key destinations by non-car alternatives. There is a particular focus within Maynooth on improving active travel links between residential areas, the university, schools, employment areas, the town centre and the train station. For external trips outside Maynooth, the priority is improving the effectiveness and range of public transport alternatives to key destinations to provide a competitive alternative to the private car.

Maynooth is the pilot 'decarbonising zone' for Kildare so there is a particular need to reduce car dependency and transport emissions in the future, which will be a challenge considering the substantial growth allocated to the town. National, regional and county level growth targets require Maynooth to roughly double in size by 2038 and the MEABTA provides a roadmap for future transport infrastructure to service the new development areas in a way which will maximise the potential for sustainable travel and modal shift.

The MEABTA presents a comprehensive analysis of the current transport situation in Maynooth and presents measures to improve conditions for users of active modes, public transport and private motorised vehicles. The MEABTA will inform the development of the Draft Maynooth and Environs Local Area Plan 2024-2030 (Joint LAP) which will be prepared by KCC in cooperation with Meath County Council, in line with the proposals in the Kildare County Development Plan 2023-2029 and relevant national and regional policy.

II. Maynooth Transport Context

Maynooth has experienced significant population growth in recent years. The population was 14,585 in Census 2016, which was an increase of 2,075 people since Census 2011. In 2021, the population was estimated to be 17,709 people based on recent residential development. In recent decades, the periphery of the town has expanded which has increased internal trip distances from the suburbs to the town centre, university and schools; making it harder to walk to destinations. At present, there are substantial levels of car dependency among Maynooth residents, despite the range of non-car alternatives available in the town, with 66% of work trips and 26% of education trips taking place by private motor vehicle. Reducing this level of car dependency and the emissions associated with car travel will be an essential component of the MEABTA.

Maynooth is part of the Dublin Bus network, and it has a centrally located train station which is an advantage in respect to sustainable travel. Maynooth train station is served by regular inter-city services on the Dublin-Sligo railway line as well as Dublin commuter services. As part of the DART+ West project, significant improvements to the capacity and frequency of train services between Maynooth and

Dublin are planned, with delivery of these improvements anticipated by 2027. In addition to this, the National Transport Authority's (NTA) Greater Dublin Area (GDA) Transport Strategy proposes the creation of two additional train stations near the study area; Maynooth West, which will service new development areas, and Leixlip West which will be near Intel. From an active travel perspective, Maynooth is located on the Royal Canal Greenway, but improvements are needed in respect to walking/cycling to improve permeability and safety within the town, as well as enhancing inter-urban connections to nearby towns.

III. Area Based Transport Assessments

Area Based Transport Assessments are a structured transport assessment process which takes place to inform the development of Local Area Plans (LAP). Conducting an ABTA ensures that the transport measures in the LAP are evidence based and informed by specialist transport analysis. The ABTA process is defined by Transport Infrastructure Ireland (TII) in the 2018 'ABTA Advice Note' and the joint TII and National Transport Authority (NTA) 2021 'ABTA How to Guide'. The 2021 guidance describes the role of the ABTA in the LAP process as follows:

> *"An ABTA is recommended as the preferred form of technical assessment, which can be used to appraise and guide the formulation of transport policies within the LAP and, more generally, the integration of land use and transport planning in the form of the LAP's accompanying Local Transport Plan (LTP). The ABTA will appraise transport demand and opportunities in a manner which typically results in firm proposals for transport infrastructure and accompanying transport demand management, including non-infrastructural measures to encourage sustainable travel behaviour that can be incorporated into the LAP. Applying the ABTA principles to LTPs and related studies will enable the identification and selection of transport measures that are compatible with the policy objectives set out in the relevant Development Plan and emerging as part of the LAP."*

An ABTA is a structured document which takes place across six stages from the Baseline Assessment in Part 1 to the Monitoring and Review in Part 6 as shown in Figure 1.1. The ABTA approach is structured to describe the process from evidence collection, through option creation, option assessment, refinement and finalisation of the transport strategy recommended for the LAP.

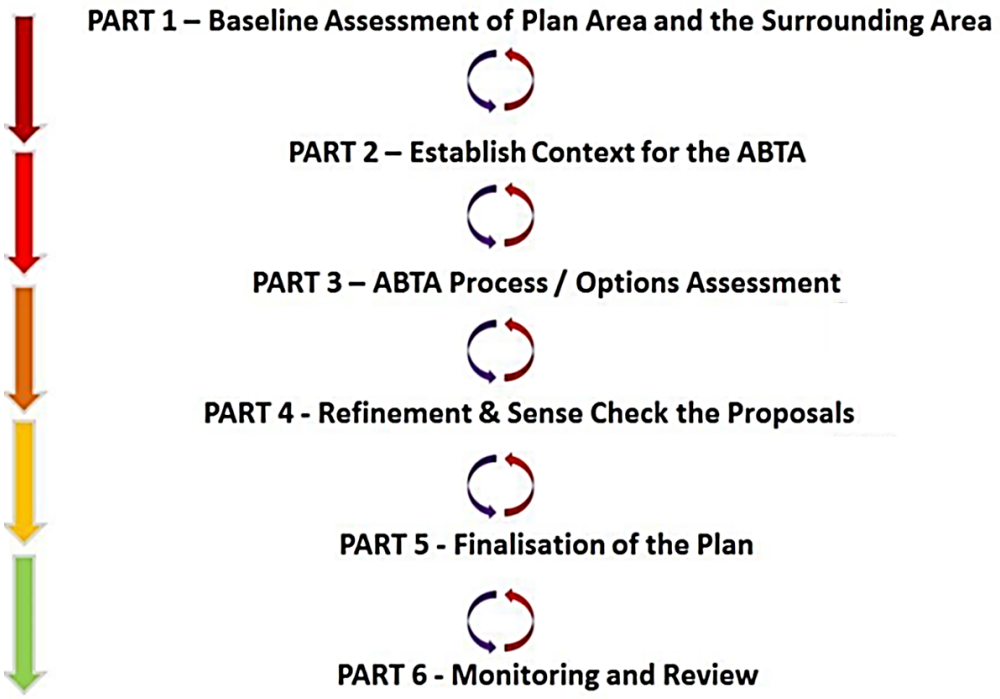

Figure 1.1 ABTA Stages (Source: 2018 ABTA Guidance)

IV. MEABTA Report Structure

The MEABTA is based on the requirements of the 2018 ABTA guidance, and structured in the typical six-part ABTA format:

- **Part 1: Baseline Assessment** - The Baseline Assessment provides a comprehensive review of the urban structure of the town, transport infrastructure and environmental conditions to understand the strengths and weaknesses of Maynooth. It also contains a summary of the Phase 1 consultation results. In order to reduce the length of the Volume 1 MEABTA report, the baseline assessment is provided in Volume 2, Appendix A rather than the main document.
- **Part 2A: Establish the Context for the ABTA -** Identifies principles and objectives for the ABTA and provides high level information on future development growth in Maynooth.
- **Part 2B: Option Development and Description –** Outlines the option development process, the relationship with integrated land-use planning and describes the options.
- **Part 3: Option Assessment –** Outlines the option scoring methodology and the assessment of the options to identify the preferred measures.
- **Part 4: Refinement and Sense Check Proposals –** This section contains a sense check of the ABTA to check it fulfils the requirements of the 2018 ABTA Guidance. It also outlines the changes made in response to Phase 2 consultation and the modal split targets.
- **Part 5: Finalisation of the ABTA –** Presents the final strategies for each mode of transport, the phasing of measures and the future planning principles.

- **Part 6: Monitoring and Review –** Outlines proposals for future monitoring in respect to modal shift, implementation and the ABTA review process.

Volume 1 of the MEABTA contains the main body of ABTA report, Parts 2-6. The appendices are located in a separate document, Volume 2, with Appendix A containing Part 1 (Baseline Assessment) and the other appendices containing other supporting reports.

V. Approach to ABTA Development

Prioritising Modal Shift and Transport Decarbonisation

People choose their preferred mode of transport by weighing the benefits and costs of each mode for their trip purpose and requirements. Where a car is available, driving often has an advantage over sustainable modes of transport as it provides door-to-door access to any location, whereas public transport is restricted to particular routes and active modes are limited by distance. However, policy and infrastructure interventions such as bus priority measures and permeability improvements which ensure that sustainable travel is faster and more convenient than driving can help to increase the benefits of using sustainable travel modes. By increasing the benefits of using sustainable travel modes, this influences decisions by residents and encourages modal shift away from private motor vehicles.

The MEABTA roads strategy is focused on removing traffic from the town centre to facilitate improvements to walking, cycling and bus infrastructure. The MEABTA proposes a comprehensive network for active travel which will make walking/cycling safer and more convenient, particularly for internal trips. For longer distance travel, the public transport strategy proposes improvements which will make it easier to travel further afield by bus or rail.

Delivering Sustainable Transport Policy in Maynooth

A sustainable travel focused ABTA transport strategy is in line with national transport policy which emphasise the importance of promoting sustainable travel and reducing the negative environmental, health and social impacts of private motorised transport. The Department of Transport (DoT) published the National Investment Framework for Transport in Ireland (NIFTI) in December 2021. NIFTI seeks to ensure that transport investment is aligned with four investment priorities:

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

The NIFTI investment priorities are supplemented by Modal and Intervention Hierarchies. Under the Modal Hierarchy, sustainable modes, starting with active travel (walking, wheeling and cycling) and public transport should be considered first for investment before the private car. Under the NIFTI Intervention Hierarchy, protecting and renewing the existing transport network should, where possible, be the first solution considered, followed by maximising the value of the network through optimising or improving it, with investing in new infrastructure as the last option.

The DoT also published a new National Sustainable Mobility Policy in April 2022 which sets out a strategic framework to 2030 for active travel and public transport. The policy aims to deliver at least 500,000 additional daily active travel and public transport journeys by 2030 and a 10% reduction in the number of kilometres driven by fossil fuelled cars. The overall approach set out in the policy to achieving a more sustainable transport sector is based on the 'Avoid-Shift-Improve' principle and implementing measures to:

- **Avoid**: Reduce the frequency and distance of trips.
- **Shift**: Move towards more environmentally friendly modes of transport, such as walking, cycling or using public transport.
- **Improve**: Promoting efficient fuel and vehicle technologies.

The MEABTA seeks to meet the requirements set out in NIFTI and the National Sustainable Mobility Policy to achieve modal shift by creating a strategy which will transform travel by active modes within the town and enhance public transport connectivity within the study area and across the region.

Integrated Land-Use-Transport Planning

Land-use and transport are highly related in a process known as the land-use transport feedback cycle, which is shown in Figure 1.2. This cycle means that when transport improvements promote growth, the development results in the need for more transport improvements to cater for extra demand, which leads to additional transport capacity promoting growth again as the cycle repeats.

Appreciating the importance of the land-use-transport feedback cycle is a vital part of understanding the need for an integrated approach to land-use-transport planning as part of Area Based Transport Assessments. ABTAs and Local Area Plans can be used to strategically locate new transport infrastructure in areas where the promotion of development growth will have the best chance of encouraging modal shift and sustainable travel models.

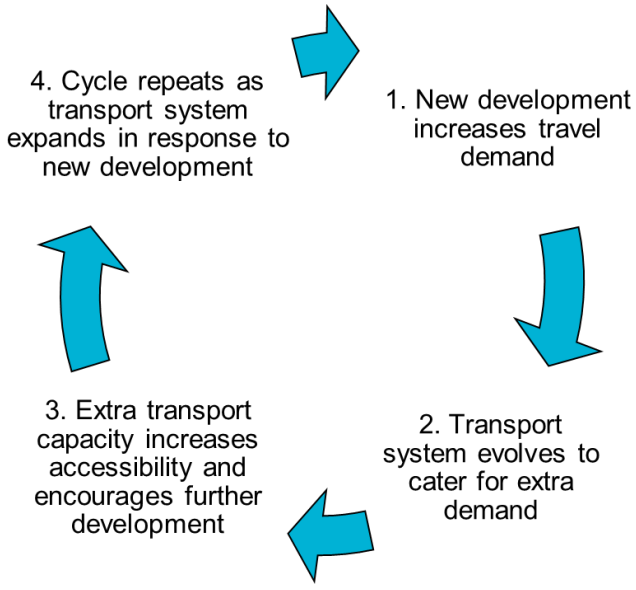

Figure 1.2 Land Use Transport Feedback Cycle

The population of Maynooth and Environs is expected to nearly double over the next twenty years in order to meet the growth targets defined in National, Regional and County level planning policies. Significant growth in population and employment, as well as the anticipated increase in the numbers of students attending Maynooth University will put significant pressure on the transport network, requiring careful future land-use-transport planning to ensure this growth can be accommodated as part of a strategic plan which will promote sustainable travel and limit car dependency as much as possible.

As part of the MEABTA development process, a detailed land-use modelling assessment took place to identify the preferred land-use scenario which has the best potential to promote sustainable travel. In the MEABTA assumptions, future population and employment growth is located in areas which are most likely to facilitate sustainable travel, which the MEABTA capitalises on by proposing integrated walking, cycling, public transport and road measures to connect these growth areas to retail, education, service and employment trip destinations. An integrated approach to land-use and transport such as this will ensure that the land-use-transport feedback cycle is utilised to a positive end to encourage modal shift, rather than older planning approaches which were more reactive to traffic problems associated with growth (e.g. increasing road capacity to ‘solve’ congestion) and inadvertently encouraged induced demand and urban sprawl.

VI. ABTA Study Area

The study area boundary for the MEABTA is shown in Figure 1.3 as a red line. The study area encompasses the built-up urban area of Maynooth and some of the rural periphery which may accommodate new development areas in the future. The north-east of the study area is called Moygaddy, located in County Meath, which is a future development area in regional planning policy.

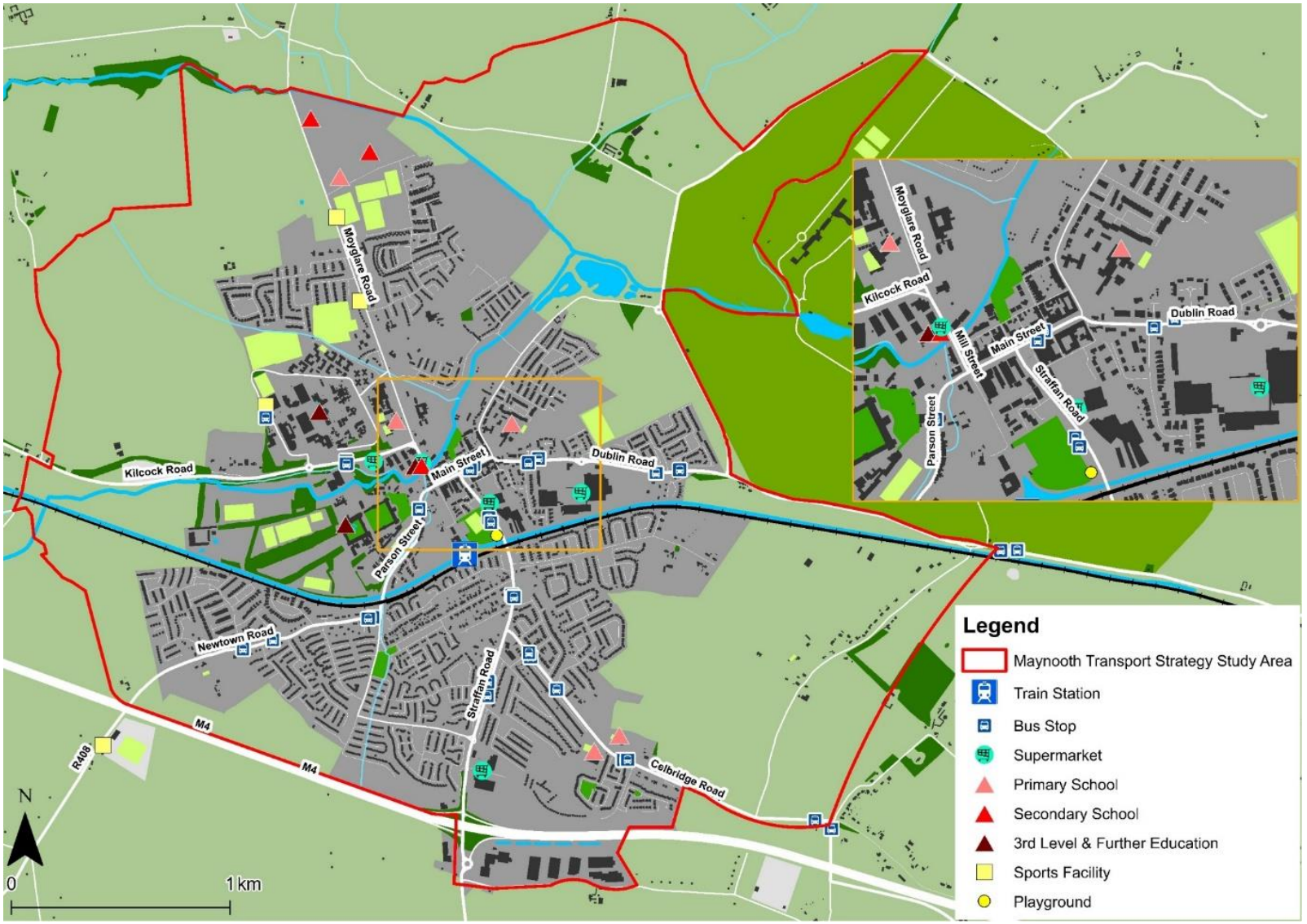

Figure 1.3 Maynooth and Environs Area Based Transport Assessment Study Area

VII. Analysis Tools

This section describes the analysis tools used to anticipate issues and develop solutions for the MEABTA. The following analysis tools were used in the creation of the report:

- VISUM Model – Strategic transport model used to inform the development of the roads strategy for Maynooth and to assess the performance of the road network in future years.
- VISSIM Model – Micro-simulation traffic model used to assess the operation of individual junctions and traffic management proposals at a local level.
- ArcGIS Network Analyst – GIS tools used to assess the impact of the permeability strategy on the walking catchments to key services and locations.
- ArcGIS ATOS – Access to Opportunities and Services Tool – a GIS tool developed by the NTA to assess walking distances to important services and amenities.
- ArcGIS PTAL - Public Transport Accessibility Level Tool – a GIS based tool developed by the NTA to assess the level of access to public transport.

VISUM Model

A VISUM local area model (LAM) was developed to study the transport network in Maynooth and its environs in the present day and in future years during the AM and PM peaks. The Maynooth transport model has a base year of 2019 and the future years under assessment are 2028 and 2038. The zone structure of the transport model is based on different land-use category areas, as well as boundaries such as canals or roads. Figure 1.4 shows the model zone structure used in the Maynooth LAM for the internal zones near the town. A full document describing the development of the Maynooth LAM can be found in the Combined VISUM Model Development Report and Traffic Modelling Report located in Appendix C, Volume 2 of the MEABTA.

Figure 1.4 Maynooth VISUM Base Model Internal Zone Structure

VISSIM Model

AECOM were commissioned by Kildare County Council (KCC) to develop a microsimulation model for Maynooth Town Centre and the main approach roads in VISSIM.

The model extents are displayed in Figure 1.5, with the network highlighted in yellow. The network encompasses Moyglare Road to the north, the R148 Maynooth University roundabout to the west, a section of Straffan Road to the south and a section of the R148 to the east. Within Maynooth, side roads parallel to Main Street have also been modelled namely Pound Lane and Doctor's Lane with their associated connections to Main Street

A full document describing the development of the Maynooth VISSIM model can be found in the Maynooth VISSIM Model - Model Development Report (MDR) located in Appendix D (see Volume 2).

Figure 1.5 VISSIM Model Microsimulation Area

ArcGIS Network Analyst

In order to assess the walking catchments for key destinations in Maynooth, an accurate path network was developed which included: roads with footpaths, pedestrian paths, reasonably surfaced tracks, clearly established informal paths and

cut throughs. The path network excluded: gated paths, muddy tracks and very informal paths. The objective of this path network is to accurately assess the walking distance to key destinations for most walkers or wheelchair users via established and maintained routes. It does not consider issues such as the quality of the surface, barriers, the level of lighting or other issues which affect people using active modes travel.

The baseline path network is shown in Figure 1.6, with non-road walking paths shown as dotted red lines. The advantage of this path network is that it can accurately assess real pedestrian movement, rather than simply representing walking distances on the road network. The path network covers the MEABTA study area and extends further east and west on the Royal Canal route. In general, the baseline path network ends where footpaths cease on the approach roads in the study area. The network was originally extracted from Open Street Map and then extensively modified using aerial photography, Google Street View and a site visit to identify paths, cut throughs and public tracks.

The resulting path network was used in the ArcGIS tool 'Network Analyst' to create walking distance service areas for key destinations in Maynooth. To assess the impact of the new links proposed in the walking strategy, a future Do-Something path network was developed which compares the existing situation to the proposed strategy path network. This allows for the benefits of the permeability strategy to be quantified by counting the number of GeoDirectory buildings within the 500m or 1km walking distance catchments of key destinations.

Figure 1.6 Baseline Network of Paths in Maynooth

Accessibility to Opportunities and Services (ATOS) Assessment

To supplement the walking catchment analysis described in the previous section, walking accessibility was also examined using the ATOS tool. ATOS (Accessibility to Opportunities and Services) is a tool maintained by the NTA to investigate accessibility to a range of different services and opportunities by active modes including Employment, Primary Education, Post Primary Education, GPs, Food Shopping and Open Spaces. The tool is based on a methodology[1] originally developed by Transport for London (TfL), but some minor adjustments have been made by the NTA to make it more suitable for use outside of large metropolitan areas in Ireland.

The baseline path network shown previously in Figure 1.6 was used for the baseline ATOS assessments. Similar to the permeability assessment, the ATOS assessment was repeated using the proposed future path network following the development of the walking/permeability strategy in order to assess how proposed changes improve accessibility to services from different parts of the study area.

An example of an output produced using the ATOS tool is provided in Figure 1.7, which shows the results of the ATOS analysis for walking accessibility to primary schools based on the baseline path network. The best ATOS score is an 'A' rating, on a scale down to an 'E' rating.

[1] For each calculation (other than employment), the number of different services of the particular service type which should be located by the tool and an acceptable walk time is specified. For this assessment, a walk time of 20 minutes was specified for all service types. The number of services was set to two in the case of primary schools, secondary schools and GPs, and was set to one in the case of food shopping and open spaces.

The spatially defined origin for the application of ATOS is based on a 100m grid. For most service types (excluding employment), the tool calculates the average journey time from the centroid of each grid square (origin) to the nearest (x number of) services within the specified travel time cut-off from the origin. If the specified number of services to be reached is greater than 1, the travel time is the average of the travel times from the origin to the nearest (x number of) services. Scoring for each origin (grid square) is calculated based on how the average travel time for that square compares to the overall average across all squares which are within the cut off time of at least one service.

When the NTA designed the tool, they decided that although the parameters allow the user to specify that two or more destinations should be located, if a particular origin grid square is within range of at least one service but fewer than the specified number, it is not excluded from the calculations completely. Instead, a negative weighting is applied to the origin's calculated travel times prior to the final comparison with the over-all average and standard deviation. For example, if the selection criteria is 'nearest two schools', but only one school is located within the cut-off time, the deficit is considered to be 50 percent and a corresponding negative weighting of 1.5 is applied to the travel time for that origin grid square.

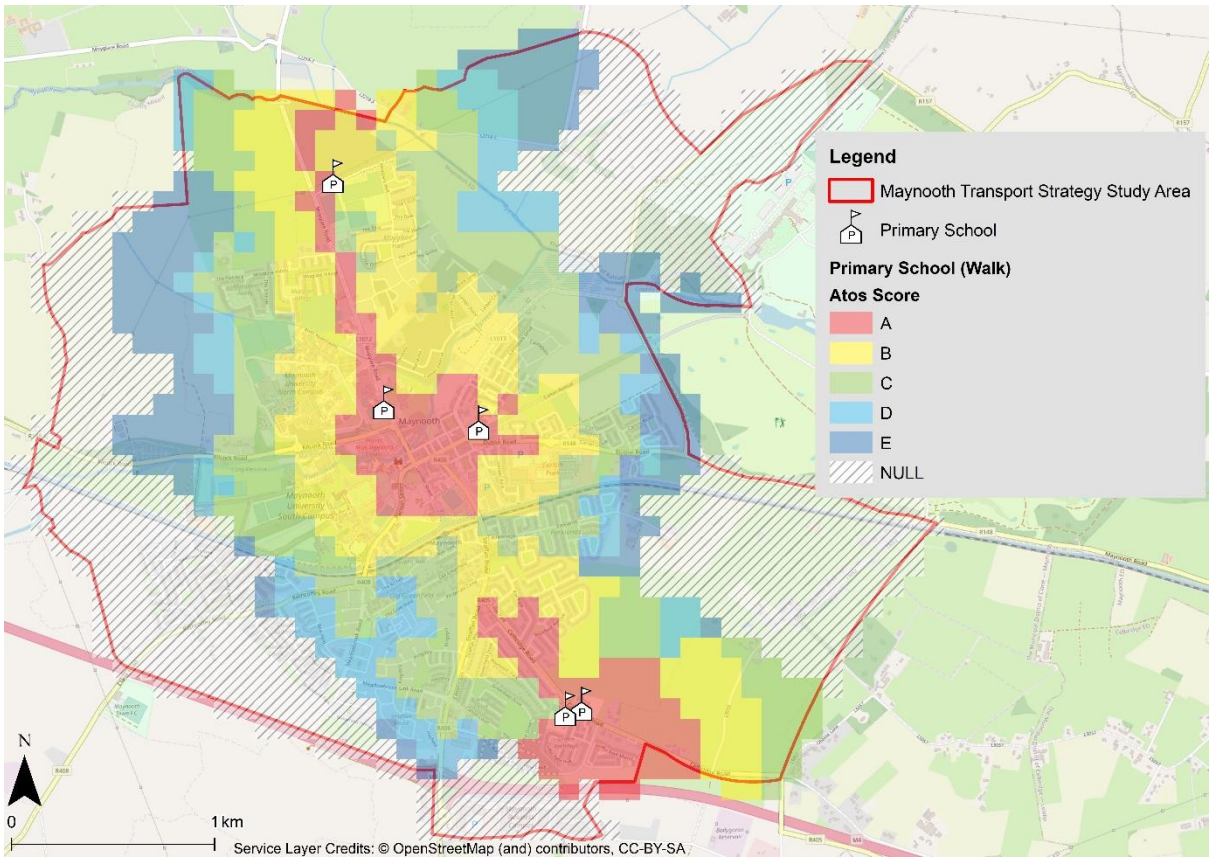

Figure 1.7 ATOS Baseline Analysis of Walking Accessibility to Primary Schools

Public Transport Accessibility Levels (PTALs)

PTAL is a measure of the density of the public transport network. The analysis area is divided into a 100m grid and each square receives a score. An accessibility index is calculated for each public transport stop and route at the stop. The index consists of the walk time to the public transport stop, service frequency and the average wait time at the stop. It also includes a reliability factor, which is different for rail and bus. The values of each stop and route in a square are summed and translated to a standardised score. An example of a PTAL score from Maynooth for 7am to 7pm is shown in Figure 1.8. It is important to note that PTAL is only used as a baseline assessment tool for the existing situation, it is not possible to measure the impact of future measures due to the lack of GTFS public transport data.

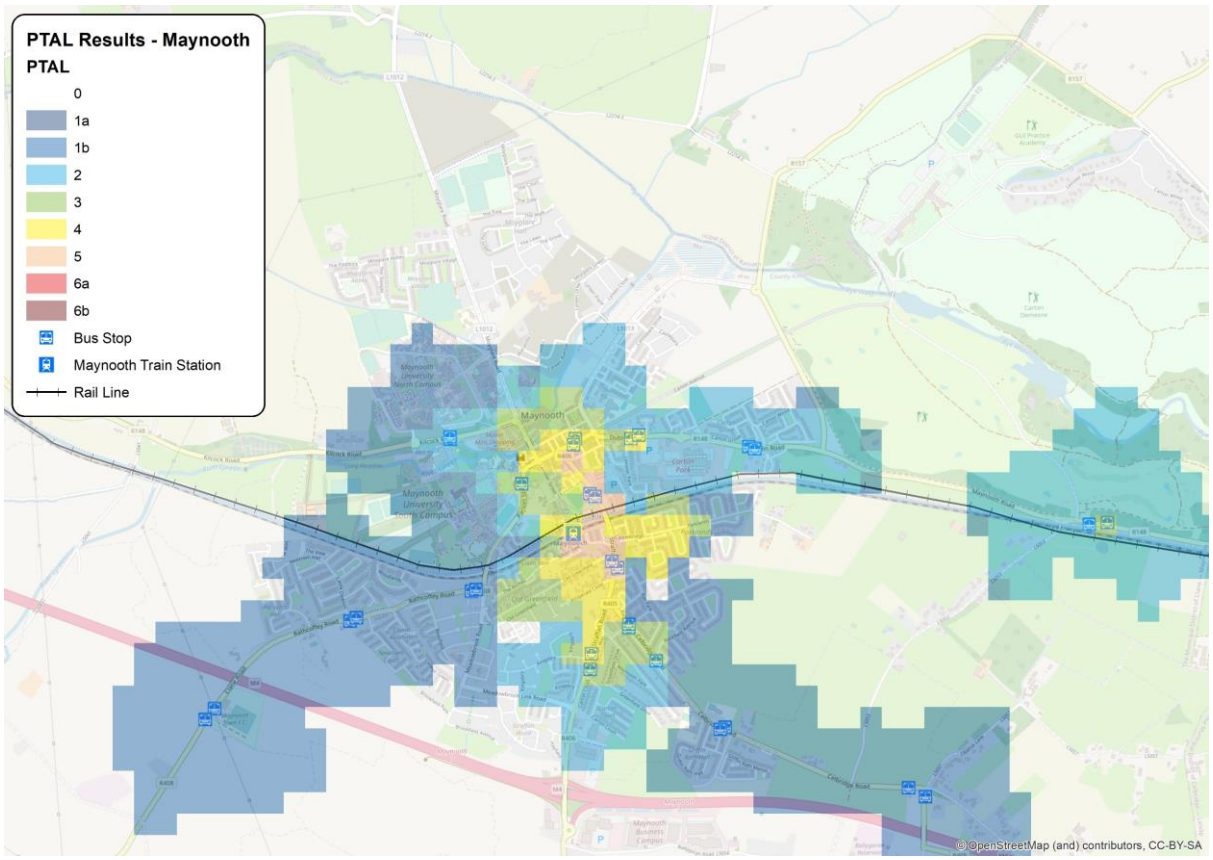

Figure 1.8 PTAL Results for Maynooth, 07:00 to 19:00

VIII. Note on Covid-19 Impact

Disruptions due to Covid-19 meant that traffic/parking surveys were not conducted. However, comprehensive Maynooth traffic surveys and parking surveys were undertaken in 2016 as part of the preparation of the Traffic Management Plan (TMP). These 2016 surveys were used to inform the development of traffic models and the baseline assessment. The 2016 traffic levels were scaled up to a 2019 base year for the transport model using growth data for the 2016-2019 period from the TII Automatic Traffic Counters.

The Covid-19 pandemic accelerated the rate of change in society with regard to many activities which impact upon travel demand. The main changes identified by the NTA include: the increased prevalence of remote working and studying; the increased use of local convenience shops for food shopping (linked to increases in remote working); increased online shopping for non-food items; an increase in local leisure and social trips (made possible by time savings associated with remote working); a reduction in business trips as a result of increased online collaboration and a decline in international travel for business purposes. To capture this shift, the overall demand in the future transport models has been adjusted to reflect the increased proportion of people working from home, see the Traffic Modelling Report in Volume 2 for more details.

The Covid-19 pandemic also had to be considered when undertaking a public consultation survey as part of the Phase 1 public consultation to inform the ABTA development. For example, in addition to being asked about their usual mode of travel to work or education, respondents who had not changed their usual

destination since the onset of the pandemic were also asked how they usually travelled to work or education prior to the pandemic. Additionally, respondents who said that remote working was feasible in their role were asked both how often they worked remotely at the time of completing the survey and how often they anticipated working remotely in the future.

Part 1
Baseline Assessment of Study Area

1. Part 1 – Baseline Assessment of Study Area

The Baseline Assessment is provided in a separate standalone document located in Appendix A in Volume 2 of the ABTA to reduce the length of the main report.

At the end of the Baseline Assessment, a summary of the strengths, weaknesses, opportunities and threats (SWOT) analysis was conducted for the MEABTA study area to inform the development of the options. The SWOT in Table 1.1 provides useful context for the options which are developed in Part 2 and the issues they seek to resolve.

Table 1.1 SWOT Analysis for Maynooth and Environs Area Based Transport Assessment Study Area

Strengths	Weakness
• Central location of the train station • Central retail areas (Manor Mills and Carton Retail Park) • Vibrancy of the town centre/Main Street • Presence and central location of Maynooth University • Proximity and strong connection to Dublin via bus and rail • Access to the Royal Canal Greenway • Local employment opportunities at the University, Maynooth Business Park and Intel • Proximity to the M4 and Junction 7 • Relatively flat topography • Growing population with a high percentage of young people • Architectural heritage – Maynooth Castle, Carton House, St Patrick's College (University South Campus), Main Street and other sites.	• High level of car dependency and congestion • Unsafe conditions for active modes (e.g., poor infrastructure, dangerous driving, and other issues) • Schools and large business park located on the periphery of the town • Low housing densities and urban sprawl • Cul-de-sac design of housing estates and impermeable development • Severance caused by the canal, rail line, M4 and the Lyreen River • Lack of bus routes serving residential areas and schools to the north of the town • Public transport network focused on radial trips towards Dublin city • Lack of public lighting on Royal Canal Greenway and some walking routes • Lack of inter-urban walking/cycling connections to surrounding towns • No town centre bypass for vehicular or bus traffic • Limited bus priority measures in the town
Opportunities	**Threats**
• Improving safety and connectivity for active modes of travel • Improving public transport and active mode connections with nearby towns • Improving accessibility for people with mobility difficulties • Implementation of DART+ and potential for new train station west of Maynooth • New orbital service to Tallaght (W6) which will also serve the north of study area • Reduction in on-street parking for improvements to public realm/active modes • Change in commuter patterns due to Covid-19 • Delivery of compact growth including in-fill development close to the town centre • Provision of orbital traffic routes to take traffic out of the town centre • Maynooth has been selected as a Decarbonising Zone (DZ) • Supporting tourism and increasing visitors to the study area • New bus station/transfer facility at the university	• Objections from residents or businesses to reallocation of road space to active modes and public transport and/or to measures to improve permeability • Reduced bus frequency on routes to Dublin and Celbridge as part of BusConnects • Continued Dublin-centric focus of public transport network • Insufficient co-ordination of the land use and transport plans • Further construction of low-density, single use, impermeable developments • Future peripheral education, employment, and retail developments • New orbital roads may increase appeal of car travel and contribute to induced demand • Increased transport demand linked to population growth and expansion of university

• Rising fuel costs promote shift to electric vehicles and sustainable travel modes	• Insufficient funding for transport infrastructure • High level of commuting by car among university students and staff • Negative impact of Covid 19 regarding willingness to use public transport • Inflation and rising costs make the provision of public transport more expensive

Part 2

Establish the Context & Option Development

2. Part 2 - Establish the Context and Option Development

2.1 Part 2A – Establish the Context for the ABTA

2.1.1 ABTA Principles

Following the completion of the Baseline Assessment and SWOT analysis, a set of ABTA Principles were developed and agreed in collaboration with KCC to help inform the option development process for the ABTA as well as future monitoring. There are six overall strategy principles as well as mode specific principles for public transport, cycling, walking, roads and parking.

Later in the ABTA, Part 6 sets out recommendations for ongoing monitoring of the delivery and impact of the ABTA measures. A wide range of suggested indicators are put forward which will help KCC and key stakeholders to understand the extent to which the principles set out in this section are being met.

2.1.1.1 Overall Strategy Principles

The following principles are objectives to guide the overall development of the MEABTA:

- Promote Maynooth's Town Centre as the core of activity and prioritise the improvement of its sustainable transport functionality, thus making Maynooth a more attractive place to live, work, visit, study and socialise
- Improve sustainable travel infrastructure to connect Maynooth with neighbouring settlements in Kildare and the Greater Dublin Area
- Provide sufficient transport infrastructure, in line with the modal hierarchy, to facilitate population and employment growth targets for Maynooth by enabling development in the areas most likely to promote compact growth and sustainable travel
- Ensure sustainable development and compact growth in Maynooth through integrated land-use-transport planning
- Promote modal shift from private motor vehicles to sustainable travel modes through the improvement of walking, cycling and public transport infrastructure to provide a viable alternative to the private car, thereby supporting the aims of Maynooth Decarbonising Zone
- Support the aims of the NIFTI modal and intervention hierarchies, to prioritise sustainable travel modes and upgrade existing infrastructure where possible
- Improve public health and well-being by promoting active travel

2.1.1.2 Public Transport Principles

In respect to public transport, the guiding principles of the ABTA are:

- Improve access from residential, employment, education, healthcare and retail facilities to public transport stops, particularly those with higher frequency services
- Improve the coverage, frequency and capacity of bus and rail services
- Provide bus priority infrastructure where it is necessary to improve journey times and reliability
- Improve public transport stops/stations in respect to location, information, accessibility, infrastructure and visibility
- Improve interchange experience for passengers changing between different modes of public transport or routes
- Promote modal shift from the private car to bus or rail, particularly for medium/long distance trips

2.1.1.3 Cycling Principles

In respect to cycling, the guiding principles of the ABTA are:

- Provide an integrated, inclusive cycle network for Maynooth in accordance with the National Transport Authority's Cycle Network Plan for the Greater Dublin Area
- Improve safety for cyclists in Maynooth
- Improve cycling connections between homes and key trip attractors such as the town centre, train station, university, supermarkets and schools
- Enhance inter-urban cycling links between Maynooth and nearby settlements or employment locations
- Promote modal shift from the private car to cycling, particularly for short-medium distance trips

2.1.1.4 Walking Principles

In respect to walking, the guiding principles of the ABTA are:

- Create an integrated walking network for Maynooth which allows for convenient, safe and efficient travel across the town as well as facilitating recreational walking
- Improve permeability to enhance access to homes, jobs, schools, supermarkets, the university and public transport
- Improve safety for pedestrians, particularly for vulnerable road users, through the creation of new crossing points and footpaths
- Provide walking links between Maynooth, Kilcock, Leixlip and Celbridge

- Promote modal shift from the private car to walking, particularly for short-medium distance trips

2.1.1.5 Road Principles

In respect to road transport, the guiding principles of the ABTA are:

- Reduce car dependency by promoting mode transfer to walking, cycling and public transport
- Reduce unnecessary vehicular trips through Maynooth town centre
- Improve road safety and eliminate collision hot spots
- Identify the transport corridors required to support the movement of people and goods to enable the growth of Maynooth
- Work with Maynooth University to improve transport access to the Campus
- Provide efficient access to existing or proposed park and ride facilities

2.1.1.6 Parking Principles

In respect to parking, the guiding principles of the ABTA are:

- Manage the provision of car parking to support and improve the economic vitality of the town centre
- To ensure car parking provision encourages sustainable commuter travel, especially for journeys into Dublin City Centre and supports access by public transport, cycling and walking
- To reduce on-street parking, where appropriate, in the town centre to facilitate public realm and walking/cycling/public transport infrastructure improvements
- Improve the quality of parking information with new parking signage and technology
- Introduce parking demand management measures to reduce car dependency and enhance the attractiveness of sustainable travel
- Make high-level recommendations regarding suitable locations for electric vehicle charging hubs

2.1.2 Maynooth Decarbonising Zone

Maynooth was selected by Kildare County Council as the pilot ‘decarbonising zone’ for County Kildare, which means it will be a town where a range of climate change mitigation measures will be introduced to contribute to national climate action targets. As part of the preparation of the Maynooth and Environs Area Based Transport Assessment (MEABTA), a standalone report on the decarbonisation of transport was commissioned by Kildare County Council (KCC) to support the decarbonising zone and identify additional recommendations which can be integrated into the MEABTA to

assist in the decarbonisation of transport and inform KCC reports (for example the Local Authority Climate Action Plan). The standalone Decarbonisation Report is located in Appendix F, in Volume 2 of the MEABTA.

The MEABTA is focused on reducing car dependency and promoting modal shift which will be key drivers of transport decarbonisation, while the measures explored in the Decarbonisation Report are focused on new forms of technology, such as e-vehicles or vehicle sharing schemes, as well as other measures like travel behavioural change programmes to support the MEABTA strategy. It is important to note that the MEABTA/Decarbonisation Report is focused on the transport aspects of decarbonisation, but KCC will also have to consider the decarbonisation of other sectors such as energy, housing, construction, and other sources, in order to achieve the goal of a decarbonising zone in the town.

The Maynooth Transport Decarbonisation Report was commissioned mid-way through the ABTA development process and its recommendations were included as part of the Phase 2 consultation process changes to the draft MEABTA. The Decarbonisation Report recommended a wide range of measures which were distributed to the relevant transport mode strategy of the MEATBA to strengthen the interventions proposed to achieve the goal of transport decarbonisation in the long term.

The designation of Maynooth as a Decarbonising Zone is important context for the MEABTA option development, and the level of intervention required. While national transport policy clearly requires the prioritisation of sustainable travel modes, the additional requirement for transport decarbonisation in Maynooth means that more radical changes are required to drive the shift away from private motorised transport, towards majority use of walking, cycling, bus and rail travel by the public. This is reflected in the options assessed in the MEABTA and the final transport strategy measures proposed which represent a major shift away from ‘business as usual’ transport planning in favour of sustainable travel.

2.1.3 Future Population and Jobs Growth in Maynooth

The integration of land-use and transport planning is key to promoting compact growth and travel by sustainable modes. In Maynooth, a bespoke land-use-transport assessment process was completed to identify the preferred scenario for growth, which would inform the development of options in the ABTA to serve the new development areas with infrastructure. This section summarises the land-use-transport assessment process which was conducted prior to the creation of the MEABTA report and provides a high level overview of assumptions in the preferred land-use scenario to guide growth in the years leading up to 2028 and 2038.

2.1.3.1 Land-Use Scenario Assessment Process

The population of Maynooth and Environs is expected to grow substantially based on population targets defined in National, Regional and County level planning policies. This will put significant pressure on the transport network, requiring careful land-use-transport planning to ensure this growth can be accommodated as part of a strategic plan which will promote sustainable travel and limit car dependency. There were four proposed land-use scenarios assessed as part of this process and the results allowed for the unique implications of each different development scenario to be understood. The purpose of this exercise was to assess the relative merit of four alternative land-use scenarios to identify the preferred land-use approach for future

growth in Maynooth in the years leading up to 2038. This process is documented in the Land Use Assessment Report located in Appendix B in Volume 2 of the MEABTA.

2.1.3.2 Land-Use Assessment Objectives

The objectives of the land-use assessment were as follows:

- Support consolidation of the existing urban area through compact growth and discourage urban sprawl
- Encourage rail-oriented development by co-locating jobs and population in close proximity to existing or planned train stations
- Diversify land-use types to encourage shorter trip distances and model shift from car transport to sustainable travel modes
- Provide development in locations which allow for the efficient operation of the road network for passenger vehicles and freight
- Ensure employment is provided in locations that align with national and regional policy requirements

2.1.3.3 Land Use Scenarios Assessment

KCC Planning department created four different planning scenarios for future growth in Maynooth and Environs:

- **Scenario 1: Concentric Growth**

  This scenario consists of infill development in central areas of Maynooth and peripheral development in concentric circles further out from the town centre.

- **Scenario 2: Northern Growth**

  This scenario primarily consists of growth to the north of the town within the Kildare County boundary, as well as some peripheral development in other areas.

- **Scenario 3: Eastern Growth**

  This scenario primarily consists of growth to the east of the town, as well as some peripheral development in other areas.

- **Scenario 4: Western Growth**

  This scenario primarily consists of growth to the west of the town, near to the planned train station at Maynooth West, as well as some peripheral development in other areas.

These scenarios were assessed with two analysis tools; VISUM local area model and a bespoke GIS methodology for scoring model zones on the basis their potential to promote sustainable travel. The VISUM results were assessed on the basis of network statistics, difference plots and volume/capacity maps to assess the impact of growth in 2028 and 2038 on the local road network. The GIS methodology took account of distance from the zone to the nearest bus or rail stop, the town centre or

the university in order to understand the potential for each zone to promote sustainable travel. The amount of development proposed in good or bad areas for promoting sustainable travel was quantified with maps and tables to understand the positive and negative aspects of each of the four scenarios. On the basis of the modelling and GIS results, recommendations were made to KCC Planning Department on the best aspects of each land-use scenario to retain, as well as identifying the problematic elements which should be eliminated. On the basis of these recommendations, a 'preferred' land-use scenario was created which incorporated the best aspects of the four land-use scenarios.

One of the key conclusions of the land-use scenario assessment was that the level of growth should be scaled back. Instead of using the entire 10,000 additional persons allocated to Maynooth to 2031 under National Policy Objective (NPO) 68, the preferred scenario uses 50% of that allocation (i.e. 5,000 persons) which reduces the overall population growth by 2038 to a more manageable level. This decision was made by KCC Planning Department in response to the extensive pressure on the road network observed in the initial land-use scenarios when the full growth figure was applied. While scaled back, the level of growth planned in the preferred land-use scenario is still significant with 16,808 additional people planned to live in Maynooth and its environs (Moygaddy) by 2038.

2.1.3.4 Preferred Future Land-Use Scenario

The main areas of residential growth in the preferred land-use scenario in the years leading to 2038 are shown in Figure 2.1. This figure shows how the main residential growth areas involve either consolidation of the existing urban area with infill development, or peripheral development in areas close to the existing train station or the new train station planned to the west of Maynooth. The mixed commercial/ residential development in Moygaddy in the north-west is included due to its inclusion as an objective in the Meath County Development Plan (2021 – 2027) and the RSES for future development. The planning hierarchy means that the joint LAP for Maynooth and Environs, and as a result the MEABTA, has to assume Moygaddy will be developed and service it with future infrastructure measures.

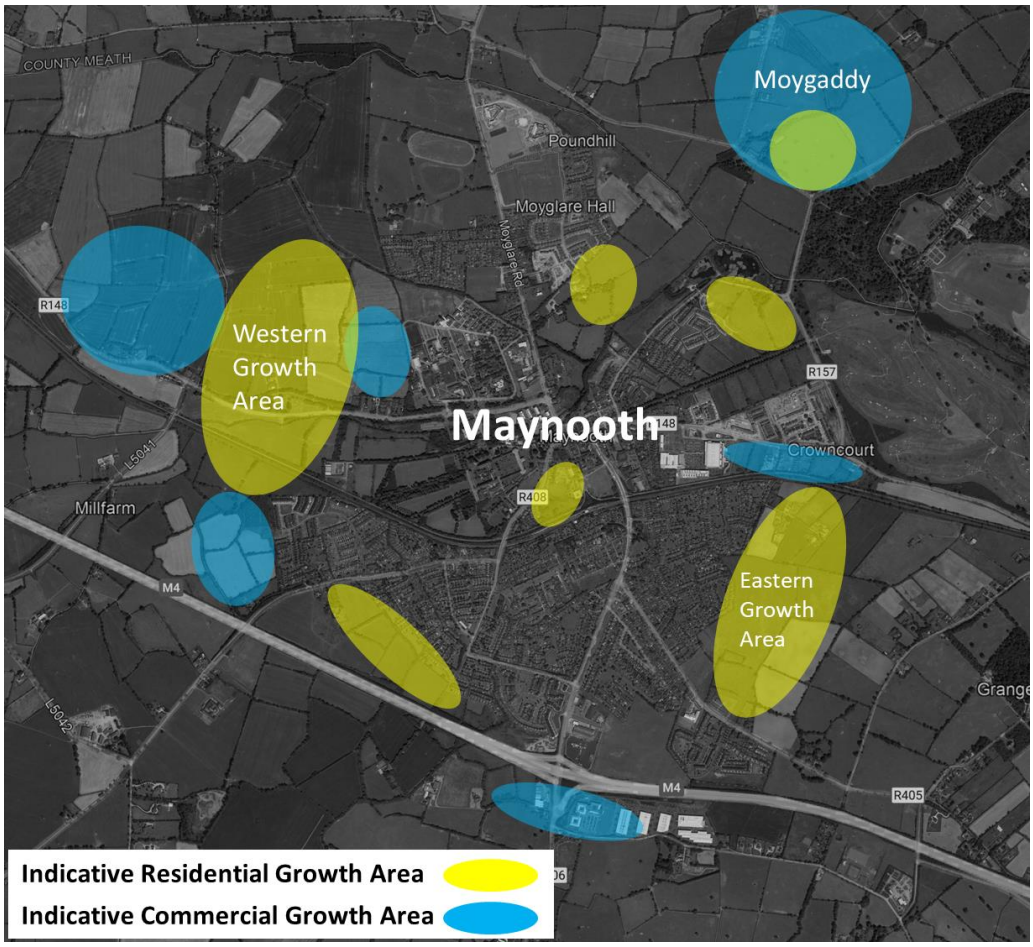

Figure 2.1 Growth Areas in Maynooth by 2038

The preferred land-use scenario is used as the future year VISUM and VISSIM models to estimate traffic demand in 2028 and 2038. This is described in detail in the land-use scenario assessment report provided in Appendix B in Volume 2 of the MEABTA. The future year demand calculations assume a -10% reduction in car modal split by 2038 to reflect the impact of the ABTA strategy measures which should result in a shift away from private motor vehicles. In Part 2B of the MEABTA, the influence of the preferred land-use scenario on option development is explained.

2.2 Part 2B – Option Development and Description

2.2.1 Option Development Process

The first version of the MEABTA strategy options were developed on the basis of the baseline assessment and Phase 1 consultation, which consisted of stakeholder meetings (e.g. Cllrs, university, schools) and an online public survey. This information provided was the focus for the creation of options to solve transport issues in the existing urban areas for all modes of transport. In relation to future growth areas, the land designated for development in the preferred land-use scenario was the guide for the creation of expanded walking and cycling connections, additional bus routes and road infrastructure. Later in the option development process, Phase 2 consultation was held on a set of draft strategy options for stakeholders and the public to comment. On the basis of this feedback, a number of additional options were developed to respond to issues, while a number of options were discounted on the basis of the strong negative reception they received and this fed into the multi-criteria analysis assessment located in Part 3. In parallel with Phase 2 consultation, KCC commissioned the transport decarbonisation report which identified a range of additional options required to support decarbonisation in the ABTA across micro-mobility, electric vehicles and vehicle sharing. The additional options identified in the decarbonisation report were distributed to the relevant modal strategy in the MEABTA for assessment and phasing if they were kept as measures.

The inputs to the option development process are summarised in Figure 2.2.

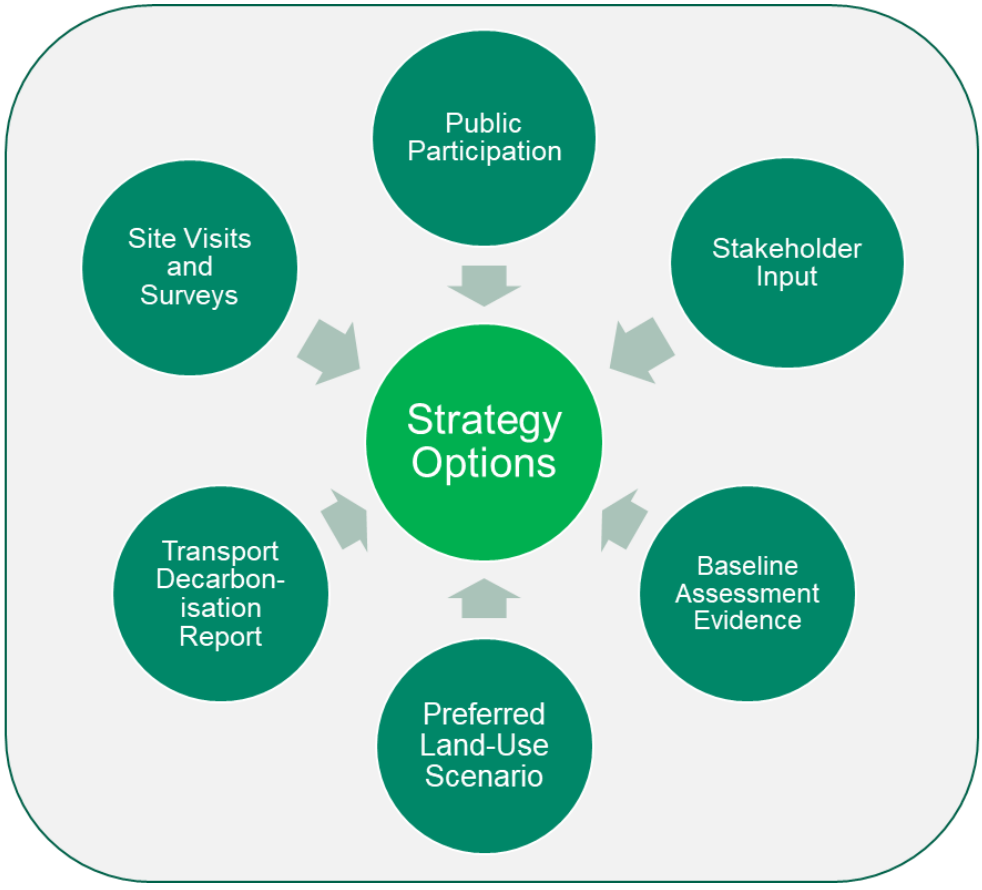

Figure 2.2 Inputs for Strategy Option Development

2.2.2 Preferred Land-Use Scenario

The preferred land-use scenario diagram shown in Section 2.1.3.4 provided a clear guide for the development of options to service future growth areas. In general, option development sought to ensure that plans were in place to service future development areas with strong sustainable travel infrastructure, while the approach for the road strategy was to provide basic access and the parking strategy focused on demand management measures. There are four main types of future growth areas in Maynooth, each required a slightly different approach summarised in option development below:

- **Urban densification and infill development**: Option development in these areas is focused on ensuring permeability between the new sites and existing urban areas to key destinations like the train station, bus stops, schools, the university, town centre, retail and other services. The provision of safe, segregated cycle infrastructure and local bus services is also prioritised. Basic car access will be provided in most cases, but in some town centre in-fill sites, 'car free' development may mean this is not a requirement.
- **Eastern/Railpark growth area**: This large site will be in close proximity to the planned Maynooth Eastern Ring Road (MERR) on the periphery of Maynooth. The focus of option development in this area is about ensuring north-south and east-west permeability for active modes along safe and direct routes to schools, existing train station, Royal Canal Greenway, the town centre, retail and other key services. Bus services will generally run near the site to the north on the Dublin Road or the south on the Celbridge Road rather than through the site so the focus is on connections to these areas for walking/cycling.
- **Western growth area**: The largest commercial/residential growth area is to the west of Maynooth in close proximity to the proposed Maynooth West train station. The focus on option development in this area is providing walking/cycling access to the new train station, as this will be the main public transport service in the area, as well as east-west links to the university and town centre. Ensuring permeability through the site is also a key focus to bus services using the orbital roads, through the university or the Kilcock Road.
- **Moygaddy North-East Development Area**: This site is in the north-east periphery and far from the existing or proposed train stations. The land-use assessment highlighted that this site is less suitable from a sustainable transport perspective. Development of this area is referenced in the RSES and Meath CDP and ultimately is outside the control of KCC. As a result, the MEABTA option development focuses on providing sustainable travel infrastructure to link the site to the existing areas of Maynooth as well as possible, but it is acknowledged that car use will be higher in this area due to the longer distances involved for walking/cycling to key destinations in the town.

It is important to note that some of the growth areas, such as the western growth area, are reliant on the expansion of the DART+ programme to Maynooth and the development of the new Maynooth West train station in order to promote sustainable travel. In the MEABTA Report, additional infrastructure is proposed across all

transport models to support the development of the growth areas and connect them with the existing urban areas of Maynooth.

2.2.3 Options Description

This section describes the options for each transport mode: active modes, public transport, roads and parking. For the parking, roads and public transport options; the ABTA guidance is followed with the options described in Part 2B, assessed in Part 3 and presented as a final strategy in Part 5 for the options which were assessed to be preferred measures. The options which were added, modified or removed in response to Phase 2 consultation and assessment are documented in Part 4. For walking and cycling, a slightly different approach is taken in the MEABTA where the final measures are presented in Part 2B, assessed in GIS in Part 3 and presented as a final strategy in Part 5. This practical approach to active modes is to reduce the confusion which could be created by two different numbering for hundreds of walking/cycling links throughout the report, it will be easier to understand as a consistent numbering. For active modes, the options removed, added or modified as part of public consultation and assessment are also documented in Part 4, in line with the ABTA guidance requirements.

2.2.3.1 Active Modes Options Description

This section outlines the development of the active mode measures and sets out the final walking/permeability and cycling strategies. Draft permeability and cycling strategies which were published as part of the Phase 2 public consultation in November 2022 are not shown in this report as this would introduce confusion due to the quantity of measures involved and the different numbering of individual measures in the draft and final strategies. However, details of changes to the active transport strategies following the publication of the draft strategy are provided in Part 4.

Separate objectives, tables of measures and maps are set out in this section for walking/permeability measures and cycling measures. However, the walking/permeability strategy and cycling strategy are very interdependent, as a very large proportion of the measures which are set out in the walking/permeability strategy will also form part of the future cycle network and are shown on the cycle strategy map for this reason. Complementary active mode measures are set out in the final part of this section.

2.2.3.1.1 Walking/Permeability Objectives

The permeability strategy seeks to achieve the following objectives:

1. Create an integrated walking network for Maynooth which allows for convenient, safe and efficient travel across the town as well as facilitating recreational walking

2. Improve permeability to enhance access to homes, jobs, schools, supermarkets, the university and public transport

3. Improve safety for pedestrians, particularly for vulnerable road users, through the creation of new footpaths and crossing points

4. Provide walking links between Maynooth, Kilcock, Leixlip and Celbridge

5. Promote modal shift from the private car to walking, particularly for short-medium distance trips

2.2.3.1.2 Walking/Permeability Options Development

The walking strategy seeks to create convenient, efficient routes between homes and key trip attractors and reduce walking trip distances through the implementation of permeability measures which give active modes of travel a competitive advantage over private cars. The strategy also seeks to facilitate recreational walking through the delivery of new and improved greenway links and amenity walking links as well as through improving access to existing facilities which are attractive to recreational walkers such as the Royal Canal Greenway and Carton Avenue.

There are numerous issues impacting permeability in Maynooth as documented in the Baseline Report. Key linear barriers include the Royal Canal and adjacent railway line, the Lyreen River and Rye River and the M4 motorway. Although these linear corridors have several crossing points, they constrain permeability and improving access across them will be critical as the town expands. The permeability strategy seeks to address linear barriers through improving connections across them as well as by providing or improving links which run parallel to the features and improving the connections to them from the surrounding area. In addition to linear barriers, there are also some relatively impermeable blocks within the study area which can cause longer indirect trips for people walking and cycling. Examples of this include Carton Retail Park, the university lands (particularly the South Campus) and cul-de-sac housing estates. The permeability strategy also seeks to improve permeability through these areas.

To develop options for the strategy, the baseline catchments were assessed to identify barriers which lengthen walking distances to key trip attractors such as schools, bus stops and the train station. Particular focus was placed on facilitating direct routes along desire lines between homes and key destinations for work (town centre and Maynooth Business Campus), retail (supermarkets, local shops), and education (schools and Maynooth University campus). In addition to considering the existing built-up area of Maynooth, consideration was also given to providing connectivity to and through future development areas. As there are existing plans in place for many future development areas, a large number of site layout plans were collected and reviewed where available in an effort to reflect existing plans and proposals for new connections in the development of active mode measures and the future path network.

2.2.3.1.3 Walking/Permeability Measures Description

There are eight different categories of walking/permeability measures shown on the permeability strategy measures map (Figure 2-3). These different categories are described below.

- **New greenway / greenway upgrade:** This category includes proposed measures which form part of or directly link to the Royal Canal Greenway (new link to Leixlip and connection through Harbour Field and proposed upgrades to the Maynooth – Kilcock section), as well as proposed measures for new greenway links in the northeast of the study area (to and within the Moygaddy area).

- **New path on existing road**: Proposed provision of a footpath adjacent to an existing road carriageway

- **Active modes link (proposed or planned for specific location):** Proposed measures within this category include short new connections such as new links between adjacent residential areas as well as longer sections of new path. The default assumption is that these links should also be available to cyclists wherever possible (either shared surface, or through construction of adjacent separate paths depending on the available space and likely demand/use).

- **Path on road option or planned road:** A road option from the road strategy or a planned new road (e.g., Straffan Link Road and planned / under construction residential estate roads) which will include footpaths.

- **Amenity walk / linear park:** In contrast to links in the 'Active modes link...' and 'Link to / through future development area' categories, some or all of these amenity/linear park links focused along the Lyreen River will not have lighting and may be inaccessible to cycles.

- **Link delivered since baseline assessment:** This category encompasses links which are now in place, but which were not included in the baseline permeability GIS assessment and are included in the future network GIS assessment. These include three links in the south of Maynooth as well as footpaths and an amenity walking path within the Lyreen Lodge development.

- **New active modes bridge:** Proposed new bridges which should ideally be designed to be accessible for cycling and for use by people with mobility issues.

- **Link to / through future development area:** Proposed link to / through a likely future development area. The locations shown for these links are indicative only but serve to illustrate the need to cater for future desire lines through these areas and the connectivity benefits to the wider network of increasing permeability in these areas. Actual future links in these areas will be dependent on the layout of new developments and the transport links provided for other modes. These links will encompass a mix of infrastructure types.

- **Additional proposed link not in assessed Do Something (DS) network:** This category encompasses links added when the MEABTA was being finalised which have not been included in the future network GIS assessment.

To improve the legibility of the strategy maps, only one combined category is presented for new greenway links and greenway upgrades. However, there is a difference between the proposed measures along the Royal Canal between Bond Bridge and Kilcock and between Maynooth Station and Leixlip.

The development of the Royal Canal Greenway to the Fingal County Council Border is currently being progressed by KCC as an NTA funded project. Between Bond Bridge and Kilcock, the original Royal Canal towpath was previously upgraded to a greenway, but it has a quarry dust/compacted grit surface, no lighting and there are some barriers in place. It is suggested that a macadam/smooth surface, public lighting and CCTV should be provided on all both relevant sections of the Royal Canal Greenway and that any barriers which limit accessibility (or convenience or safety) should be removed.

In addition to the proposed measures for new and improved links for walking and cycling, new and upgraded active mode crossing facilities will also be required throughout Maynooth. Some suggested locations for consideration include the junction of Carton Avenue and the R157 and the junction of Newtown Road with Meadowbrook Road / Parson Street. However, this recommendation has been included only as a complementary measure at this stage as more detailed study of the requirement for crossings and optimal design solutions will be undertaken as part of the design process for other cycling and walking measures already in the strategy (e.g., cycle track measures and 'path on new road' measures). For example, the consultation process highlighted issues with existing crossing facilities close to the Maynooth Education Campus on Moyglare Road, but these issues can be considered in more detail as part of the design process for the walking and cycling strategy measures at Moyglare Road and/or Moyglare Hall.

There are over 140 measures which make up the walking/permeability strategy. These are listed and described in Table 2.1 and shown in Figure 2-5. Measures from five of the previously outlined categories ('new greenway/greenway upgrade', 'active modes link …', 'new active modes bridge', 'link to/through future development area' and 'additional proposed link not in assessed network' are also carried into the cycling strategy and are not numbered separately in the cycling strategy.

Table 2.1 Walking/Permeability Strategy Measures

No.	Description
1	New path on Kilcock Road near Laraghbryan Cemetery
2	New path on Celbridge Road (east of Ballygoran overbridge)
3	Active modes bridge over M4 between Straffan Link Road (Griffin Rath Road) and Maynooth Business Campus
4	Royal Canal Greenway - Leinster Park
5	Royal Canal Greenway - Carton Retail Park
6	Lidl - Carton Court
7	Brookfield Park - Newtown Court
8	College Green - Cluain Aoibhinn
9	Hayfield - Straffan Place/Court
10	Silken Vale - Train Station
11	The Arches - Meadowbrook Road
12	Royal Canal Greenway - Laraghbryan (Kilcock Road)
13	Active modes bridge over rail line and canal between Newtown Hall and Collegelands / The Royal Canal Greenway
14	Link between Newtown Hall and proposed active modes bridge (13)
15	Carton Avenue - Pebble Hill
16	Carton Avenue - Lyreen Park
17	Pebble Hill - Lyreen Park
18	Carton Square - Pebble Hill
19	Castle Park - Linden Demesne
20	Southern new entrance from Parson Street to Maynooth University South Campus (near Department of Music)
21	Northern new entrance from Parson Street to Maynooth University South Campus
22	Active modes bridge over River Lyreen at Laraghbryan
23	The Rise - Moyglare Grove
24	River Apartments - Moyglare Village
25	New path on Moyglare Road north of Moyglare Hall
26	Royal Canal Greenway - Parson Lodge
27	New path on Dublin Road east of R157 junction[2]
28	Parson's Hall - The Lane (Newtown Hall area)
29	Mullen Park perimeter route to facilitate connections to neighbouring estates
30	Mullen Park - Carton Court (south)
31	Mullen Park - Carton Court (middle)

[2] It should be noted that west of the Dublin Road/ R157 junction for a distance of approximately 160m there is currently a footpath on the north side of the road only. A footpath will also be needed on the south side of the road if the lands to the south are developed.

No.	Description
32	Mullen Park - Carton Court (north)
33	Mullen Park - Greenfield Drive
34	Old Greenfield - Fitzgerald Close
35	Meadowbrook Link Road – Kingsbry
36	Path on new section of Straffan Link Road
37	New path on section of Dunboyne Road linking existing footpaths to new path being provided as part of Linden Demesne development (measure 78)
38	Moyglare Road - The Park (via GAA grounds)
39	Moyglare Road - Proposed active modes bridge (53)
40	Brookfield Park - College Green
41	Link between Carton Avenue and lane north of Carton Grove, through planned development east of Limetree Hall
42	Carton Avenue - Carton Grove
43	New path on Kilcock Road between Kilcock and the L5041 junction (near Jackson's Bridge)
44	Moyglare Abbey - Moyglare Village
45	Royal Canal Greenway - MERR
46	Rockfield Park - new development
47	Fitzgerald Close - new development
48	Newtown Hall cul de sacs connections to link to Greenway
49	Griffin Rath Manor - proposed active modes bridge (3)
50	Maynooth Business Park - proposed active modes bridge (3)
51	Lyreen Avenue – measure 39 and proposed active modes bridge (53)
52	Moyglare Village - The Steeple
53	Active modes bridge over Lyreen River at Pound Park
54	Moyglare Green – measure 94 (proposed multi-modal link between Lyreen Avenue and Moyglare Hall)
55	Amenity walk / linear park along Lyreen River between Maynooth University South Campus and Manor Mills
57	New path on Celbridge Road between eastern end of existing footpath and Ballygoran overbridge
59	Amenity walk/linear park along Lyreen River at Mariavilla
60	Active modes spine through Railpark development area (indicative location)
61	Parklands Lawns - Railpark development area
62	Celbridge Road - Connolly's Folly
63	Path on new road ('The Drive') in Mullen Park development
64	Mullen Park - Gaelscoil Uí Fhiaich

No.	Description
65	Parklands - planned new development[3]
66	Replace active modes bridge over Royal Canal at train station to improve accessibility
67	Amenity walk / linear park on north bank of River Lyreen through South Campus
68	Upgrade of Royal Canal Greenway between Bond Bridge in Maynooth and Kilcock
69	Royal Canal Greenway between Maynooth and Leixlip
70	Path on new road in planned residential development west of Dunboyne Road (Lyreen neighbourhood)
71	Link through future development area between the Royal Canal Greenway and Dublin Road (indicative location)
72	Path on MERR
73	East / west link through future development area of Railpark (indicative) between measure 60 and measure 72 (indicative location)
74	Active modes bridge over rail line and canal between eastern side of future development area of Railpark and north side of Royal Canal Greenway
75	New path on existing road to connect planned new development to Parklands neighbourhood
76	East / west link through future development area of Railpark between measure 60 and measure 72 (indicative location)
77	Path on new road ('The Avenue') in Mullen Park residential development
78	Carton Avenue - Linden Demesne (parallel to L1013 and R157)
79	Carton Avenue - Linden Demesne (direct)
80	Path on new road in Linden Demesne development
81	Harbour Field (planned new paths)
82	East / west link through future development area of Railpark between measure 60 and measure 72 (indicative location)
83	Link betwen MERR and measure 119 through eastern part of future development area of Railpark (indicative location)
84	East / west link through northern part of future development area of Railpark between measure 60 and measure 72 (indicative location)
85	Link from Dublin Road to future development site between Carton Wood and R157 (indicative location)
86	Link from Carton Avenue to future development site between Carton Wood and R157 (indicative location)
87	Path on new road in planned residential development at Lyreen
88	Active modes connection to planned residential development at Lyreen
89	New path on existing local road
90	New path on section of R157 between Dunboyne Road junction, junction with L22143 local road and the MOOR.
91	Path on northeastern section of the MOOR

[3] A temporary vehicular connection will be opened in the short to medium term at this location for the purpose of facilitating new residential development. However, following the completion of the MERR, this connection will be active modes only and the new development will be accessed from the MERR. Hence, this link is categorised as an active modes link in the strategy as this is the intended long-term situation.

No.	Description
92	Path on section of MOOR between Moyglare Hall and Maynooth Environs (Moygaddy lands)
93	Link from Mariavilla Chase to future development site north of Mariavilla (indicative location)
94	Path on proposed PT/active modes link through site north of Mariavilla to Moyglare Hall
95	Path on MOOR (west side of Maynooth)
96	Path on road/PT road through new western development area
97	Link to MOOR from Brookfield Avenue through future development area (indicative location)
98	Link to future development area from Brookfield Park (indicative location)
99	Link between Newtown Road and measure 125 (to/from Newtown Court) through future development area (indicative location)
100	North/south link in southwest of study area between MOOR and measure 117 (indicative location)
101	East/west link in south of study area between MOOR and Newtown Hall Glen (indicative location)
102	Link to future development area on South Campus from Parson Street and from existing campus paths (indicative location)
103	Path on proposed southern access to Leinster Street from Parson Street
104	Link to/through future development site north of train station (indicative location)
105	East/west link in western development area south of Kilcock Road (indicative location)
106	North/south link in western development area west of MOOR (indicative location)
107	East/west link in western development area (indicative location)
108	North/south link in western development area west of MOOR (indicative location)
109	North/south link in eastern part of western development area linking The Paddock to measure 96 (indicative location
110	North/south link in eastern part of western development area linking The Paddock to measure 96 (indicative location)
111	East/west link in western development area (indicative location)
112	North/south link in eastern part of western development area (indicative location)
113	North/south link in northern part of western development area linking The Paddock to the MOOR (indicative location)
114	East/west link in western development area between North Campus and the MOOR (indicative location)
115	Active modes bridge over rail line and canal in western development area between measure 117 and measure 68 (to be located at proposed western train station)
116	Link between Dublin Road and proposed active modes bridge (indicative location)
117	North/south link in western development area east of MOOR (indicative location)
118	Path on new road in planned development in future development area near Parklands Grove
119	North/south link in eastern part of Railpark future development area (indicative location)
120	Link between R157 and future development site between Carton Wood and R157 (indicative location)
121	North/south link in northwestern part of Railpark future development area (indicative location)

No.	Description
122	East/west link in northeastern part of Railpark future development area (indicative location)
123	East/west link in northeastern part of Railpark future development area (indicative location)
124	East/west link in northeastern part of Railpark future development area (indicative location)
125	Link between Newtown Court and measure 99
126	East/west link in western development area (indicative location)
127	North/south link in western development area (indicative location)
128	Link between The Paddock and measure 113
129	Planned walking and cycling link through Harbour Field connecting to Royal Canal Greenway
130	New active modes bridge between platforms at existing train station with ramps and/or lift to improve accessibility
131	Link between The Gardens (in Newtown Hall area) and measure 14/48
132	Link between measure 117 (link to proposed western train station) and measures 14/48/131 (indicative location)
133	Link in northeast part of Carton Retail Park (north of Tesco)
134	Castle Park - measure 16 (link to Carton Avenue)
135	Formalise connection/improve crossing between Glenroyal Shopping Centre and Glenroyal Hotel (added as a new link in network for purpose of GIS permeability analysis)
136	Glenroyal Shopping Centre (via carpark slightly to the north) - future development site
137	Glenroyal Shopping Centre - Leinster Park
138	East/west link in northern part of Railpark future development area (indicative location)
139	MOOR - Newtown Court
140	Lyreen River & Rye River Greenway (County Kildare)
141	Active modes bridge over Rye River to Maynooth Environs (Moygaddy lands)
142	Rye River Greenway (north bank, Maynooth Environs (Moygaddy lands)
143	Blackhall Little Greenway, Maynooth Environs (Moygaddy lands)
144	Rye River Greenway connection to Dunboyne Road (north bank, Maynooth Environs (Moygaddy lands))
145	Connection between Dublin Road and Royal Canal Greenway through future development site east of Carton Retail Park
146	Connection between future Greenfields housing development and Straffan Road

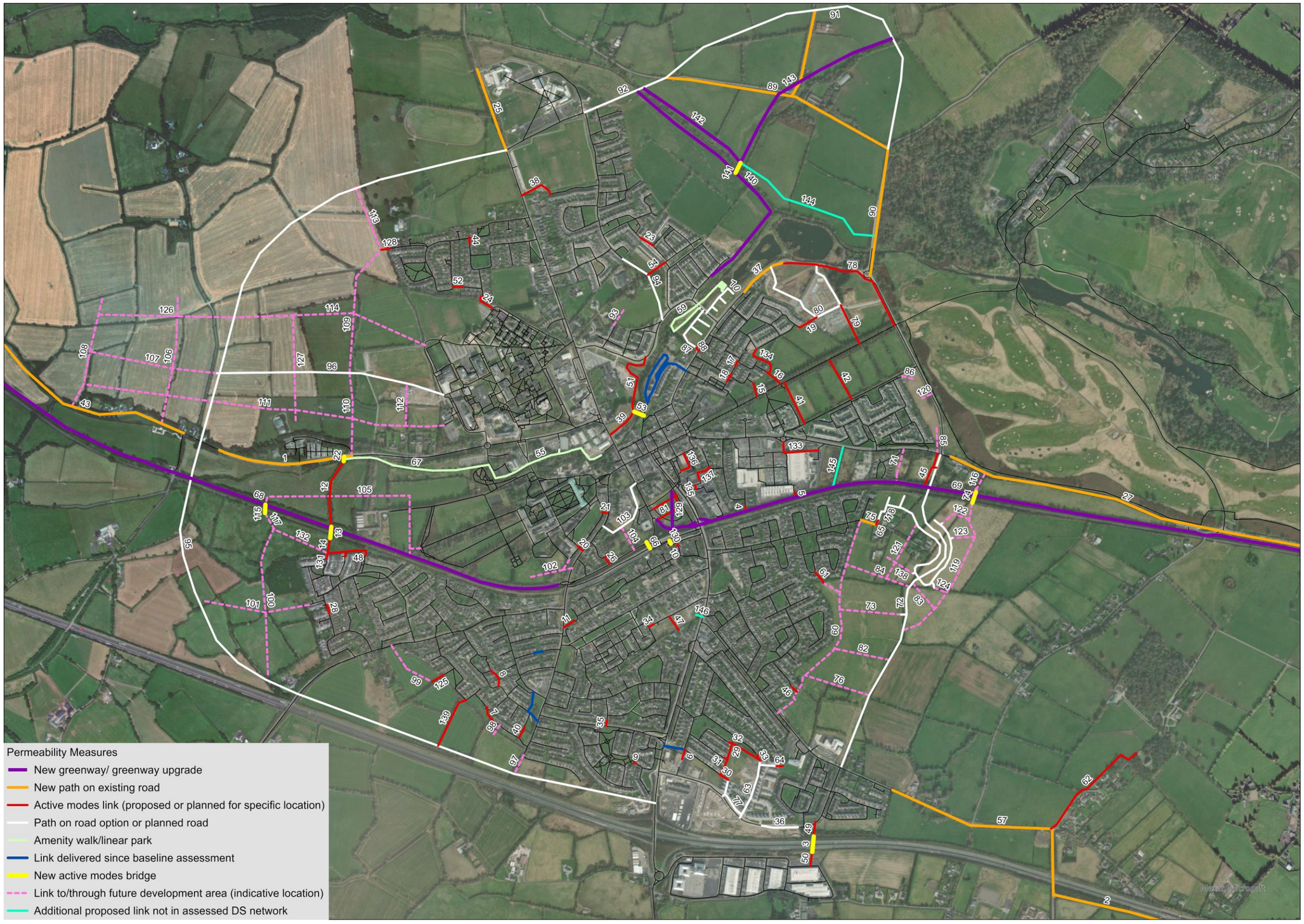

Figure 2-3 Permeability/Walking Strategy Measures

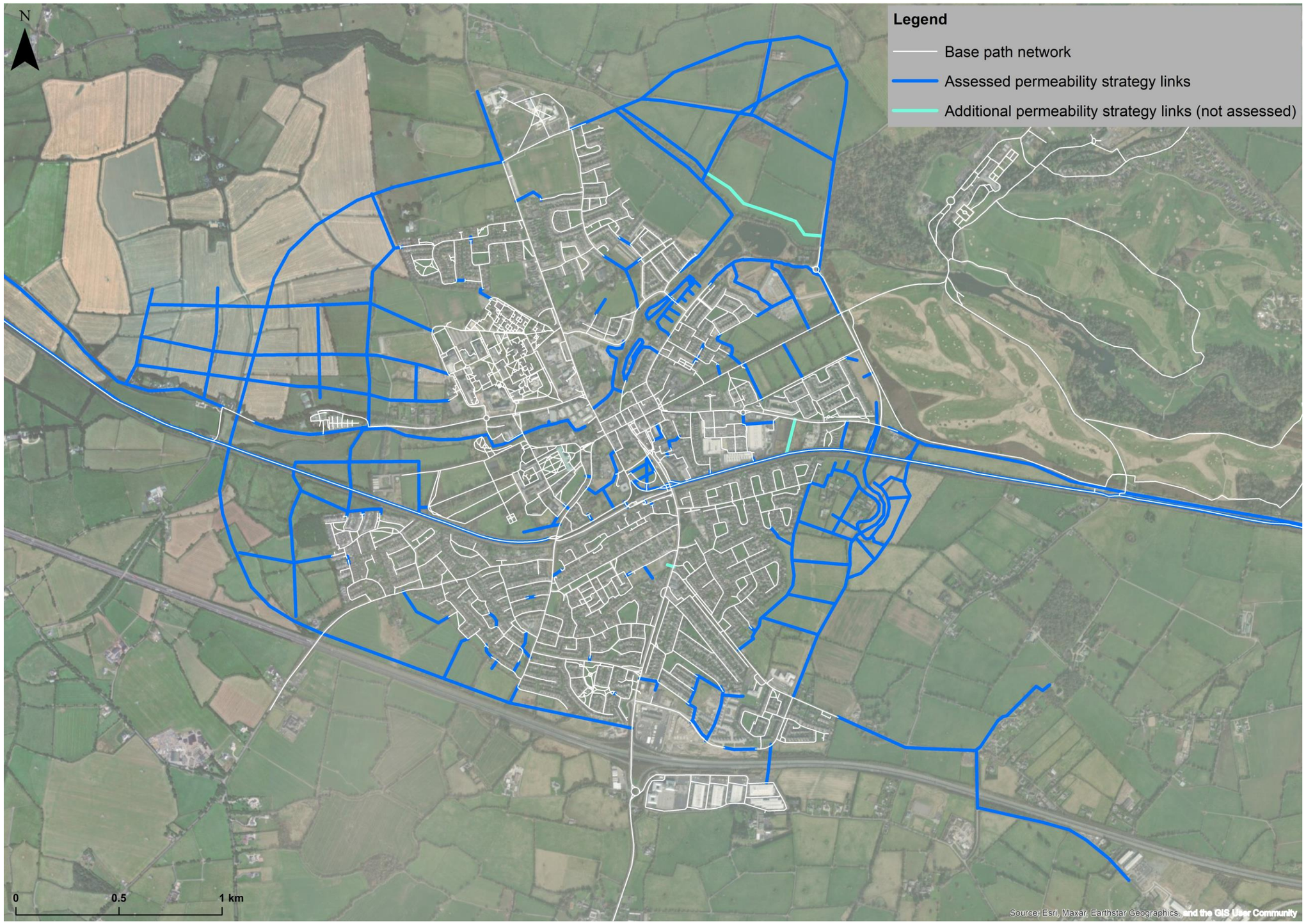

Figure 2-4 Combined Path Network – Existing (Base) and Proposed Walking Network

2.2.3.1.4 Cycling Objectives

The cycling strategy seeks to achieve the following objectives:

1. Provide an integrated, inclusive cycle network for Maynooth in accordance with the National Transport Authority's Cycle Network Plan for the Greater Dublin Area

2. Improve safety for cyclists in Maynooth

3. Improve cycling connections between homes and key trip attractors such as the town centre, train station, university, supermarkets and schools

4. Enhance inter-urban cycling links between Maynooth and nearby settlements or employment locations

5. Promote modal shift from the private car to cycling, particularly for short-medium distance trips

2.2.3.1.5 Cycling Options Development

The cycling strategy seeks to develop a network of safe, comfortable routes throughout the MEABTA study area so that cycling becomes an attractive option for many local trips such as commuting to work and school; travelling to the train station; shopping; visiting friends and family and travel to social activities. Although not a primary objective, the strategy also seeks to facilitate recreational cycling.

The proposed set of cycle network infrastructure measures outlined in the following section was developed through an iterative process which considered:

- Planned/anticipated road schemes and walking/permeability measures which form part of the strategy;

- The NTA's GDA Cycle Network Plan (revised and enhanced version published as part of the GDA Transport Strategy 2022-2042)

- Existing cycle infrastructure within the study area and current cycling conditions / traffic regime on all key links;

- The location of schools, employment, supermarkets and the existing and proposed future train station as well as the location of future development areas; and

- Relevant input collected through public and stakeholder consultation.

The cycling network infrastructure measures have been allocated an indicative 'link type' category. These categories, which are described in the following section, should be considered as provisional at this point, as future more detailed analysis of location specific considerations including the availability of road space and/or land, traffic levels and traffic speeds may determine that an alternative category is more suitable for some links.

The provision of dedicated cycling infrastructure is proposed for many road sections throughout the study area. Cycle track schemes along roads may consist of a mix of

segregated cycle tracks and on road cycle lanes. However, the overall objective should be to ensure that the degree of protection provided from vehicular traffic ensures a high level of perceived, as well as actual safety, as this is an essential component of achieving modal shift.

A small number of links within the study area have been categorised as ‘to be confirmed (TBC)’. On these links, it is suggested that some measures will be required to improve safety and/or comfort for cyclists but more detailed analysis is needed due to significant constraints on land availability, uncertainty about future traffic levels and interdependency with future traffic management measures.

In addition to cycle network measures, a large number of complimentary active mode measures related to cycling are proposed, including measures related to crossing facilities, cycle and scooter parking and storage and improving the availability of different types of cycles (and potentially also e-scooters) through methods other than personal ownership.

2.2.3.1.6 Cycle Network Measures Description

There are twelve different categories of measures for links in the cycle network. The provisional indicative 'link type' category for each cycling strategy measure is shown in Table 2.2 and on the Cycling Strategy map (Figure 2-5). Five of these categories involve measures carried over from the walking/permeability strategy. These include 'Greenway', 'Active modes link (specific location)', 'Active modes bridge', 'Link in future development area (indicative location)' and 'Additional proposed link not in assessed permeability network'. These link types were described previously. The links in these categories are numbered on the walking/permeability strategy maps and detailed in the walking/permeability measures table and therefore these measures are not numbered on the cycle strategy map or included in the cycling strategy measures table.

It has already been highlighted that the Royal Canal Greenway is more developed west of Maynooth, between Bond Bridge and Kilcock, while it is still in development to the east of Maynooth, between Maynooth Station and Leixlip. In between these two sections, between Bond Bridge and Maynooth Station, the greenway already has a macadam surface and public lighting. Therefore, this section is shown in another colour (lilac/light purple) on the cycling strategy map and is included simply so that the map can provide an overview of the full future cycle network.

Other categories of cycling measures which are included in the cycling strategy map and measures table are described below.

- **Cycle Way:** This category is used to indicate a cycle way not adjacent to a road which is not shared with pedestrians. The proposed facility on Carton Avenue is the only measure in this category in the cycling strategy.

- **Cycle track**: Cycle tracks will generally be adjacent to the existing road carriageway or only slightly removed, with good visibility from the road and should provide some physical protection from vehicular traffic in so far as possible. Strategy measures in this category include:

    - existing roads which do not currently have cycle infrastructure where cycle tracks are proposed;

    - roads where upgrade or redesign of existing cycle tracks is proposed; and

    - road options from the roads strategy which will include cycle tracks if delivered.

    Two recently developed sections of existing cycle track which may not require major changes unless in conjunction with other strategy measures (Lyreen Avenue and a section of Straffan Road between the Glenroyal Hotel and Old Greenfield) are also shown on the cycling strategy map (without measure numbers) to provide an overview of the full proposed future network.

- **Cycle track – route indicative**: There is one link in this category, a proposed connection between Dublin Road and the Royal Canal Greenway through Carton Retail Park. The most feasible alignment for this potential link will need to be determined by future more detailed study in consultation with the landowners.

- **Inter-urban cycle route:** It is proposed that inter-urban cycle routes should be delivered to Rathcoffey, Straffan and Dunboyne. These links are shown as arrows at the edge of the MEABTA study area. On these routes some dedicated space / protection from traffic is required for cyclists but the exact route and type of infrastructure will need to be determined by a future study and design may vary on different sections. The strategy also proposes links to Celbridge and Kilcock, however, these are in the 'cycle track' category.

- **Shared street**: Shared streets are streets where traffic volumes and/or speeds should be kept reasonably low and cyclists will cycle on the carriageway. The map shows planned new shared streets which are not yet fully in place as well as existing streets where it is proposed that some measures are required to improve the street for cycling.

- **University main active mode links:** These links consist of internal campus streets. Some of these links already exist but may require some improvement to improve their functionality for cycling/ as shared spaces while others are expected to be implemented as part of the changes set out in the Maynooth University Campus Master Plan.

- **TBC:** The preferred option for accommodating cycling on streets in this category requires more detailed study at a future date due to space constraints, interdependencies with other measures in the MEABTA and/or uncertainty regarding potential future traffic volumes.

There are 57 different measures which make up the cycling strategy in combination with the numerous measures shared with the walking/permeability strategy. The cycling strategy measures (excluding those shared with the permeability/walking strategy) are listed and described in Table 2.2 and shown in Figure 2-5. Please note that Figure 2-5 also shows a small number of links which are not strategy measures (as infrastructure on these links is already provided to a reasonably high standard). These are shown (without an accompanying strategy ID number) so that the full future cycle network is visible and include a section of the Royal Canal Greenway between Bond Bridge and Leinster Street, a shared path within Harbour Field, Lyreen Avenue (a recently developed road with cycle tracks) and a section of Straffan Road between the Glenroyal Hotel and Old Greenfield (which has cycle tracks which were upgraded in recent times).

Table 2.2 Cycling Strategy Measures (Links)

No.	Description	Proposed Link Type
1	Parson Street (Bond Bridge - Main Street)	TBC
2	Kilcock Road (University roundabout - Moyglare Road)	Cycle track
3	Mill Street	Cycle track
4	Meadowbrook Road (Meadowbrook Link Road - Newtown Road junction/Bond Bridge)	Cycle track
5	Beaufield Close	Cycle track
6	Dublin Road (R157 Junction - Intel)	Cycle track
7	Celbridge Road (Straffan Road - MERR)	Cycle track
8	Celbridge Road (MERR - Celbridge outskirts)	Cycle track
9	Kilcock Road (University - L5041)	Cycle track
10	Access to/from Royal Canal Greenway at Jackson's Bridge	Shared street
11	Meadowbrook Link Road	Cycle track[4]
12	Kilcock Road (L5041 junction - Kilcock)	Cycle track
13	Moyglare Road north of Kilcock Road junction	Cycle track
14	Moyglare Hall at Maynooth Education Campus	Cycle track[5]
15	Moyglare Hall estate northern section (junction with 'The Park' - MEC)	Cycle track
16	Leinster Street	Shared street
17	Straffan Road southern section (Mullen Park Road - Maynooth Business Campus)	Cycle track
18	Dublin Road (Main Street junction - R157 junction)	Cycle track
19	Mullen Park, 'The Drive'	Shared street
20	Carton Avenue	Cycle Way (separate from walking path) [6]
21	MERR	Cycle track
22	Straffan Link Road	Cycle track

[4] There is an existing cycle facility on Meadowbrook Link Road, however this is an old facility which does not confirm to current standards and requires significant upgrade/redesign, particularly at junctions.
[5] There are existing cycle facilities on Moyglare Hall road but these are low quality. There is an old narrow single direction cycle track on the south side of the road which is interrupted by parking at the eastern end. On the north side of the road there is a more recently developed shared two-way pedestrian/cycle facility, but it is too narrow for the number of current users and school bus passengers also currently disembark onto this facility. It is recommended that separate walking and cycling facilities should be provided.
[6] Carton Avenue is part of the Maynooth Architectural Conservation Area (ACA) and it will be important to consider the heritage impacts of any improvements to active travel facilities in this area. A cycle facility separate from the existing pedestrian path is recommended based on the number of existing and potential users who use or will use this link for recreation or transport and the need to minimise conflicts between people walking and cycling. The feasibility of delivering a cycling facility should be considered in more detail as part of the upcoming development of the Carton Avenue Masterplan.

No.	Description	Proposed Link Type
23	R157 (Dublin Road junction - L2214-3 local road junction)	Cycle track
24	Dunboyne Road (Nagle Court - Linden Demesne)	Cycle track
25	Dunboyne Road (Main Street junction - Nagle Court)	Cycle track
26	Newtown Road, east (Beaufield Close – Maynooth Lodge nursing home)	Cycle track
27	Straffan Road northern end (Glenroyal entrance - Main Street junction)	Cycle track
28	Straffan Road (Old Greenfield - Mullen Park Road)	Cycle track
29	South Campus north/south link	University main active mode links (future)
30	South Campus east/west link (Main entrance - Aula Maxima)	Shared street
31	North Campus perimeter road	Cycle track
32	North Campus east entrance	TBC
33	R157 Inter-urban link towards Dunboyne (L2214-3 local road junction - Dunboyne)	Inter-urban cycle route
34	R406 Inter-urban link towards Straffan	Inter-urban cycle route
35	R408 Inter-urban link towards Rathcoffey	Inter-urban cycle route
36	Moyglare Hall estate southern section (junction with 'The Park' - south end of the 'The Avenue' to connect with link 57)	Shared street
37	Moyglare Hall estate east/west link ('The Drive')	Shared street
38	Link through Carton Retail Park to connection to Royal Canal Greenway	Cycle track (route indicative, actual route TBC)
39	Parson Street (Newtown Road junction/Bond Bridge - Parson Lodge entrance)[7]	Cycle track
40	Main Street	Cycle track
41	Moyglare Road north of Moyglare Hall junction	Cycle track
42	MOOR	Cycle track
43	Cycle track on road/PT road through new western development area	Cycle track
44	MERR access roads for future development areas	TBC
45	New development near Parklands Grove	Shared street
46	Linden Demesne (new development)	Shared street
47	Short section of Lyreen Close residential road	Shared street
48	North-eastern MOOR at Maynooth Environs (Moygaddy lands)	Cycle track

[7] There is an existing cycle facility on this section of road but it is an older facility which requires significant upgrade, there is currently no grade separation from the adjacent footpath and the facility starts and ends abruptly

No.	Description	Proposed Link Type
49	North Campus internal links	University main active mode links (future)
50	Southern access to Leinster Street from Parson Street	TBC
51	Southern section of Meadowbrook Road and part of Brookfield Avenue	Cycle track
52	Castlebridge/Parklands Crescent/ Parklands Grove	Cycle track
53	Newtown Road eastern section (Beaufield Close - Meadowbrook Road)	TBC
54	Mullen Park, 'The Green'	Shared street
55	Maynooth Environs (Moygaddy lands) existing local road upgrades (L22143 & L2214)	Cycle track
56	Moyglare Hall link to Maynooth Environs (Moygaddy lands)	Cycle track
57	Connection between Lyreen Avenue and Moyglare Hall	Cycle track

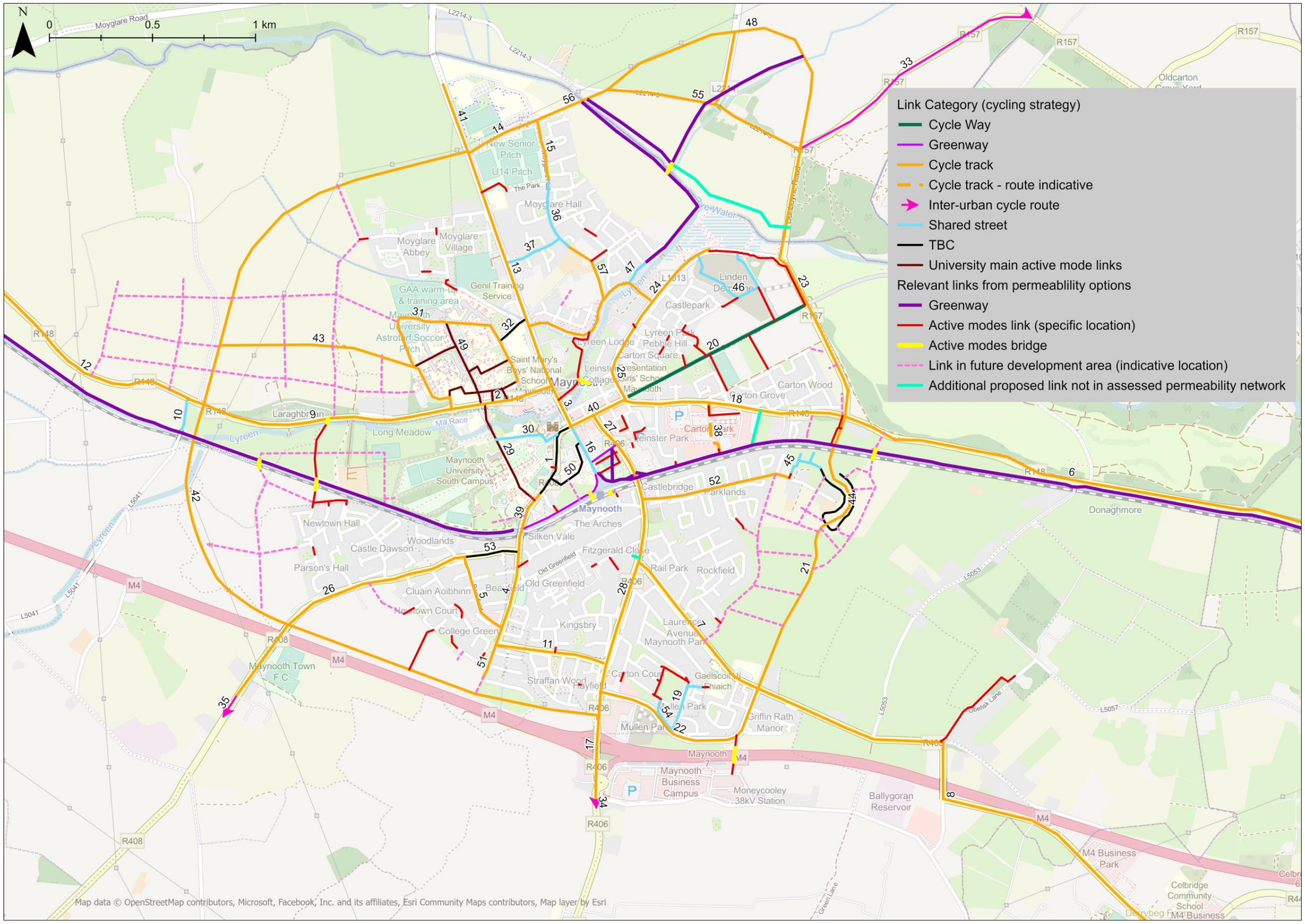

Figure 2-5 Cycling Strategy Measures

2.2.3.1.7 Complementary Active Mode Measures

As highlighted previously, new and improved crossing facilities for active modes will be required at many locations throughout Maynooth. However, this recommendation has been included only as a complementary measure at this stage as a more detailed study of the requirement for crossings throughout the MEABTA study area and optimal design solutions can best be undertaken as part of the design process for other cycling and walking measures already in the strategy (e.g., cycle track measures and 'path on new road' measures). One specific location requiring a crossing facility which was highlighted as part of the public consultation process was the junction of Carton Avenue and the R157. Another potential location which should be investigated is the junction of Newtown Road with Meadowbrook Road as there are no formal crossing facilities at this junction currently and it forms part of a desire line between the Royal Canal Greenway and estates off Newtown Road.

Other complementary active mode measures all relate to cycling and e-scooter use and were developed as part of the Decarbonisation Report. These are listed below but are not discussed in detail as further detail is provided in the Decarbonisation Report. In addition, many of the recommended measures are still high level or conceptual at this stage and require further investigation by KCC and other relevant stakeholders to design optimal solutions in more detail.

- Work with NTA to achieve a coordinated approach to the provision of shared bikes and/or e-scooters in Maynooth and the surrounding region to ensure effective regulation, avoid a proliferation of different unconnected schemes and ensure that potential negative safety and accessibility impacts are minimised.

- Consider the quality of cycling infrastructure in Maynooth and anticipated timelines for improvement on each corridor when planning the introduction and expansion of shared bike or e-scooter scheme(s) and identifying hubs/station locations.

- If supporting a one-way bike share / e-scooter share scheme to operate in the area, consider potential redistribution challenges associated with each station and how these will be addressed.

- If allowing an e-scooter share scheme to operate in the area, consider introduction of a fleet ratio target to incentivise the operator to offer bikes in addition to e-scooters.

- Work with NTA, operators and developers to seek introduction of an on-demand 'back to base' share scheme offering e-cargo-bikes.

- Seek to introduce or support small scale bike loan schemes for individuals/households and small businesses with a particular focus on e-bikes and e-cargo bikes to enable participants to 'trial' these options for an agreed period of time.

- Organise 'come and try it' opportunities and loan schemes for different types of micro mobility vehicles.

- Work with Irish Rail and NTA to significantly enhance cycle parking options at Maynooth Train Station and provide a higher security option, in addition to sheltered standard cycle parking.

- Upgrade Main Street cycle parking as part of future redesign of the street and consider potential to provide a small secure hub at a nearby off-street location to improve the cycle parking options available for people working in the Main Street area.

- Work with landowners to seek provision of a secure cycle parking option within Carton Retail Park lands which could be used by people accessing bus services on Dublin Road.

- Work with businesses, sports clubs, schools and other relevant destinations to secure delivery of high-quality cycle parking facilities and ensure cycle parking is prominent and visible. Consider part funding new infrastructure to incentivise private sector stakeholders to invest in upgrades in a timely manner.

- Assess interest in the Bike Bunker concept among residents of areas where there are clusters of dwellings without access to suitable cycle storage solutions and seek to provide the facility where interest exists.

- Support residents to install secure front garden cycle storage solutions in suitable areas.

- Following legalisation of e-scooters, seek to provide dedicated e-scooter parking solutions on Main Street and work with stakeholders to encourage provision of suitable facilities at other destinations, particularly the train station and Maynooth University.

- Work with Irish Rail and NTA, Maynooth University and businesses to secure delivery of bike repair and/or cleaning facilities in prominent locations throughout Maynooth.

2.2.3.2 Public Transport Options Description

This section outlines the development of the public transport measures and sets out all of the options that were considered in the creation of the final strategy outlined in Section 3.4.

2.2.3.2.1 Public Transport Principles

In respect to public transport, the guiding principles of the ABTA are:

- Improve access from residential, employment, education, healthcare and retail facilities to public transport stops, particularly those with higher frequency services

- Improve the coverage, frequency and capacity of bus and rail services

- Provide bus priority infrastructure where it is necessary to improve journey times and reliability

- Improve public transport stops/stations in respect to location, information, accessibility, infrastructure and visibility
- Improve interchange experience for passengers changing between different modes of public transport or routes
- Promote modal shift from the private car to bus or rail, particularly for medium/long distance trips

2.2.3.2.2 Public Transport Options

The central aim of the Public Transport Strategy is to make travel by public transport from, to and around Maynooth quicker and more convenient for all users. The strategy seeks to do this by placing an emphasis on improving bus movements on the approaches and through the centre of Maynooth and providing for more interchange opportunities across public transport modes. The strategy was developed to integrate with the walking and cycling strategies and making traveling by sustainable modes seamless. The roads strategy will help to relocate space in the centre of Maynooth away from private cars and prioritise its use for sustainable modes with public transport playing a central role.

The full list of public transport options is provided in Table 2.3, the options are grouped by theme. Further details on each option are provided in Part 3 as part of the option assessment.

Maps for each of the options listed below are shown in Section 3.4.

Table 2.3 Public Transport Options Description

Option No.	Description
Town Centre Proposals	
Option 1A	Remove westbound general traffic from Main Street
Option 1B	Accommodate westbound general traffic from Main Street on Doctors Lane
Option 2	Conversion of part of Court House Square to two way bus lane and interchange
Option 3A	Right turn ban on Straffan Road to Main Street - dependent on supporting orbital roads to provide alternative routing for general traffic
Option 3B	General traffic turn ban from Main Street to Mill Street with conversion of turning lane to bus only - dependent on supporting orbital roads to provide alternative routing for general traffic
Option 3C	General traffic turn ban from Mill Street to Main Street with conversion of turning lane to bus only - dependent on supporting orbital roads to provide alternative routing for general traffic
Option 4	Main Street, part of Straffan Road and Mill Street to bus, pedestrian and cycle only.
Northern Priority Route Options	
Option 5A	Installation of bus lanes on Moyglare Road and priority junction arrangement at pinch point to allow bus gain jump over general traffic
Option 5B	Bus only Junction arrangement (bus gate) at Moyglare Hall Estate at School Road, new bus, cycle and pedestrian link connecting Moyglare Hall Estate to Lyreen Avenue

Option 5C	Junction priority for busses at the junctions of Lyreen Avenue - Moyglare Road and Lyreen Avenue – Dunboyne Road and installation of one direction bus priority route along Lyreen Avenue
Option 5D	New bus priority route on Moyglare Road from junction of Lyreen Avenue to Mill Street with installation of priority junction arrangement at pinch point
Western Priority Route	
Option 6A	Installation of bus priority route on Kilcock Road to junction with Moyglare Road
Option 6B	Installation of bus lanes on a portion of the Western Orbital from Junction with Kilcock road to junction of new development lands continuing through the new residential development area and through Maynooth Campus to connect back onto Kilcock Road
Eastern Priority Route	
Option 7	Bus priority route on Leixlip Road
Southern Priority Route	
Option 8A	Straffan Road bus priority route
Option 8B	Bus priority measures on slips of M4 Junction with new bus only link on southern exit arm to allow buses skip Straffan Rd Roundabout
Option 8C	Celbridge Road bus priority route
Option 8D	Installation of bus priority route on Section 1B of outer orbital
General Public Transport Improvements	
Option 9A	KCC will work collaboratively with the NTA to agree the upgrade of key bus stops within Maynooth
Option 9B	KCC will work collaboratively with the NTA and Irish Rail Upgrade of Maynooth Train Station with a focus on making it more accessible for all (e.g. provision of lifts)
Option 9C	KCC will work collaboratively with the NTA to agree the installation of new bus stops for new and proposed bus services
Option 9D	New bus rail interchange at Maynooth Train Station – involves the removal of general car parking
Option 9E	Upgrade of Ballygoran to cater for bus services
Option 9F	New bus, cycle and pedestrian link on southside of Leixlip M4 Junction
Additional Bus Service and Improved Frequency Proposals	
Option 10A	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Edenderry
Option 10B	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Newbridge
Option 10C	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Dunboyne
Option 10D	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Adamstown - possibility to extend service south to Grange Castle Business Park
Option 10E	Work with the NTA to examine the possibility of providing a new Maynooth Town loop bus service
Option 10F	KCC will work collaboratively with the NTA to improve the frequency on key bus services serving Maynooth
Longer Term Priority Corridor Proposal Not required under lifetime of plan	
Longer Term 1	Facilitate the future use of buses via the north-eastern Maynooth University entrance when it is closed to general traffic. For future use by college services and TFI services if required by the NTA.

2.2.3.3 Road Options Description

This section describes the road options which are assessed in this report.

2.2.3.3.1 Road Transport Principles

In respect to road transport, the guiding principles of the ABTA which influenced option development are:

- Reduce car dependency by promoting mode transfer to walking, cycling and public transport
- Reduce unnecessary vehicular trips through Maynooth town centre
- Improve road safety and eliminate collision hot spots
- Identify the transport corridors required to support the movement of people and goods to enable the growth of Maynooth
- Work with Maynooth University to improve transport access to the Campus
- Provide efficient access to existing or proposed park and ride facilities

2.2.3.3.2 Overall Concept for Future Roads in Maynooth

Due to the decarbonisation objective and the NIFTI hierarchy, it will not be appropriate to make the case for significant road construction in isolation. Instead, future road construction will have to be linked to improvements for sustainable travel as part of a multi-modal solution. The road options described in the following section aim to deliver a package where road access to every major trip attractor is maintained, via orbital roads, but cross-town trips by private motor vehicles will be heavily discouraged. This will reduce town centre congestion, improve the efficiency of buses, allow for the reallocation of space to sustainable modes and improvements to the public realm. This concept is explained visually in Figure 2.6.

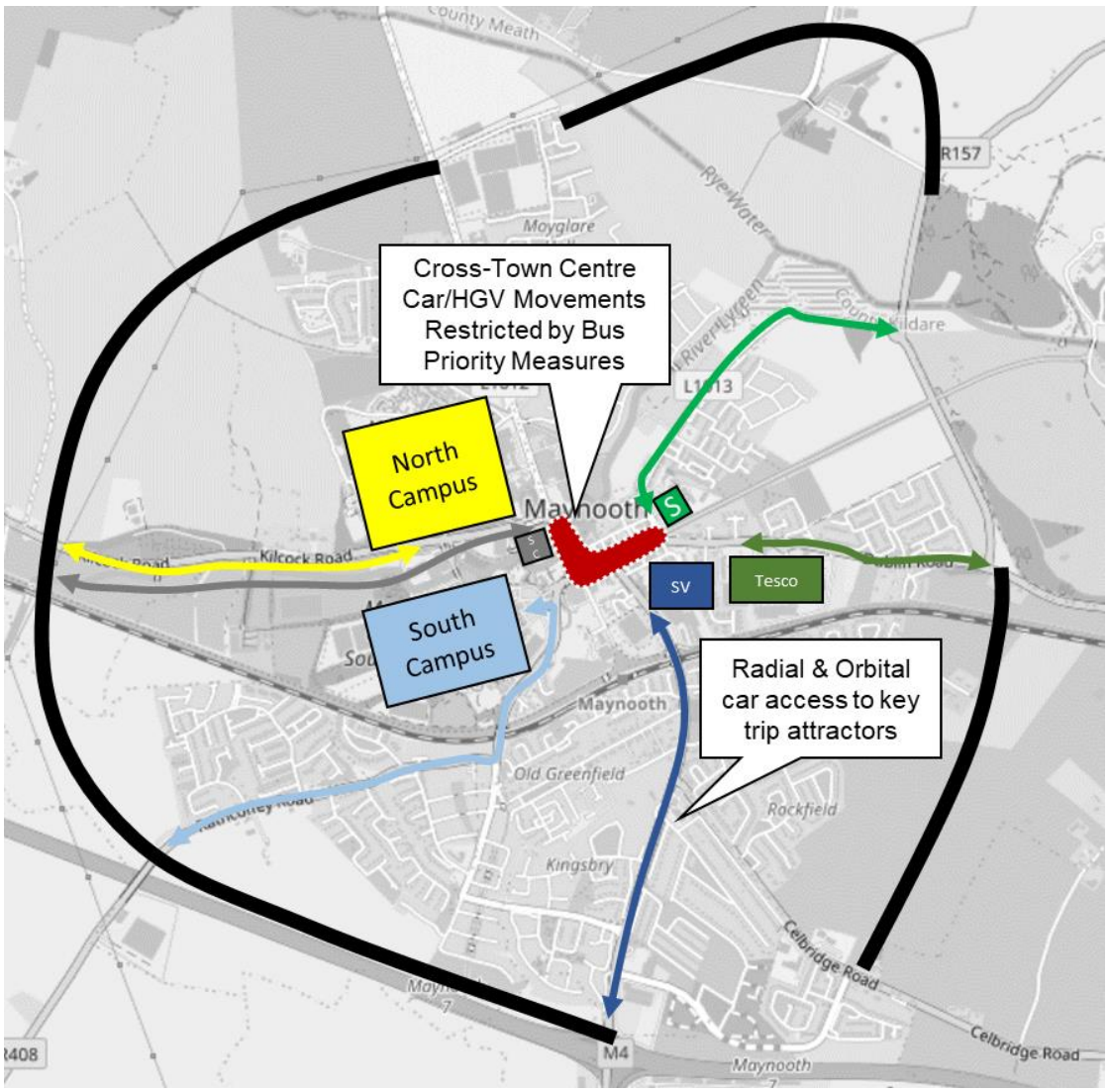

Figure 2.6 Overall Concept for Roads Options in Maynooth

2.2.3.3.3 Option 1A-1C: Maynooth Outer Orbital Road (MOOR)

In the MEABTA, the MOOR is divided into sub-sections to reflect the fact that it will probably be constructed over time as land is developed, rather than as a single road project. This will allow for the individual role of each MOOR sub-section to be assessed in transport modelling. Figure 2.7 shows the different segments of the MOOR: Option 1A connects Straffan Road to Rathcoffey Road, Option 1B connects Rathcoffey road to Kilcock Road and Option 1C connects Kilcock Road to Moyglare Road.

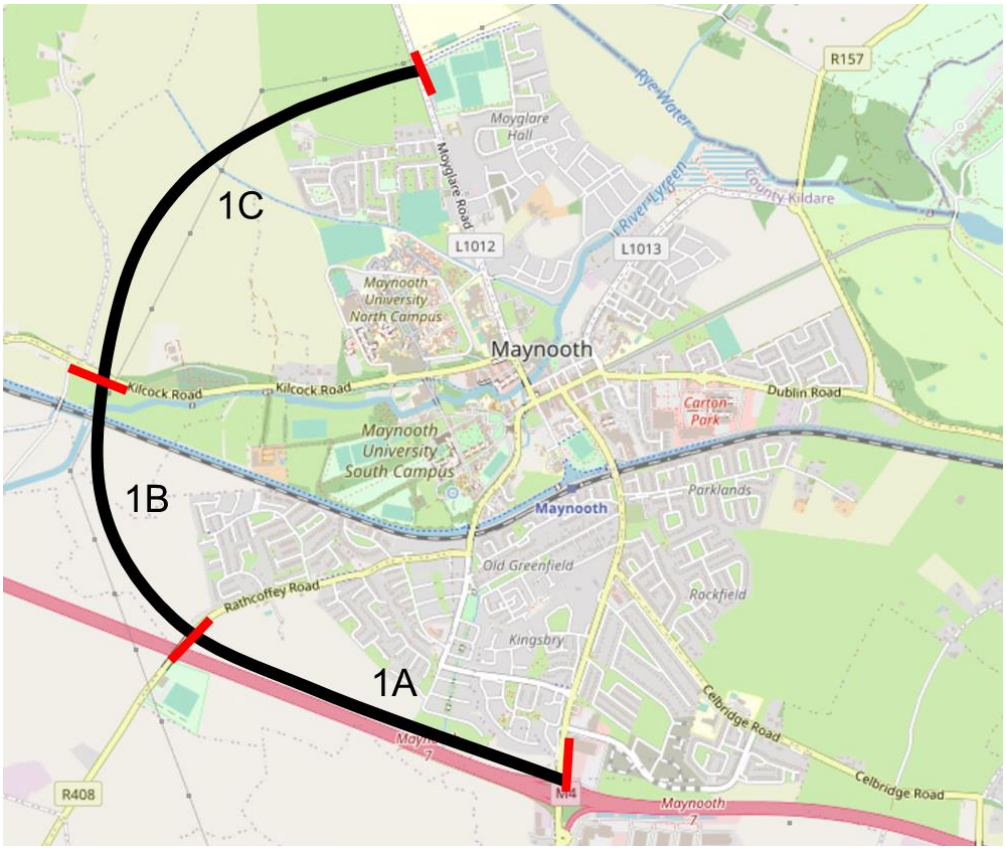

Figure 2.7 Option 1 Maynooth Outer Orbital Road Sections

When complete (Figure 2.8), it is envisioned that the complete MOOR will contain a bus priority route from the M4 junction to Maynooth University, via a bus only spur through a site which would be suitable for a low car development, to ensure that regional coaches to/from the university are efficient and reliable with a competitive advantage over the private car. While specific sites for low car development are not identified in the parking strategy, this site with close proximity to the Maynooth University campus, the proposed bus priority corridor and the new Maynooth West train station would be well suited to it.

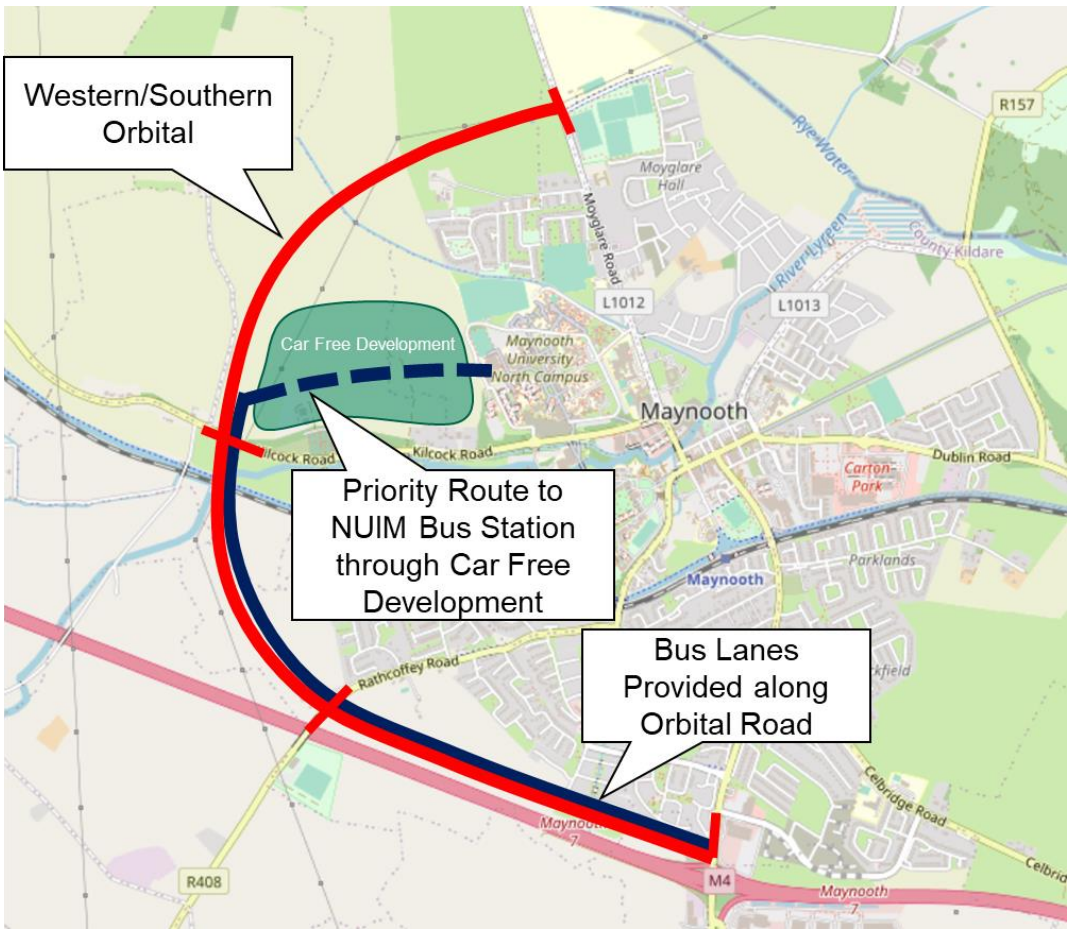

Figure 2.8 Future Priority Route on MOOR to University

2.2.3.3.4 Option 2A: Upgrade Existing M4 Junction as part of MOOR

Option 2A assumes that the MOOR is in place and upgrades the existing M4 junction to cater for the additional demand from future growth and the new orbital road. The junction upgrade would involve:

- Additional capacity to manager higher flows from the expansion of Maynooth and regional growth
- Addition of bus priority on the junction slips and overpass to support sustainable travel
- Improved facilities for active modes when crossing the junction

The location of the existing M4 junction in relation to the MOOR is shown in Figure 2.9. Two alternative versions of this option (Alt 1 and Alt 2), where the MOOR and/or the MERR is removed, are also modelled in 2038 for comparison with this option.

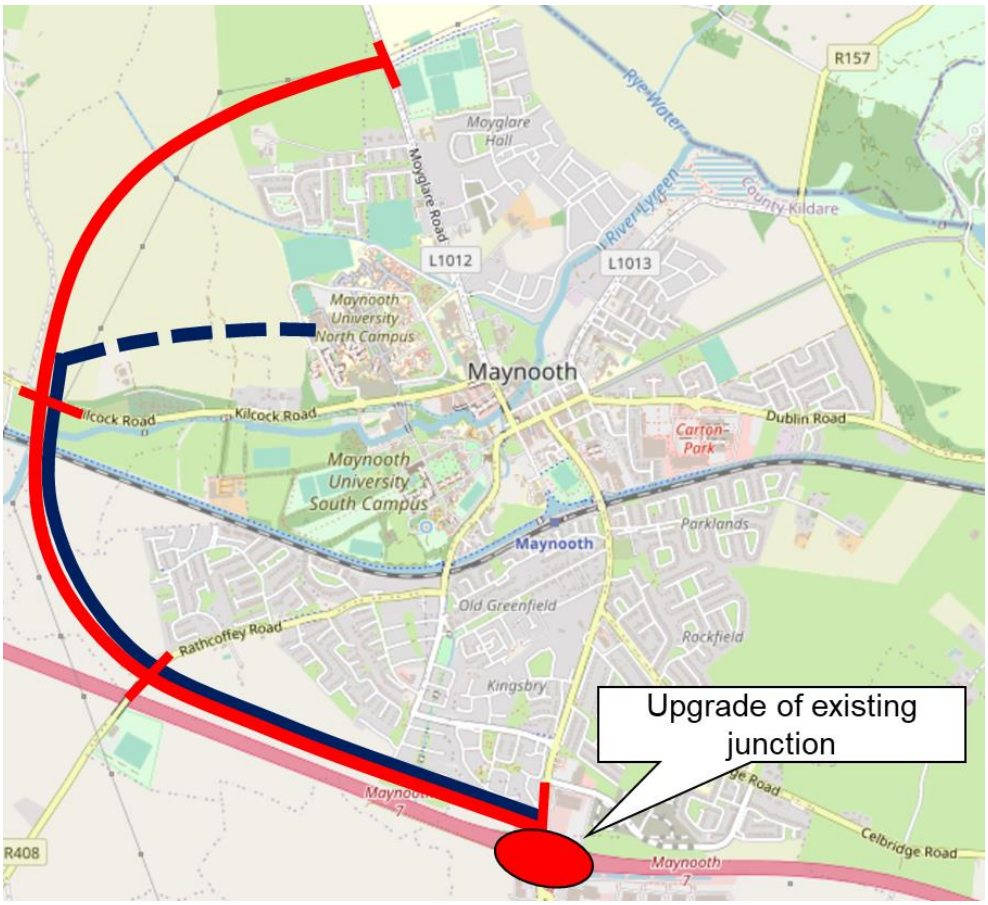

Figure 2.9 Upgrade Existing M4 Junction

2.2.3.3.5 Option 2B: New M4 Junction and Convert Existing M4 Junction to an Overbridge

Option 2B creates a new junction on the M4 to the south-west and converts the existing M4 junction to an overbridge. Access to the new junction would be provided via the MOOR as shown in Figure 2.10. There will be a priority route for coaches from the junction to the orbital bus lanes and the university. This junction location would be closer to the proposed Maynooth West train station and western development areas.

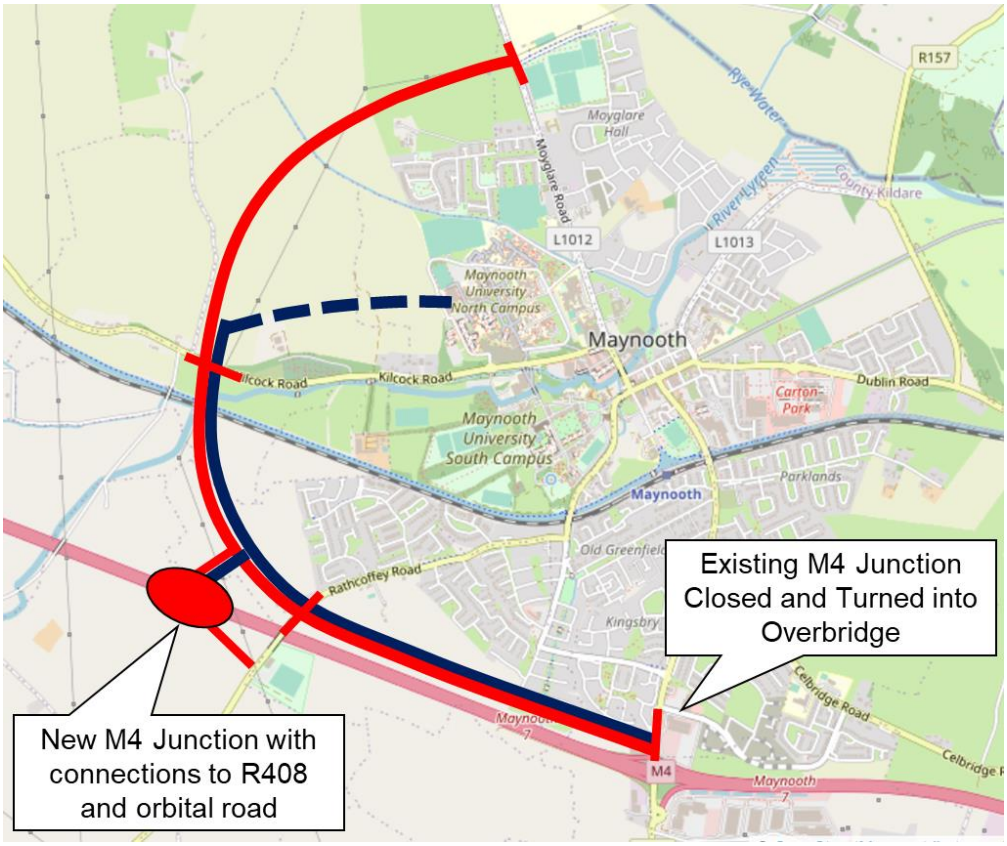

Figure 2.10 Option 2B: New M4 Junction with MOOR

2.2.3.3.6 Option 3: Maynooth Eastern Ring Road (MERR)

Option 3, the Maynooth Eastern Ring Road (MERR) option connects the Straffan Link Road with the Dublin Road to create an eastern bypass of the town centre, as shown in Figure 2.11.

Figure 2.11 Maynooth Eastern Ring Road (MERR)

2.2.3.3.7 Option 4: Reduce Speed Limits Across Maynooth

Option 4 proposes lowering speeds across Maynooth to make it safer for all road users and pedestrians/cyclists. Furthermore, slower speeds in central areas will encourage traffic to use the orbital roads as they will be faster. This can be done by introducing slower 30kph speed zones on town centre roads, lower capacity roads, residential areas, roads near schools or roads with a high volume of pedestrians. New enforcement measures and signage will be required to support this option. Slower speed limits can be implemented in stages as the bypass roads like MOOR and MERR are introduced to provide an alternative, but there may be a case for immediate implementation in some locations for safety reasons.

2.2.3.3.8 Option 5: North-Eastern Orbital Road to Moygaddy

The North-Eastern Orbital Road to Moygaddy is shown in Figure 2.12, using the alignment from the Local Area Plan, it provides access to the new development area. In order to avoid a safety and congestion issue in the Moyglare Hall estate, filtered permeability will be required at the north of the housing estate to stop it becoming a rat-run. Filtered permeability is the use of bollards, or other similar barriers, to block motor vehicle through-traffic while facilitating access by pedestrians and cyclists to travel through it. In the future design of this route, significant time will have to be devoted to resolving the safety issues presented by this route connecting to the road in front of the MEC school campus, it may be the case that the actual alignment will change during the design process to resolve this issue.

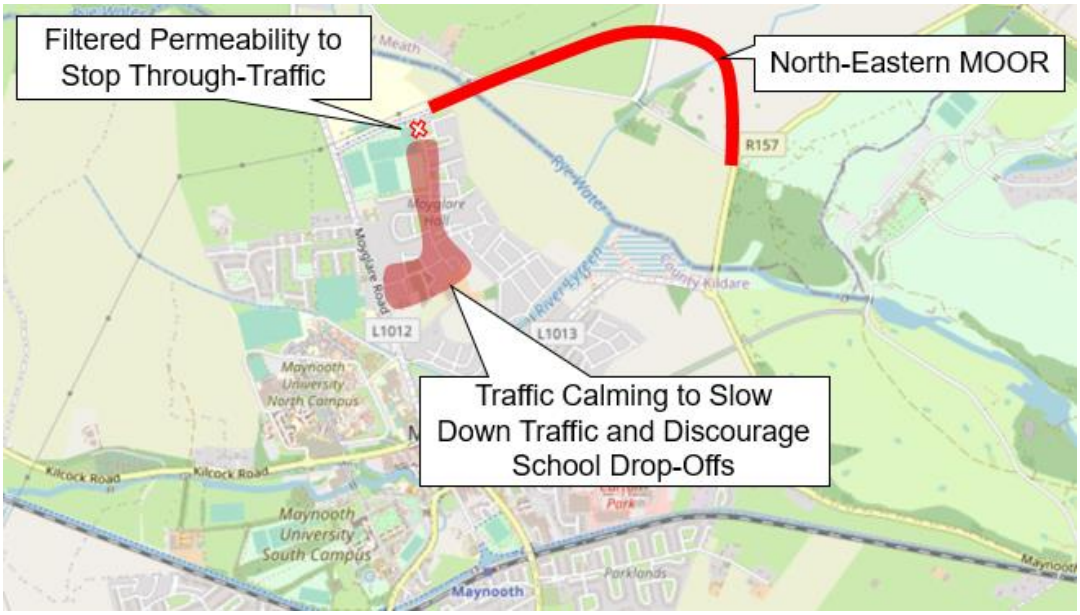

Figure 2.12 North-Eastern MOOR to Moygaddy

2.2.3.3.9 Option 6: Moygaddy Radial Link and Local Road Upgrades

Option 6 proposes a radial link and local road upgrades to access Moygaddy instead of an orbital road. Radial routes are preferrable for sustainable travel modes because they involve shorter distances as they are more direct, as shown in Figure 2.13. Existing orbital lanes could be upgraded to accommodate the additional traffic from the site. This option would also avoid the need to increase the volume of traffic outside the MEC School Campus as is a concern in Option 5.

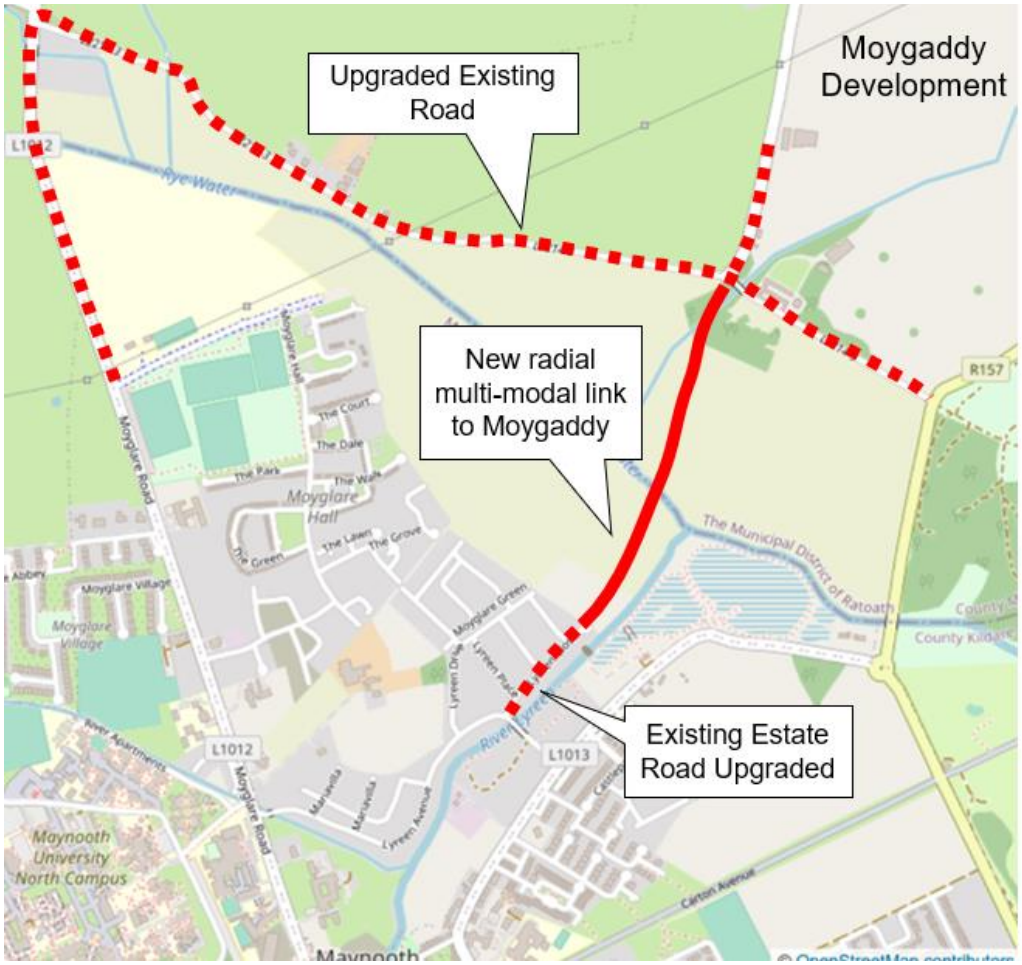

Figure 2.13 Moygaddy Radial Link and Local Road Upgrades

2.2.3.3.10 Option 7: Provide Additional Green Time at Traffic Signals for Pedestrians, Cyclists and Buses

Option 7 provides additional green time at traffic signals throughout Maynooth for pedestrians, cyclists and buses. Providing additional green time at traffic signals for pedestrians, cyclists, and buses offers numerous benefits. It promotes safety by reducing the risk of accidents and improving road safety for vulnerable road users. It enhances accessibility by ensuring that pedestrians, cyclists, and bus users have sufficient time to cross or move through intersections, making transportation more inclusive. Additionally, it promotes sustainable transportation options by encouraging active transportation and transit usage, reducing traffic congestion, air pollution, and greenhouse gas emissions. Overall, extending green time at traffic signals for pedestrians, cyclists, and buses contributes to safer, more accessible, and environmentally friendly transportation systems in communities.

2.2.3.3.11 Option 8: New Southern Access to Leinster Street from Parson Street

This option aligns with a parking option and aims to create a mostly pedestrianised route on Leinster Street from the train station to the town centre while reducing traffic on Main Street through a southern access from Parson Street. The capacity of the R408/R148 junction in the town centre will be increased by turning it into a T-junction. A new access road will connect to the planned development road from Parsons Street to Leinster Street. The main challenge is the access for emergency vehicles to the Garda/fire station, but retractable bollards can be used at the north end of Leinster Street to ensure continued emergency access. The new Parson Street exit, which will have less congestion compared to Main Street, should improve access for emergency vehicles compared to the current situation where they have to travel via the congested Main Street. Additionally, a dedicated bay for Garda vehicles will be provided. The different elements of this option are shown in Figure 2.14.

Figure 2.14 New Southern Access to Leinster Street from Parsons Street

2.2.3.3.12 Option 9: HGV Ban in Maynooth (excluding delivery times) within Orbital Roads

Option 9 proposes the implementation of a HGV ban within Maynooth urban areas, inside the boundary of the orbital roads. It is envisioned that the HGV ban could be implemented in sections as the orbital roads are gradually delivered. This is a safety-led policy measure which aims to remove HGVs from areas where conflicts with pedestrians, children and cyclists are likely. At the same time, from a freight perspective, HGVs would be directed via the higher capacity and more efficient routes, which would allow them to bypass the town where required. It is expected that the HGV ban would be enacted outside delivery times to ensure that retail and businesses within the town are not disadvantaged.

2.2.3.3.13 Option 10: Close Eastern Maynooth University Entrance to Motor Vehicle Traffic

Option 10 proposes to direct traffic for Maynooth University via the MOOR to the west and the Kilcock Road, while the eastern university road entrance to Moyglare Road would be closed. As shown in Figure 2.15, this is an option which is linked to the development of the full MOOR and it is not intended prior to that. This option would help to reduce the volume of queuing on Moyglare Road and make use of the MOOR orbital road infrastructure to access the University via the most efficient route. The eastern entrance would be converted into a walk/cycle entrance, and it could be used as a bus gate with retractable bollards, if it is required by future bus routes.

Figure 2.15 Close Eastern Maynooth University Entrance to Motor Vehicle Traffic

2.2.3.3.14 Option 11: Introduce New Signalised Junctions

In Option 11, three roundabouts will be replaced with signalized junctions to prioritise buses, manage traffic flow, and enhance cycle safety. This is shown in Figure 2.16. Additionally, signals will be added to two junctions at either end of the MERR (Maynooth Eastern Relief Road) to improve safety and traffic flow. It is assumed that the MOOR (Maynooth Orbital Ring) will also have signalized junctions instead of roundabouts but the location of these will be identified during detailed design. Furthermore, signals will be added to other junctions to enhance safety for cyclists and pedestrians. These measures aim to optimize traffic flow, prioritize public transport, and improve safety for vulnerable road users in the area.

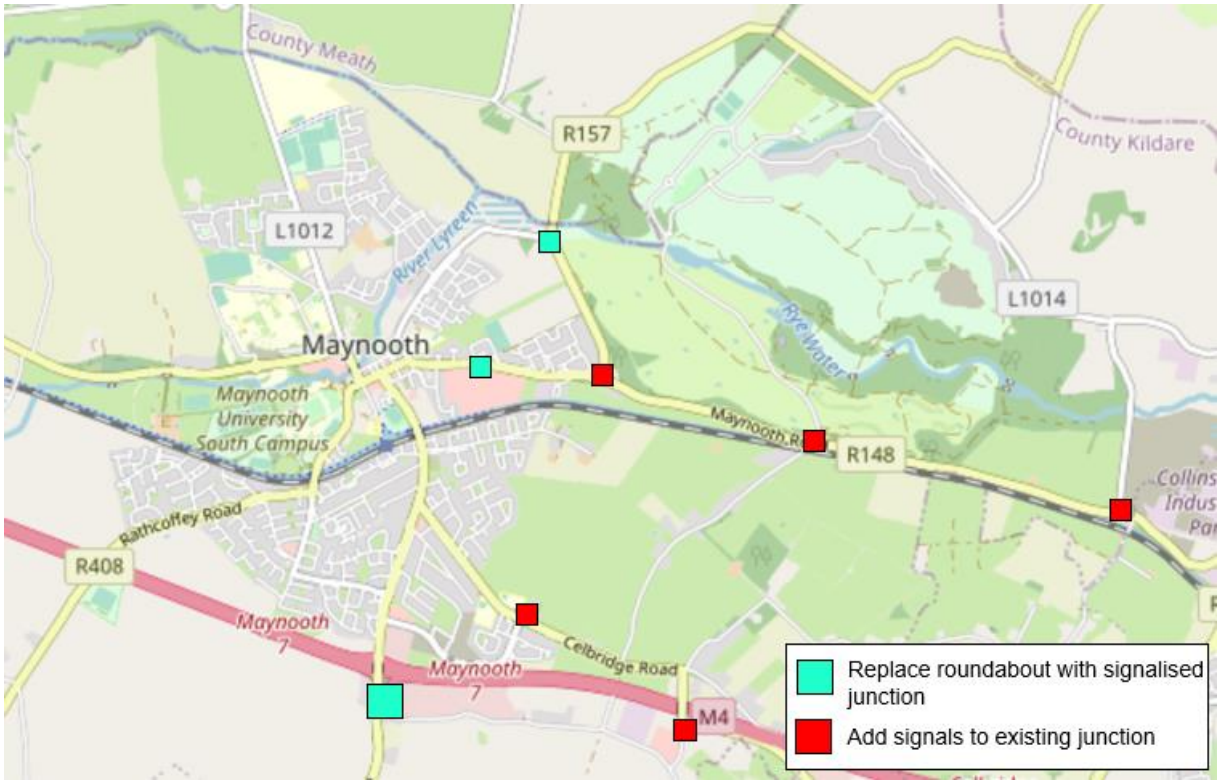

Figure 2.16 Introduce New Signalised Junctions

2.2.3.4 Parking Options Description

The following section describes the parking options in the MEABTA.

2.2.3.4.1 Parking Principles/Objectives

In respect to parking, the guiding principles in the MEABTA which informed parking option development are:

- Manage the provision of car parking to support and improve the economic vitality of the town centre
- To ensure car parking provision encourages sustainable commuter travel, especially for journeys into Dublin City Centre and supports access by public transport, cycling and walking
- To reduce on-street parking, where appropriate, in the town centre to facilitate public realm and walking/cycling/public transport infrastructure improvements
- Improve the quality of parking information with new parking signage and technology
- Introduce parking demand management measures to reduce car dependency and enhance the attractiveness of sustainable travel
- Make high-level recommendations regarding suitable locations for electric vehicle charging hubs

2.2.3.4.2 Option 1: Relocation of Main Street Parking

Option 1 involves the relocation of on-street parking from the Main Street and utilisation of the free space to enhance the public realm as well as facilitate improved walking and cycling facilities. For example in addition to transport uses, the new space on Main Street can be used for outdoor dining, seating, bike parking, and small gardens or parklets. Comments from the Phase 1 consultation highlighted the issue of restaurants using too much path space and thereby causing problems for pedestrians and cyclists. This option would resolve this issue. It should be noted that disabled parking will be retained but may be relocated to suit the new design.

This is an option which will require its own engineering and design process in the future to identify the precise number of parking spaces to reallocate and the new design of the street.

2.2.3.4.3 Option 2: Enforcement of Kildare County Development Plan (KCDP) Parking Provisions at New Development Sites and Aim for Lower Parking Provision Where Appropriate

The second option is to enforce Kildare County Development Plan (KCDP) parking provision levels at new developments to ensure that the ratio of parking spaces per unit is lower. Reducing parking provision is a key part of demand management to reduce car trips and encourage the use of sustainable travel. The number of parking spaces provided at new developments is controlled by planning conditions during the

planning permission stage. The parking limits for new residential developments near public transport in the Kildare County Development Plan are shown in Figure 2.17 but these levels are not always enforced, with more generous parking space allowed in the past. This option proposes that the CDP levels are the maximum parking levels allowed in Maynooth going forward.

Residential	
House	1 space each for units up to and including 3 bed units and 1 space + 0.5 visitor spaces for units of 4 units or greater
Apartment	1.5 spaces per unit + 1 visitor space per 4 apartments

Figure 2.17 Maximum Parking Spaces on a Public Transport Corridor for Residential Developments in Kildare CDP

It will be important to avoid treating the CDP parking levels as targets, instead development sites with good access to public transport, such as near a train station, will be suitable for a lower ratio of parking spaces to residential units to encourage modal shift and reduce car dependency. This lower parking approach should be complimented by other options which aim to introduce greater opportunities for shared and e-mobility.

2.2.3.4.4 Option 3: Car-Free Developments at Public Transport Accessible Sites

Option 3 aims to create car-free developments at public transport accessible sites, such as near the existing or proposed train stations which will have access to DART+ West, or in-fill sites in the town centre. Developments at these sites will be good candidates for higher residential densities as this will support higher frequency public transport services, and most local destinations (e.g. university, town centre, schools) will be within walking distance. To strengthen the opportunities for non-car ownership, developers should be required to provide dedicated spaces for car sharing schemes as well as generous amounts of bicycle and scooter parking. The provision of car sharing schemes will allow residents to still use cars for one-off trips such as trips to the hospital which are easier in a private vehicle, while allowing most other trips to take place via public transport or walking/cycling.

The MEABTA does not specify specific locations for car-free or low car developments as it is the role of the Local Area Plan to specify zoning for particular types of development. The most suitable sites for this type of development will be those close to a train station, high frequency bus stop, central areas or the university. The scoring of Maynooth zones on the basis of their potential to promote sustainable travel, contained in the land-use assessment report in Volume 2, provides a strong indication of the best areas for car-free development.

2.2.3.4.5 Option 4: Expansion of Pay and Display Parking at Maynooth University

Currently Maynooth University parking is largely permit based where students and staff pay for a yearly permit for designated lots. Permits can encourage regular parking

habits as permit owners wish to maximise the value of their permit by using it as much as possible. Option 4 proposes that number of parking permits available to staff and students is reduced by expanding the proportion of Pay and Display parking at Maynooth University. Exemptions can be made for low income, disabled staff/students, or for those without public transport alternatives to ensure this is an equitable measure. If parking is charged on the basis of usage, it will encourage people to consider public transport alternatives to avoid parking charges and save money. Maynooth University is a major trip attractor, demand management measures such as this will be important to continue the progress of the university in promoting sustainable travel among staff and students.

2.2.3.4.6 Option 5: Constrain Parking Supply at Maynooth University to Manage Demand

Maynooth University projects that the student population will have increased from 15,000 students (2021 figure) to approximately 20,000 students by 2030. Maynooth University plans to provide additional parking for staff and students to the existing parking spaces currently available. Option 5 advises that the parking capacity should be capped at existing levels, then as the university grows the ratio of parking spaces per staff/student will fall over time to manage car demand. This measure will gently reduce the convenience of parking, thereby encouraging a modal shift to alternative modes such as bus, rail, walking and cycling. This approach will be complimented by the wide range of measures in the MEABTA to enhance walking, cycling and public transport access to the university.

The Baseline Review (Appendix A, Volume 2) noted the progress by Maynooth University in recent years to improve car-alternatives and promote modal shift among the students and staff. It will be important to sustain this momentum as the university expands, which will require continued work with KCC and transport agencies to improve public transport and active travel infrastructure for trips to/from the campus. Reducing the number of parking spaces per staff or students, will encourage people to reconsider their modal choices in favour of more convenient and cheaper modes.

2.2.3.4.7 Option 6: Upgrade Leinster Street Car Park with New Southern Access Route and Pedestrian/Cyclist Enhancements

One of the town centre off-street car parks is located on Leinster Street (Figure 2.18), this option proposes a range of changes to this car park, the vehicle access (in alignment with the roads strategy) and improvements for pedestrians and cyclists in the surrounding area.

Figure 2.18 Leinster Street Car Park, Parsons Street and Train Station (Source: OSM)

There are a number of issues in this area for cyclists, one clear problem is the lack of cyclist accessible bridge over the canal between Leinster Street and the train station (Figure 2.19). As part of this option, the current temporary pedestrian bridge would be replaced with a cyclist friendly permanent bridge to enhance accessibility by active modes.

Figure 2.19 Photograph of Existing Canal Bridge

Furthermore, Leinster Street is a major pedestrian and cyclist desire line from the train station to Maynooth University and the town centre (see Figure 2.20) but at present the route is shared with private motor vehicles on a very constrained lane. This option proposes pedestrianizing the majority of Leinster Street so that it can become a segregated, safe route to the town centre from the train station.

Figure 2.20 Photograph of Leinster Street as a Pedestrian Desire Line

The plan for traffic arrangements and sustainable upgrades in Option 6 are explained in Figure 2.21. At the Main Street crossroads, the R408/R148 junction will be reduced to a T-junction with the pedestrianisation of Leinster Street. Access for emergency vehicles (e.g. to the fire station) will be maintained with the use of retractable bollards. In the medium term, it is proposed that the fire station will move out of the town centre to the south of Maynooth as part of a separate KCC project.

In order to maintain vehicular access to Leinster Street car park and 'the L-shaped' car park behind The Roost pub, a new south-western road access will be created from Parson Street via the new development site. The provision of expanded parking at Leinster Street with access from Parsons Street will reduce the need for traffic to travel via the Main Street to park. It will also provide alternative parking near the train station, allowing for some existing train station parking to be converted into disabled parking, sheltered cycle parking and sustainable mobility proposals contained elsewhere in the MEABTA.

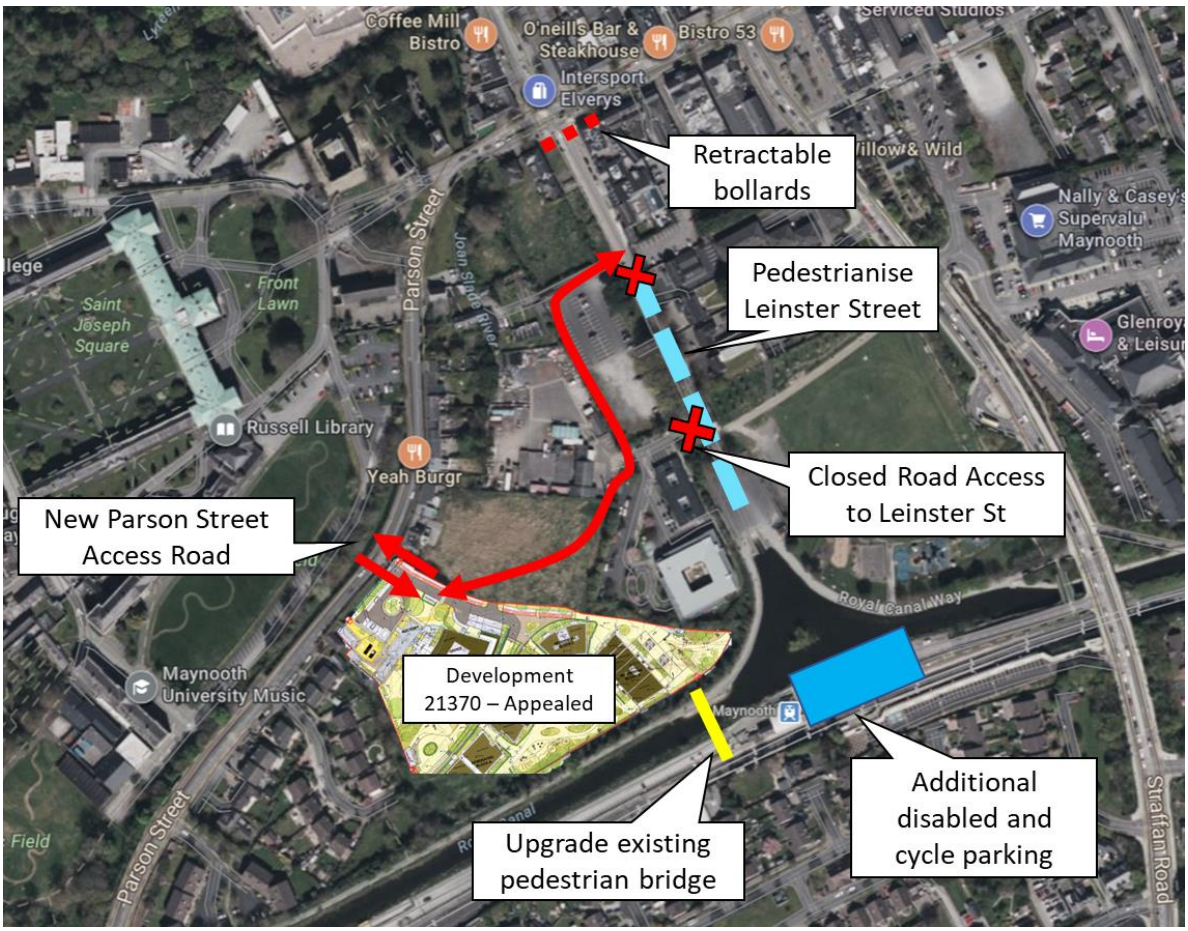

Figure 2.21 Parking Option 8 – Map 1 of Upgrade of Leinster St Car Park Access (Source: Bing Maps)

Figure 2.22 displays additional plans to expand the Leinster St large car park and to upgrade the surfacing, signage, and lighting within the car park. The figure also points to the potential Parson Street access option which would provide the opportunity to develop a residential area on the greenfield site opposite the train station thereby encouraging densification within this area. The 'L' shaped Leinster St car park behind The Roost pub will be accessed from Parsons St route.

The exact location of the expanded Leinster Street car park will be determined through a detailed design process at a later date during strategy implementation.

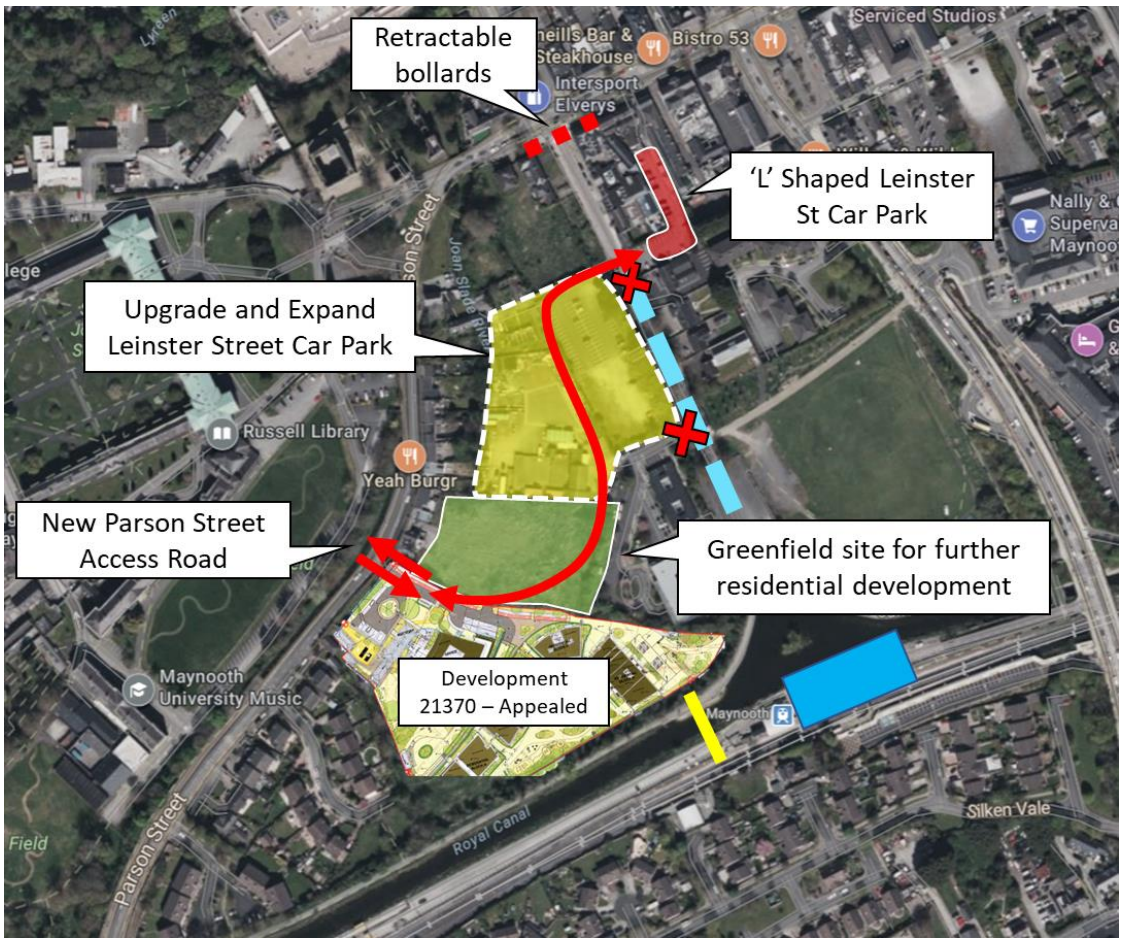

Figure 2.22 Parking Option 8 – Map 2 of Upgrade of Leinster St Car Park to Facilitate Train Station and Town Parking (Source: Bing)

2.2.3.4.8 Option 7: Increase Parking Charges at Existing Maynooth Train Station to Encourage Park and Ride at New Maynooth West Train Station

This option involves increasing the cost of Pay and Display parking at the Maynooth train station to promote parking at the new Maynooth West and Collinstown train stations once they are in operation. Implementing this option aims to deter vehicle park and ride traffic away from the town centre train station. The cost of parking at the existing Maynooth train station will increase overtime whereas the cost of parking at the new stations will be cheaper, making this the more attractive option for park and ride drivers.

2.2.3.4.9 Option 8: Improve and Reorganise Drop-Off Facilities at MEC School Campus

At present, there are significant issues associated with the drop-off facilities at the MEC school campus. As shown in Figure 2.23, the GAA pitch car park is being used as an informal drop-off location for the MEC school campus, which creates a dangerous conflict between the GAA car park entrance and the shared walking/cycling facility to the school, which in addition to being inefficient is unsafe and requires intervention.

Figure 2.23 Drone Footage Indicating Dangerous Use of GAA Pitch Car Park as a Drop-Off Location for the MEC School Campus

Further drone footage, shown in Figure 2.24 and Figure 2.25, exhibits buses delayed by long queues at peak school times due to insufficient priority and excessive car trips to school. In addition to this, there is evidence of illegal parking, and dangerous drop-off behaviour at the MEC school campus. Due to these issues, it is evident that there is need to reorganise drop-off facilities, improve bus priority and eliminate conflict points between pupils and cars to resolve safety issues.

Figure 2.24 Drone Footage Showing School Buses Delayed by Long Queues

Figure 2.25 Drone Footage Showing Parents Parking on Roundabout

The MEC school campus is a major education destination with over 1,000 pupils and there are significant transport and access issues to be resolved. This option proposes that a detailed design and engineering assessment will be completed to identify the best approach to resolving these issues in collaboration with the schools. At a high level, it is proposed the option to improve conditions at the MEC school campus will do the following:

- Resolve safety issues;
- Reduce conflicts between vehicles and students;
- Provide better bus priority;
- Eliminate illegal parking;
- Manage queuing through demand management measures;
- Provide an organised and planned drop-off facility;
- Encourage modal shift; and
- Integrate drop-off plans into the wider Maynooth transport strategy (e.g., MOOR).

2.2.3.4.10 Option 9: Presentation Girls School Park and Stride Facility

Comments received from the Phase 1 consultation survey highlighted that drop-off and pick-up times at the Presentation Girls School are unsafe for the students, which was exacerbated by the removal of parking spaces on Dublin Street which were previously used for this purpose. As shown in Figure 2.26, this option proposes to create a ‘park and stride’ facility in the Carton Retail Park car park, approximately 7 minutes’ walk from the school. This will allow parents to park and escort their children to the school and avoid queuing on the Main Street or outside the school.

Figure 2.26 'Park and Stride' in Carton Retail Park for Presentation Girls School

2.2.3.4.11 Option 10: Provision of Public Parking at Carton Retail Park

Parking at the Carton Retail Park is currently for customers only and with a maximum stay of 3 hours. As shown in Figure 2.27, the car park is significant in size and there is currently an oversupply of parking at this location during most times during the week. With plans to relocate Main Street parking spaces, Option 10 plans to open this car park to non-customers and town centre parking. This will support the town centre and lead to more efficient use of this large car park.

Figure 2.27 Carton Retail Park Car Park

2.2.3.4.12 Option 11: Introduction of Mobility Management Plans for Major Employers

Option 11 introduces mobility management plans for workplaces with more than 100 employees, major trip attractors and schools. Some examples include companies within the Maynooth Business Campus and the Carton Retail Park, Maynooth Education Campus, Carton House, Maynooth University, and certain schools. Furthermore, the implementation and monitoring of mobility management plans at new large developments will be required. KCC should lead by example by incentivising and monitoring the use of sustainable travel modes among KCC staff for commuting and business purposes as part of their own MMP.

2.2.3.4.13 Option 12: Installation of Variable Message (VMS) Parking Signs on Key Roads

To increase drivers' knowledge of their parking options before they reach the town centre, Option 12 proposes to install VMS parking signs on regional roads and higher capacity routes approaching the town and on an 'inner' ring within the town. Figure 2.28 shows the suggested 10 locations for VMS parking signs in Maynooth, including 6 outer and 4 inner locations. These VMS signs can be used to display parking information in the short term but they will have a wider multi-modal role to support the MEABTA measures as they are implemented. The VMS signs will allow for the following:

- Enforcing a 30kph zone or HGV ban within the orbital roads in the town centre
- Reducing unnecessary trips via the town centre and encourage orbital trips
- Informing drivers about town centre diversions due to bus priority measures
- Displaying safety messages or warning about road works

The VMS signs are intended as a multi-modal traffic management measure for the town rather than solely as a parking measure.

Figure 2.28 Suggested VMS Parking Sign Locations as part of Option 12

2.2.3.4.14 Option 13: Increase Parking Enforcement to Eliminate Illegal Parking in Road Space Designated for Sustainable Travel Modes

Option 13 proposes stricter parking enforcement to ensure that road space designated for sustainable modes will be clear of private vehicles, an issue that will become increasingly important as the cycling and public transport strategy is implemented. Analysis of the parking offences in Maynooth highlighted issues with illegal parking in bus stops, bus bays and cycle lanes. By increasing parking enforcement, efficient, consistent and safe access throughout the town for pedestrians, cyclists and public transport users can be achieved.

2.2.3.4.15 Option 14: Park and Ride Facility and Mobility Hub at Maynooth West Train Station

Option 14 provides a new rail station car park near Maynooth West train station with a substantial number of spaces provided for park and ride trips. The new train station will be more suitable for park and ride behaviour because it is out of the town centre and will be more accessible from the M4 when new orbital road infrastructure is in place. Increased parking costs at the existing Maynooth train station, as per Option 7, will encourage drivers to shift to Maynooth West station. Land to the south-west of the proposed Maynooth West station is a flood plain and unsuitable for future residential or commercial development, but it would be possible to provide a large car park here if sustainable urban drainage systems (SUDS) are in place. Once the planned residential and commercial developments near Maynooth West are developed, the

provision of a local mobility hub (see Option 15) would enhance conditions for sustainable travel users further and the services available at the station.

2.2.3.4.16 Option 15: Create Local Mobility Hub at Existing Maynooth Train Station and Reduce Car Park Capacity

Option 15 creates a local mobility hub at the existing train station in Maynooth town centre once the Maynooth West station is in operation and alternative parking facilities there become available. All existing parking at the town centre train station will be removed in the long term, except for disabled parking, to provide space for the mobility hub. As shown in Figure 2.29, the local mobility hub provides car sharing cars and vans, different types of bikes to rent such as electric bikes, cargo bikes, or 2-wheel pedal bikes and e-scooters. The hub can also provide repair facilities, bike parking and limited car parking for vulnerable users.

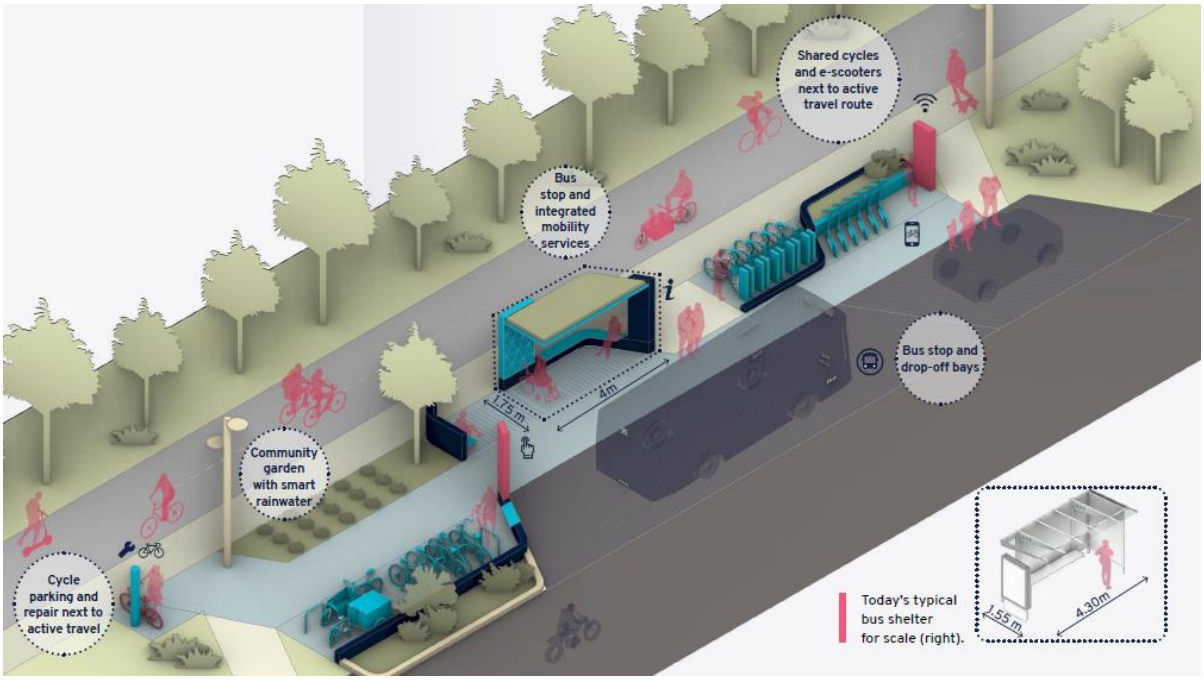

Figure 2.29 Future Mobility Hubs[8]

In addition, local mobility hubs can be developed to include community elements such as pocket playgrounds, public toilets, space for community events, community gardens or art spaces. In future large developments, the provision of mobility hubs should also be considered throughout Maynooth, as well as at the train station.

2.2.3.4.17 Option 16: Implementation of Smart Parking Measures and Provision of a Town Parking App

Option 16 proposes to implement smart parking measures in main carparks and provides a parking app for the town. Smart parking measures, such as Automated Number Plate Recognition (ANPR) technology or a bay monitoring system, reduce time spent by motorists looking for a parking space and provides useful data on car park usage. This data helps determine parking trends and the analysis of capacity requirements in the future.

[8] Source: ARUP, Future Mobility Hubs - Supporting the transition towards sustainable journeys

ANPR technology works by recognising number plates of entering, exiting or parked vehicles and then provides real time occupancy data and a record of where cars are parked. It can also be used to enforce parking laws. A bay monitoring system installs sensors on each parking bay and can provide real time information and long-term data on occupancy rates and length of stay.

The data from the smart parking measures can subsequently be used to create an app (see Figure 2.30). Benefits of a town parking app can be realised by both customers and the transport system. These include a reduction in unnecessary trips into the town centre with communication via the app when Leinster Street car park, or other town centre parking, is full.

Figure 2.30 Example of Town Parking App Interface

2.2.3.4.18 Option 17: Provision of Hidden Disability and Age Friendly Designated Parking Spaces

Option 17 will provide hidden/invisible disability designated parking (in addition to existing disabled parking) and age friendly designated parking throughout the town at key locations. Hidden disability spaces, also known as sunflower spaces, are used by people who have a disability but do not necessarily qualify for a blue badge. For example, parents of autistic children, those with chronic pain or a person who has mobility issues or some sensory loss. People who qualify for a blue badge may also use the spaces if the disabled parking is full. Age friendly spaces are for older people who do not qualify for a blue badge. These spaces are located away from the road, near to the pay machine (if relevant) and near to the destination of the parking. Such spaces have already been introduced in Waterford and Blessington by local authorities and would be beneficial to Maynooth.

2.2.3.4.19 Option 18: Free Parking in KCC Owned Car Parking Spaces for Branded Car Sharing Vehicles

Option 18 will offer free parking in KCC owned car parking spaces for branded car sharing vehicles, for example GoCar cars, with a capped time duration. The aim of free car parking spaces for car sharing vehicles will make the car sharing more

appealing to users as they will have designated parking at destinations, giving a slight competitive advantage over normal private cars. In the medium term, the aim is to reduce household car ownership as car sharing schemes can be a significant part of enabling households to live without private vehicles by allowing them to do one-off leisure, health, retail or service trips with a car and using public transport or active modes otherwise.

Part 3
Option Assessment

3. Part 3 - Options Assessment

3.1 Options Assessment Methodology

This section summarises the Multi-Criteria Analysis (MCA) approach used in the MEABTA to assess the options.

3.1.1 MCA Use in Option Assessment

As mentioned earlier in the report, MCA assessment is used for roads, parking and public transport options. The standard MCA approach in other projects is to compare similar options in the same table to identify the preferred option. In the MEABTA, the options are often significantly different and not directly comparable in this way. Therefore, the MCAs will group options into a combined table only when they are comparable options (e.g. 2 different options for a bus priority route), but otherwise individual MCAs will be used to assess each option on its individual merit.

3.1.2 MCA Assessment Criteria

A multi-criteria analysis is carried out to assess options for the road, parking and public transport interventions. Given the focus on sustainable transport and decarbonisation, bespoke MCA criteria were developed for the MEABTA which are different than the Common Appraisal Framework (CAF) criteria. The new criteria, shown in Table 3.1, are a departure from the old CAF themes, with a greater focus on wider societal and the environmental impacts. Another consideration for the MCA is the unique decarbonising town objective for Maynooth, which requires a bespoke approach to ensure decarbonisation is given sufficient focus in the option assessment. Under each criteria, a number of elements will be considered as outlined in the table, based on evidence collected during the study, project analysis, consultation feedback and KCC direction.

Table 3.1 MEABTA MCA Criteria

MEABTA Criteria Used for MCAs	Each MCA Criteria Assessment Considers
Decarbonisation Impact	Climate Change Impact
	Local Environmental Impacts
	Contribution to decarbonisation
Sustainable Land-Use and Transport Impact	Land-Use Integration
	Accessibility
	Modal Shift
	Strategy Integration
Community Impact	Social impacts
	Safety
	Severance
Feasibility	Cost
	Constraints
	Realism of delivery

3.1.3 MCA Assessment Scale

In the option assessment MCAs, a seven-point scale is used been applied as shown in Table 3.2. Given that most impacts are qualitative at this strategic stage, each criterion is scored on the extent to which it offers a positive or negative impact. For illustrative purposes, this seven-point scale is colour coded as presented in with advantageous options graded to 'dark green' and disadvantageous options graded to 'dark red'.

Table 3.2 MCA Colour Coded Ranking Scale

Colour	Description
	Major Benefit: The proposal is expected to have a clear and considerable benefit or positive impact
	Moderate Benefit: The proposal is expected to have a moderate benefit or positive impact
	Minor Benefit: The proposal is expected to only have a minor benefit or positive impact
	Neutral: Overall, the proposal is expected to have neither a positive or negative impact
	Minor Disbenefit: The proposal is only expected to result in a minor negative impact
	Moderate Disbenefit: The proposal is expected to have a moderate disbenefit or negative impact
	Major Disbenefit: The proposal is expected to have a clear and considerable disbenefit or negative impact

Source: TII and NTA ABTA How to Guide Guidance Document – Pilot Methodology

3.2 Active Travel Measures Assessment – Catchment Analysis

For active modes, the impact of the permeability measures is tested in GIS to identify the benefits from the proposed future path network with respect to reducing trip distances by walking/cycling to key destinations in Maynooth. In this section, the set of permeability strategy measures shown on the maps includes some links which were not included in the baseline path network, but which are no longer identified as measures in the strategy as they are now delivered. These are not specifically highlighted on these maps but can be seen on the overall strategy maps. In addition, as previously mentioned, the GIS catchment analysis did not include a small number of additional permeability strategy measures which were added to the strategy following the completion of the GIS assessment and therefore those measures are not shown on the maps in this section.

It is important to note that the calculated future catchment areas for primary schools, secondary schools, bus stops and supermarkets are based on current facilities only, the analysis does not take into consideration the future development of new schools, supermarkets and bus stops to support and service population growth within expanding areas of the town.

3.2.1 Impact on Primary School Catchment

Figure 3-1 displays the expansion of the 1km primary school catchment with the implementation of permeability measures, as shown by the blue lines on the map. The increase in catchment area because of the additional permeability measures can be seen by the dark purple shaded area. There is a significant increase in the number of homes within the 1 km catchment area, with an additional 563 homes (16.7% increase) brought into the walking catchment. Most of the additional catchment residential buildings are in the south of Maynooth: east and west of Straffan Road, as shown in Figure 3-1. Other areas that benefit include Moyglare Abbey/The Green, Moyglare Hall Estate, and Silken Vale/The Arches.

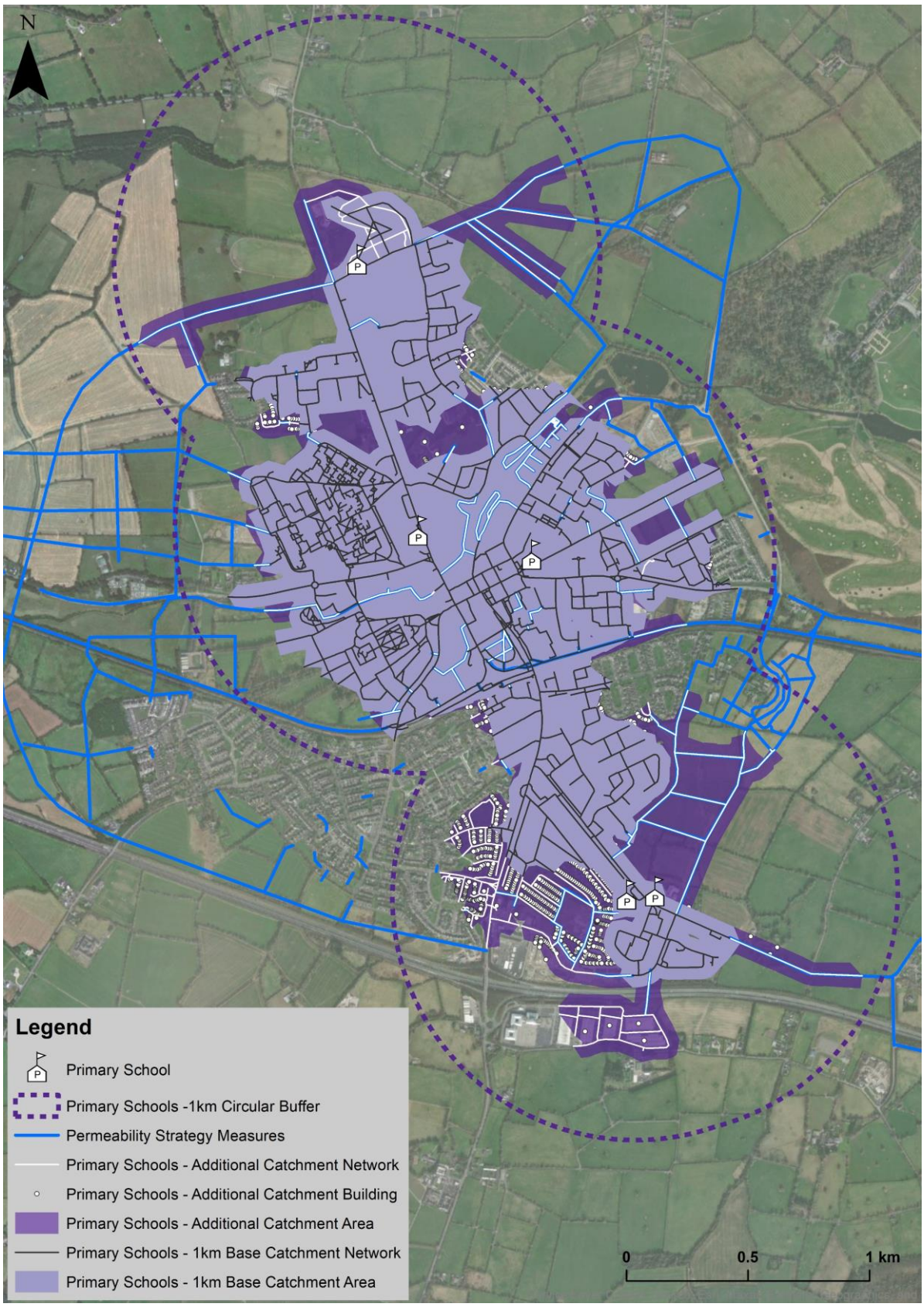

Figure 3-1 Expansion to the 1km Catchment for Primary Schools

3.2.2 Impact on Secondary School Catchment

Figure 3-2 shows the additional 1km secondary school catchment with the implementation of permeability measures, which are shown as blue lines. The

additional catchment area due to the new connectivity options can be seen by the dark orange shaded area. Compared to the impact on primary school catchment, there is a modest increase in the number of homes within the 1km catchment area, with a further 169 homes (7.3% increase) introduced into the walking catchment. With two out of three secondary schools in the northern part of Maynooth, almost all of the residential areas south of the canal are not covered by the secondary school 1km catchment area and a significant portion of the area south of the canal does not fall within the 1km buffer zone. In addition, the centrally located secondary school is Gaelcholáiste Mhaigh Nuad, an Irish-medium school. This distribution of secondary schools means that the 1km walking catchment for English-medium secondary schools is even more constrained, significantly more so than primary schools.

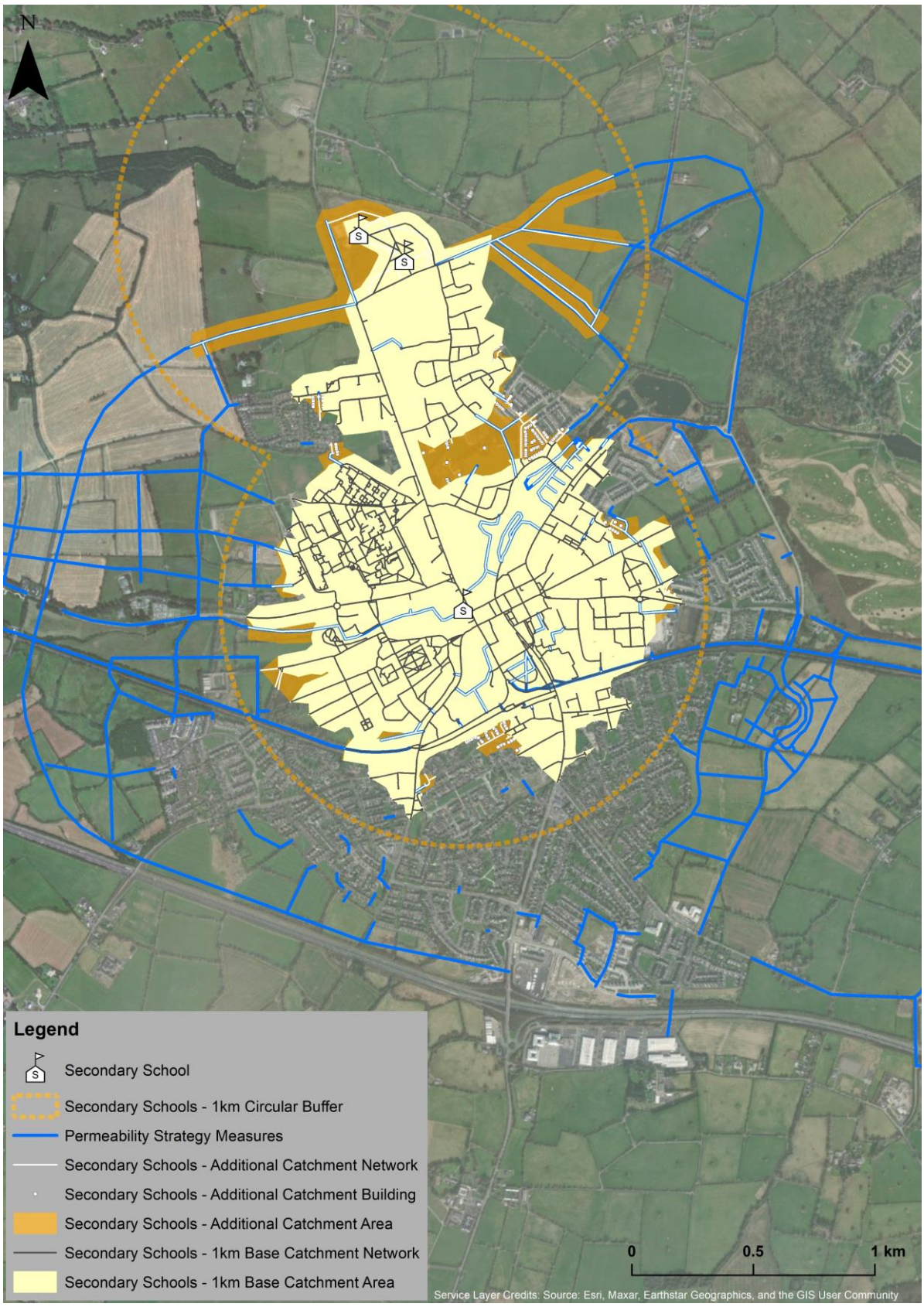

Figure 3-2 Expansion to the 1km Catchment for Secondary Schools

3.2.3 Impact on Maynooth University Catchment

Figure 3-3 shows the additional 1km catchment for Maynooth University (Arts Building) when the permeability measures (shown by the blue lines) are put in place. The dark red shaded area indicates the expanded catchment area that will result from the proposed permeability improvements. This shows a considerable increase in the size of the University catchment, with an additional 258 homes brought into the catchment area, representing an increase of 32% in the number of homes in the walking catchment. Most of these additional homes are in the north of Maynooth town in Moyglare Abbey and Moyglare Village and benefit from the proposed connection between Moyglare village and Maynooth University north campus as well as the connection between Moyglare Village and Moyglare Abbey, as shown by Figure 3-3.

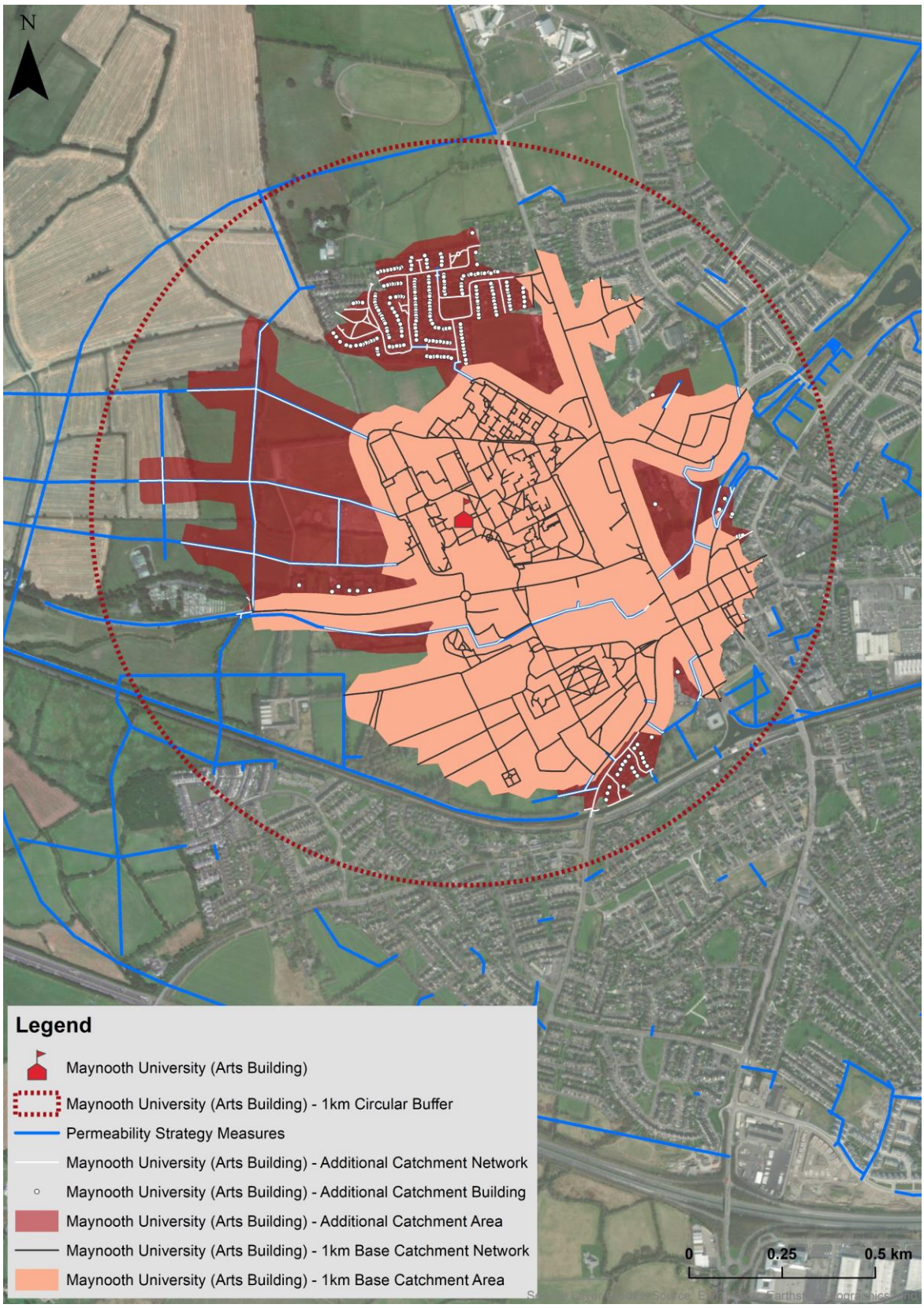

Figure 3-3 Expansion to the 1km Catchment for Maynooth University (Arts Building)

3.2.4 Impact on Supermarkets Catchment

Figure 3-4 displays the expansion of the 1km catchment for supermarkets with the implementation of the permeability measures, which are shown by the blue lines. The

increase in catchment area when the proposed permeability measures are implemented is shown by the dark green shaded area. An additional 686 homes (19.1% increase) are brought into the walking catchment, which is a substantial improvement. The south of Maynooth benefits from the proposed connectivity options as there is only one supermarket available in this area of the town, as shown by Figure 3-4.

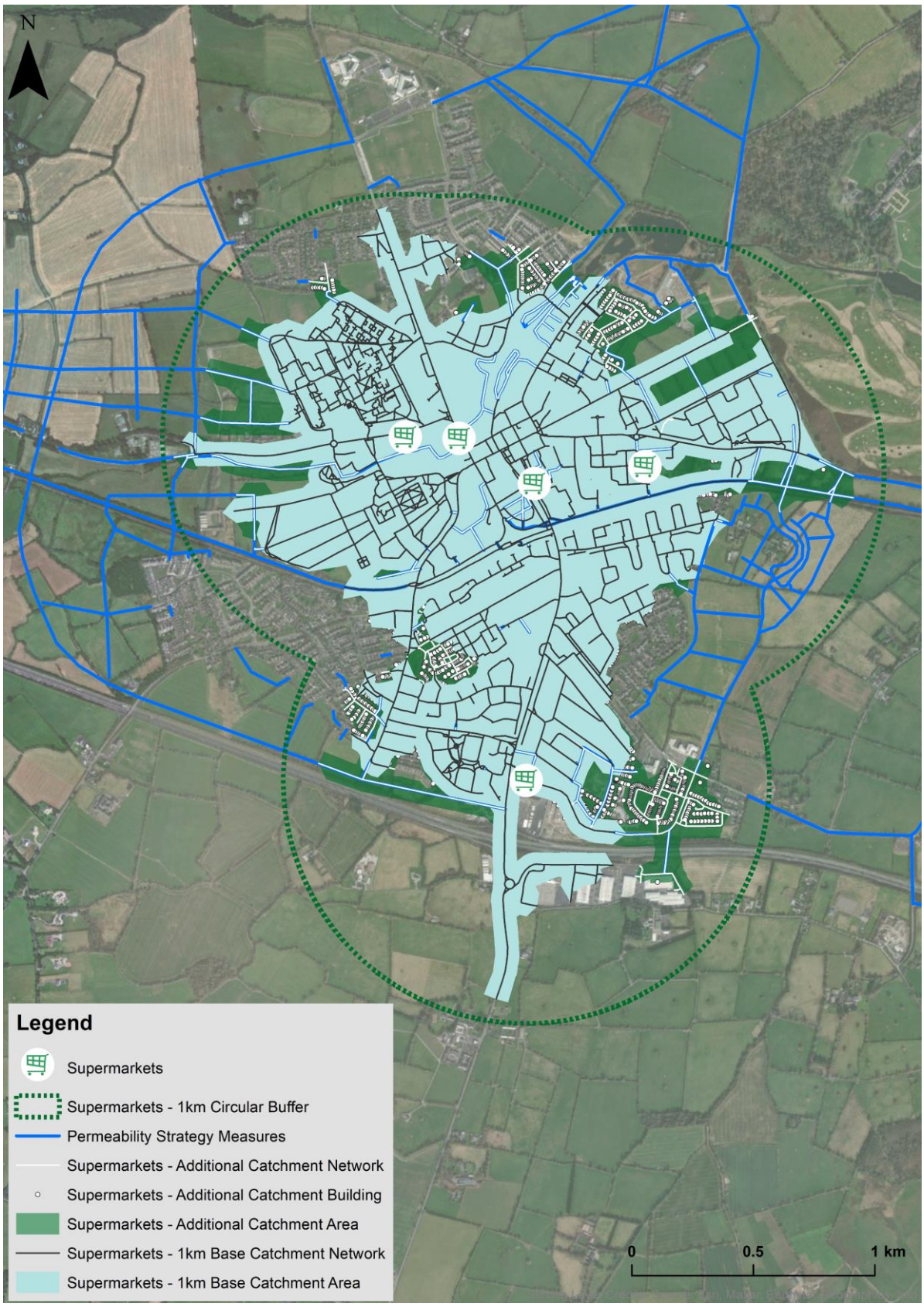

Figure 3-4 Expansion to the 1km Catchment for Supermarkets

3.2.5 Impact on Town Centre Catchment

Figure 3-5 exhibits the additional 1km town centre catchment with the implementation of the proposed permeability measures, which are shown by the blue lines. The

increase in catchment area when the proposed permeability measures are implemented is denoted by the dark pink shaded area. With 116 more homes (6.4% increase) added to the walking catchment, there is a slight rise in the number of homes added to the 1km catchment area. The additional catchment area acquired by the permeability measures is predominately located in the north of Maynooth town, with minimal difference in the south and negligible difference in the east and west, as can be seen by Figure 3-5.

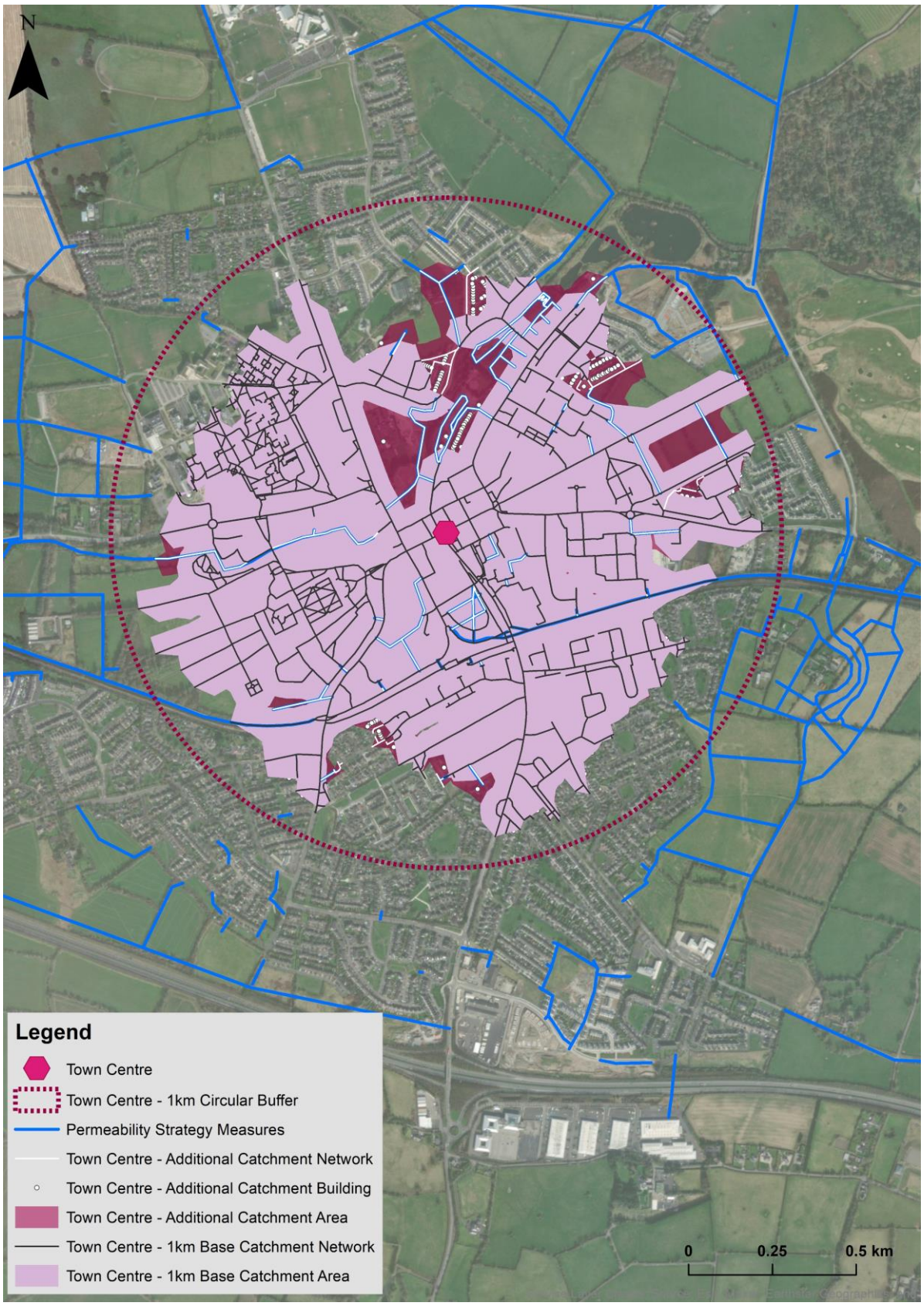

Figure 3-5 Expansion to the 1km Catchment for the Town Centre

3.2.6 Impact on Train Station Catchment

Figure 3-6 shows the additional 1km catchment for train stations in Maynooth with the implementation of permeability measures, as shown by the blue lines. The proposed

train station to the west of Maynooth has been included in the calculation of the future catchment area. The dark blue shaded area shows the additional catchment area that will be generated from the proposed permeability improvements in combination with the delivery of the proposed new station. The number of homes in the walking catchment increases by 428 homes (22.6% increase). Most of the additional homes are in the West of Maynooth, for example, at Ashleigh Grove, Castledawson, and Woodlands estates along Newtown Road. The proposed train station to the west of Maynooth will serve multiple residential areas in West Maynooth including both existing homes and many future residential developments.

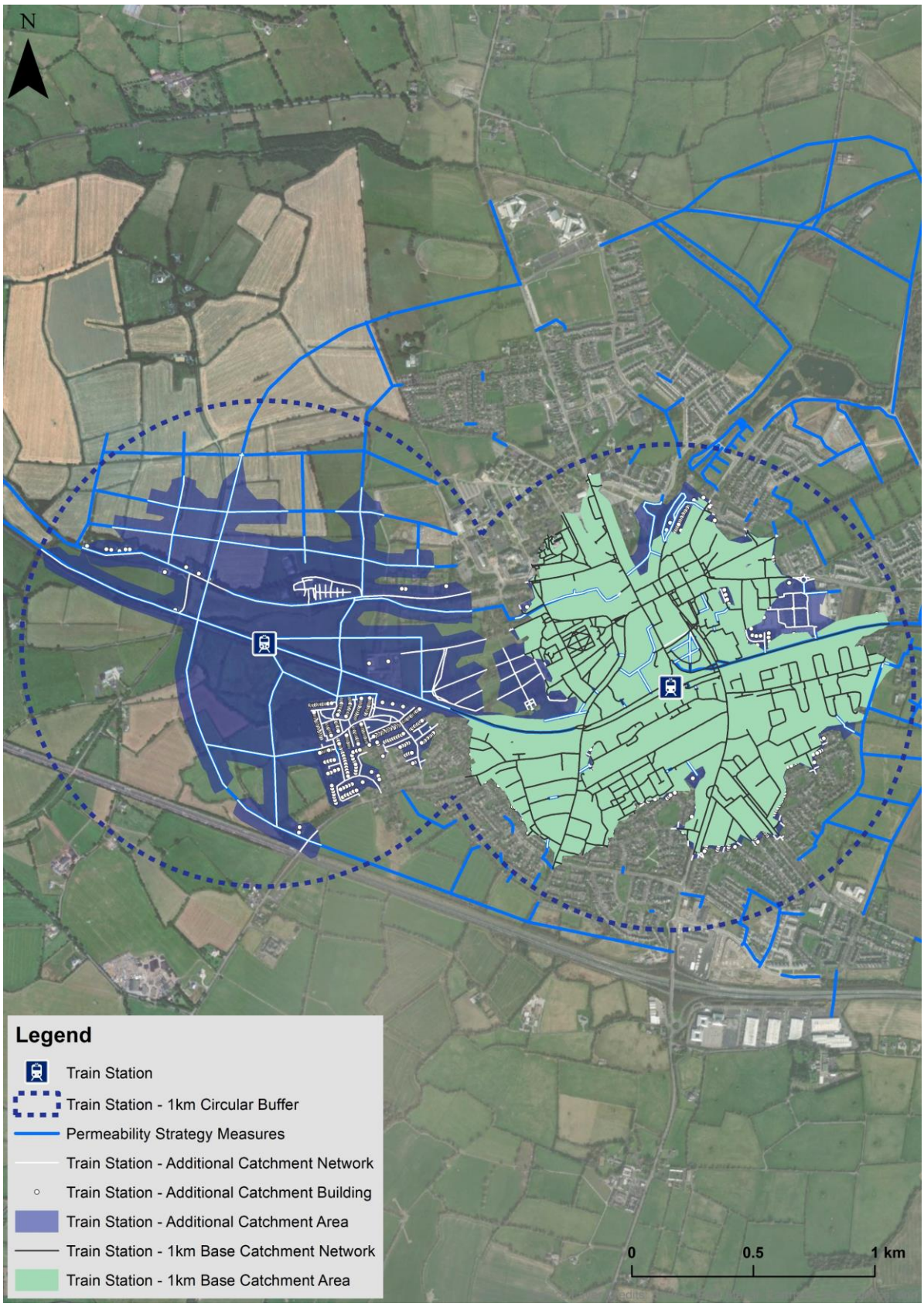

Figure 3-6 Expansion to the 1km Catchment for Train Stations

3.2.7 Impact on Bus Stop Catchment

Figure 3-7 shows the additional 500-meter catchment for bus stops in Maynooth with the implementation of new bus stops and the permeability measures, as shown in blue lines. As there is some uncertainty regarding bus priority corridors and the location of bus stops in the long term, this analysis is focused on the short and medium term. Long-term permeability measures were removed from the future path network before calculating the catchment area.

The dark purple area shows the additional catchment area that will be generated from the proposed new bus stops in combination with the permeability improvements. The number of homes in the catchment increases by 729 (20.5% increase). A large proportion of the additional homes are in the north of Maynooth and benefit from the new bus stops on the Moyglare Road. In the centre of the study area, the established residential area of Silken Vale/The Arches benefits from a new connection to Meadowbrook Road as well as from a proposed new bus stop at the train station.

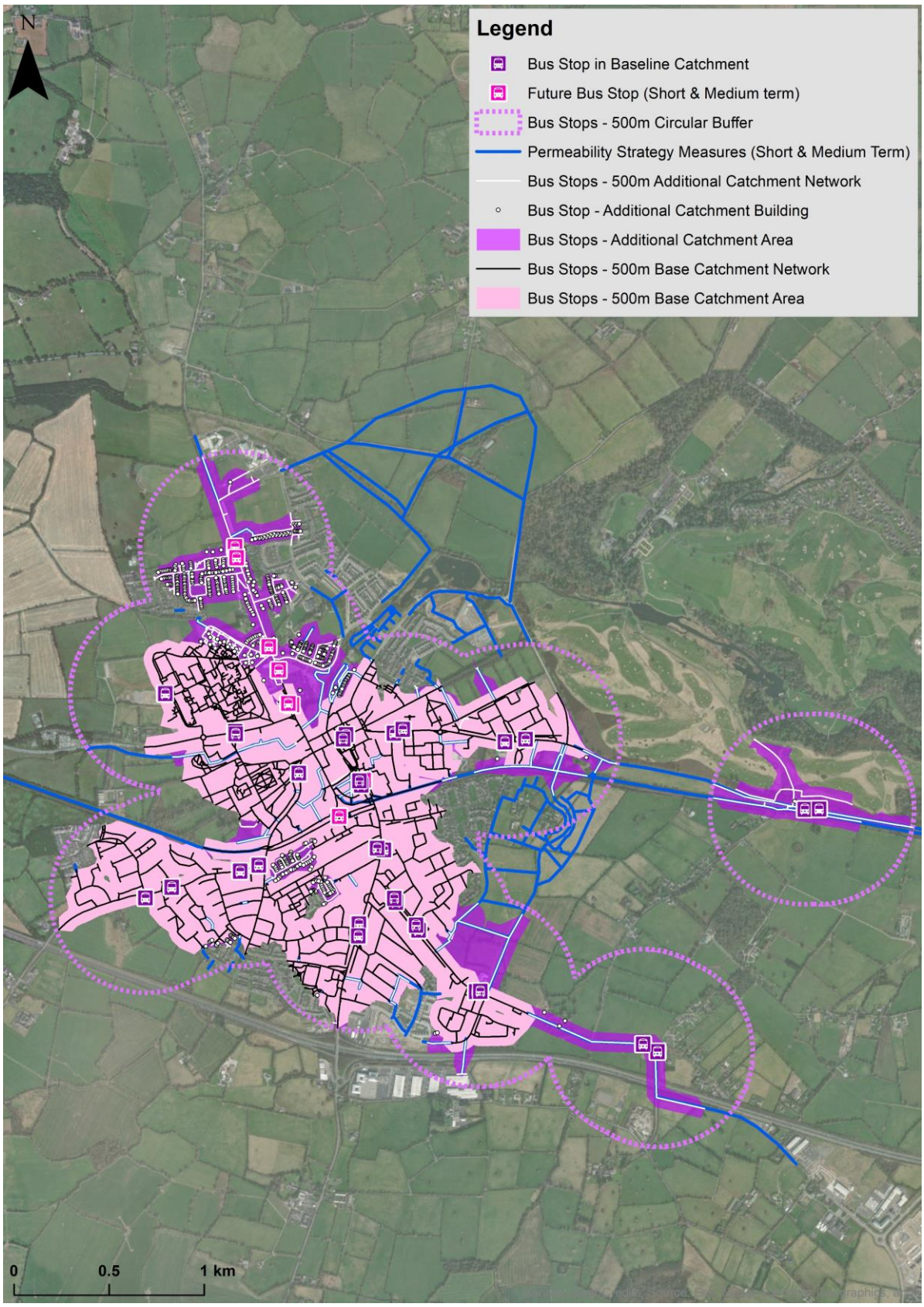

Figure 3-7 Expansion to the 500m Catchment for Bus Stops (Medium Term)

3.2.8 Summary of Quantified Benefits of the Permeability Measures

In order to quantify the change in permeability as a result of the walking/permeability strategy, the following statistics were produced using GIS tools and data from the GeoDirectory database of buildings (2023).

3.2.8.1 Number of Units Added to the 1km Walking Catchment

The implementation of the permeability strategy results in an increase in the number of units inside the walking distance catchment area for key destinations. The results are summarised in Table 3.3. The greatest proportional benefits when compared to base catchments for residential addresses are observed for Maynooth University (north campus), followed by train stations and bus stops. The lowest proportional benefits are observed for the town centre and secondary schools.

Table 3.3 Expansion of Walking Catchment to Key Destinations

	Existing Path Network			*Future Path Network*			*Difference*			*% Increase*		
Catchment	Residential Addresses	Commercial Addresses	Addresses in mixed use buildings	Residential Addresses	Commercial Addresses	Addresses in mixed use buildings	Residential Addresses	Commercial Addresses	Addresses in mixed use buildings	Residential Addresses	Commercial Addresses	Addresses in mixed use buildings
Train Stations - 1km	1,893	250	66	2,321	256	67	428	6	1	22.6%	2.4%	1.5%
Town Centre - 1km	1,826	267	88	1,942	274	88	116	7	0	6.4%	2.6%	0.0%
Primary Schools - 1km	3,372	288	98	3,935	374	101	563	86	3	16.7%	29.9%	3.1%
Secondary Schools - 1km	2,137	274	90	2,293	274	93	156	0	3	7.3%	0.0%	3.3%
Supermarkets - 1km	3,600	315	91	4,286	340	97	686	25	6	19.1%	7.9%	6.6%
Maynooth University North Campus (Arts Building) -1km	807	175	62	1,065	180	65	258	5	3	32.0%	2.9%	4.8%
Bus Stops	3,563	285	99	4,292	298	102	729	13	3	20.5%	4.6%	3.0%

3.2.8.2 Reduction in walking distance to key destinations

Reducing trip distances to key destinations is an important factor to increase the popularity and convenience of walking, which should contribute to modal shift from the private car for local trips.

In addition to the 1km catchment analysis outlined previously, the reduction in distance from every address in Maynooth to the closest key destination in each category was also assessed (Table 3.4). This provides an indication of the town-wide benefits of the permeability measures, encompassing buildings both inside of the 1km catchment and outside. This analysis is based on Geodirectory address points in the MEABTA study area which were located within 50m of a link on the baseline path network. The 'Closest Facility' solver in ArcMap measured the distance of travel along the baseline and future path networks between each relevant address point and the closest facility within each category.

A substantial proportion of address points experience a reduction in trip distance to the closest destination of over 100 metres. The destinations where the impacts are most significant with regard to the number of address points experiencing a reduction in distance are Maynooth University and Supermarkets.

This analysis underestimates the actual reduction in trip distance which many Maynooth residents will experience as a result of permeability measures, as it is based only on distances to the closest destination in each category. In reality, residents will not always use the closest facility, particularly in the case of schools and supermarkets, and therefore some residents would benefit from reduced travel distance to alternative destinations.

Table 3.4 Reduction in Distance to Key Destinations

	No change	<100m	100m-500m	500m – 1km	> 1km
Train Station	2,578 (39%)	2,711 (41%)	937 (14%)	228 (3%)	137 (2%)
Town Centre	4,901 (75%)	676 (10%)	976 (15%)	0 (0%)	0 (0%)
Primary Schools	4,457 (71%)	1,083 (17%)	568 (9%)	145 (2%)	49 (1%)
Secondary Schools	4,664 (71%)	1,348 (21%)	549 (8%)	0 (0%)	0 (0%)
Supermarkets	3,439 (53%)	1,015 (16%)	1,742 (27%)	346 (5%)	6 (0%)
Maynooth University (Arts Building)	3,541 (54%)	449 (7%)	2,062 (31%)	365 (6%)	130 (2%)
Bus Stops	4246 (65%)	666 (10%)	553 (8%)	736 (11%)	353 (5%)

3.2.8.3 Geographic Impact of Permeability Measures in Reducing Trip Distance

In addition to quantifying the benefits of the permeability strategy; a series of maps were also generated to spatially display the reduction in walk distance from buildings in Maynooth to three key destinations including the town centre, train stations and Maynooth University (arts building).

Figure 3-8 shows the impact of the proposed permeability network in reducing trip distances to the town centre (Courthouse Square). The most positive impacts are in

the north of Maynooth, particularly in the Moyglare Hall estate and in estates to the northwest of the Maynooth University campus. Moyglare Hall benefits from new connections to Lyreen Avenue and between Lyreen Avenue and the town centre. The estates to the northwest of the Maynooth University campus benefit from a new connection into the Maynooth University campus.

Figure 3-9 shows the impact of the proposed permeability network in reducing trip distances to the nearest train station. The most significant positive impacts are in the west of Maynooth. A number of homes in the Newtown Hall area benefit from a reduction in distance to the nearest train station of over 500 metres or over 1km as a result of the delivery of the proposed western train station. There are also many homes in the northwest of Maynooth which benefit from a reduction in distance of between 100m and 500m.

Figure 3-10 shows the impact of the proposed permeability network in reducing trip distances to the Arts building on the Maynooth University north campus. The areas which benefit most significantly from the proposed permeability measures with regard to access to Maynooth University are the Newtown Hall area in the southwest and the estates to the northwest of the Maynooth University campus. Many more areas in the southwestern quadrant of Maynooth also benefit from a reduction in distance to the of between 100 meters and 500 meters.

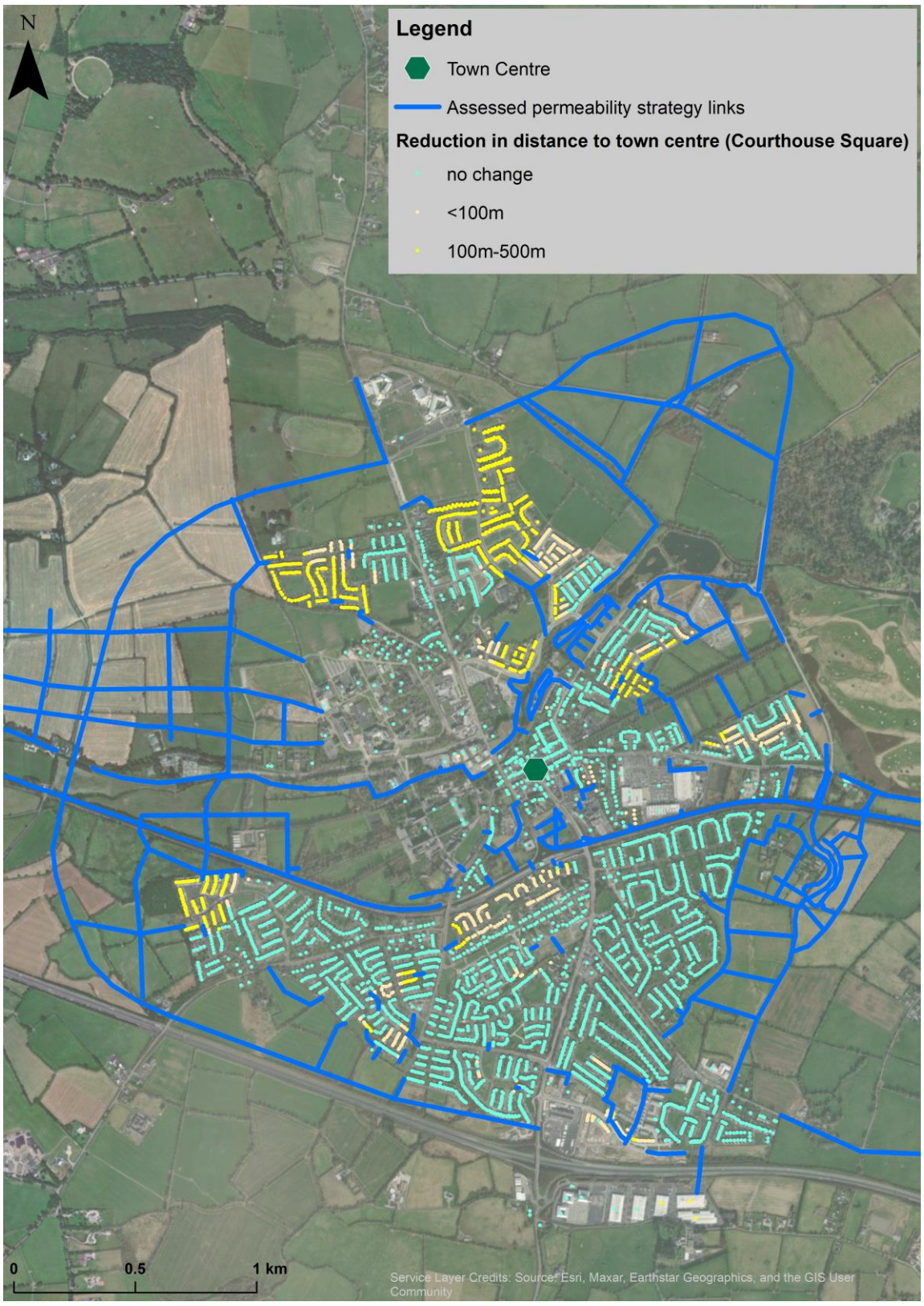

Figure 3-8 Reduction in Distance to Town Centre from Buildings in Maynooth

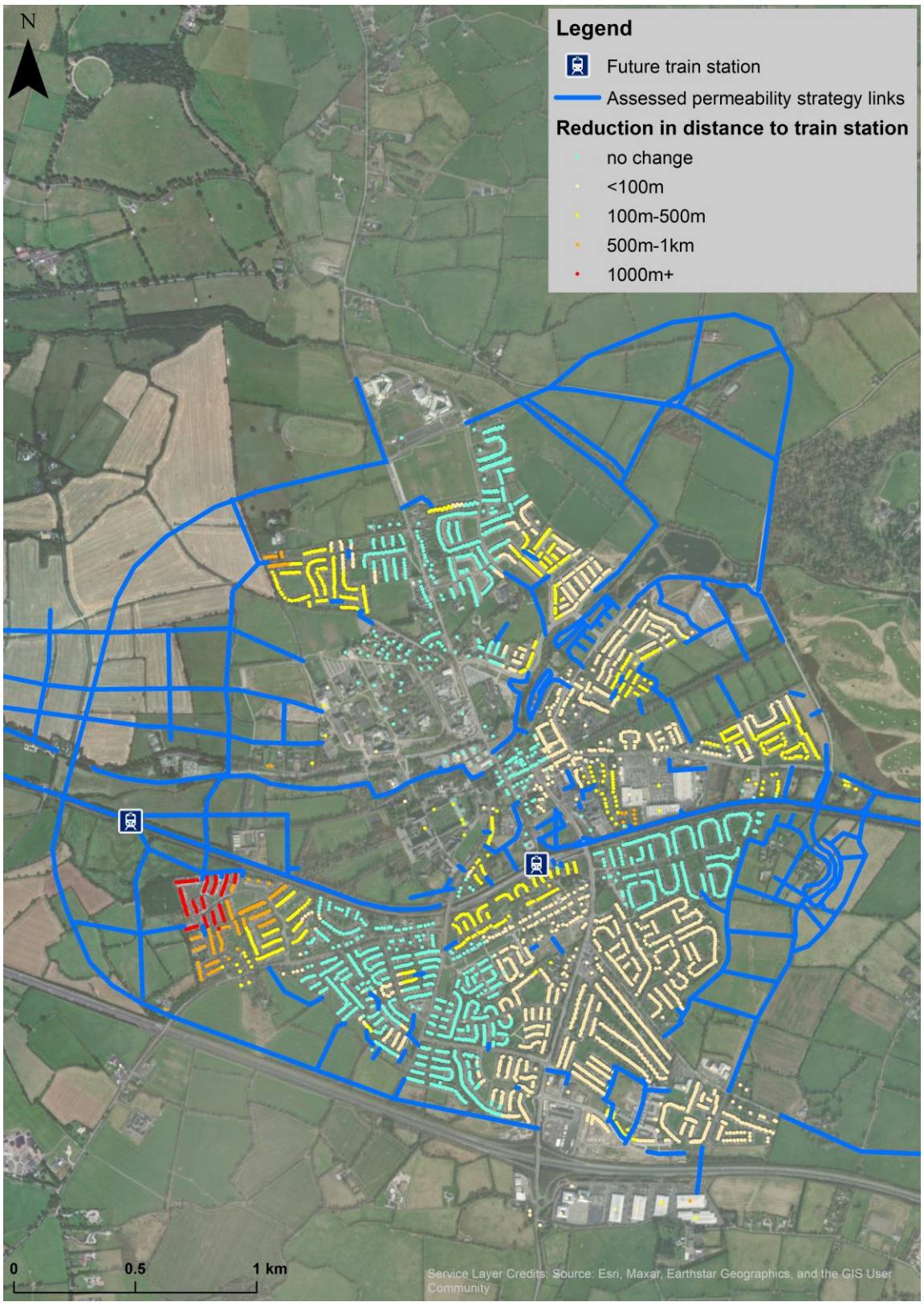

Figure 3-9 Reduction in Distance to Train Station from Buildings in Maynooth

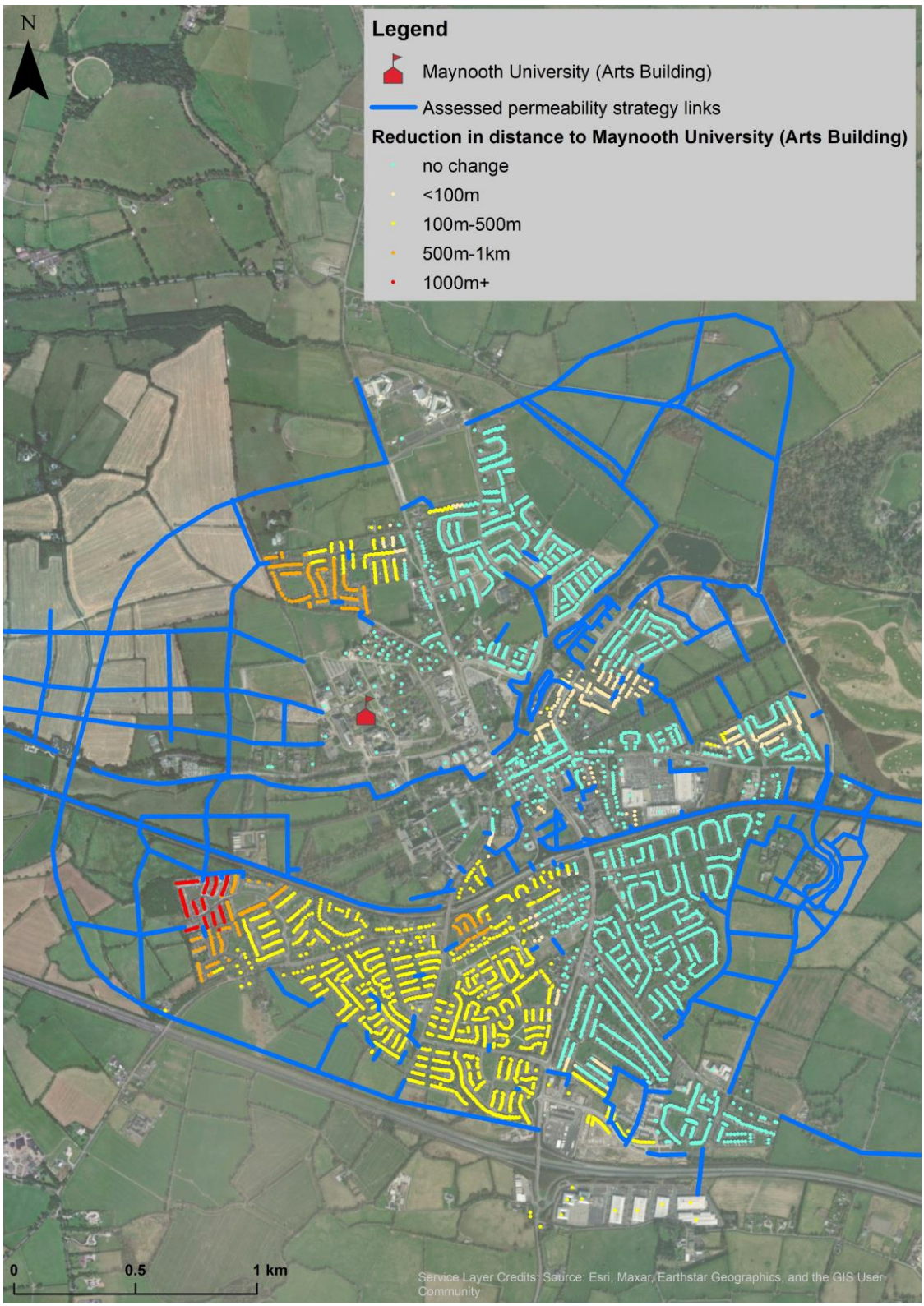

Figure 3-10 Reduction in Distance to Maynooth University from Buildings in Maynooth

3.2.8.4 Accessibility to Opportunities and Services (ATOS) Assessment

To supplement the walking catchment analysis described in Section 3.2, walking accessibility was also examined using the ATOS tool. This section first introduces the tool and the methodology used for this analysis before presenting the results of the analysis for each type of service.

ATOS (Accessibility to Opportunities and Services) is a tool maintained by the NTA to investigate accessibility to a range of different services and opportunities by active modes including Employment, Primary Education, Post Primary Education, GPs, Food Shopping and Open Spaces. The tool is based on a methodology originally developed by Transport for London (TfL), but some minor adjustments have been made by the NTA to make it more suitable for use outside of large metropolitan areas in Ireland.

The ATOS assessment used the same future path network used for the catchment analysis. As outlined previously, this network includes some links which were not included in the baseline path network, but which are not measures in the strategy as they are now delivered. It excludes a small number of additional permeability strategy measures which were added to the strategy following the completion of the GIS assessment.

The locations of schools and supermarkets used in the ATOS assessments were the same as those identified for the 1km walking catchment analysis described in the previous section. GP services were identified by the NTA using GeoDirectory (NACE Q86.21); while the locations chosen for the Open Space assessment were also identified by the NTA and were based on the previous Development Plan, with the addition of the entrance to Carton House. The Census Workplace Zones file produced by the CSO provides information on employment.

For each calculation (other than employment), the number of different services of the particular service type which should be located by the tool and an acceptable walk or cycle time have to be specified. For this assessment, a walk time of 20 minutes was specified for all service types. The number of services was set to two in the case of primary schools, secondary schools and GPs, and was set to one in the case of food shopping and open spaces.

The spatially defined origin for the application of ATOS is based on a 100m grid. For most service types (excluding employment), the tool calculates the average journey time from the centroid of each grid square (origin) to the nearest (x number of) services within the specified travel time cut-off from the origin. If the specified number of services to be reached is greater than 1, the travel time is the average of the travel times from the origin to the nearest (x number of) services. Scoring for each origin (grid square) is calculated based on how the average travel time for that square compares to the overall average across all squares which are within the cut off time of at least one service, as shown in Table 3.5.

When the NTA designed the tool, they decided that although the parameters allow the user to specify that two or more destinations should be located, if a particular origin grid square is within range of at least one service but fewer than the specified number, it is not excluded from the calculations completely. Instead, a negative weighting is applied to the origin's calculated travel times prior to the final comparison with the over-all average and standard deviation. For example, if the selection criteria is 'nearest two schools', but only one school is located within the cut-off time, the deficit is considered to be 50 percent and a corresponding negative weighting of 1.5 is applied to the travel time for that origin grid square.

Table 3.5 ATOS Score Ranges (All Destination Types Excluding Employment)

ATOS Score	Score Range	Map Colour
A	More than one standard deviation below the average	
B	Below the average, but not by more than one standard deviation	
C	Average or above, but not by more than one standard deviation	
D	Between one and two standard deviations above the average	
E	More than two standard deviations above the average	
NULL	More than specified maximum travel time	

The ATOS scoring for access to employment (number of accessible jobs) follows a different methodology to the methodology used for other types of destinations. The main dataset used to assess access to employment is the Workplace Zones (WPZ) file produced by the CSO. This is made up of polygons which contain information on the number of jobs within each WPZ. This allows for the job density of each WPZ to be calculated (Total Jobs/WPZ area in metres). A Network Service Area is then calculated for each origin grid square. For each WPZ accessible from the origin's service area, the WPZ Accessible Jobs is: Accessible WPZ Area (metres) x WPZ Employment Density. Individual WPZ accessible jobs results are then aggregated to get an overall jobs result for each origin grid quare. The average accessible jobs and standard deviation of accessible jobs across all origin grid squares is calculated. Scoring for each origin (grid square) is then calculated based on Table 3.6. Note that this is inverse to the scoring used for other types of destinations, because in this case a higher value is better – i.e. more accessible jobs.

Table 3.6 ATOS Score Ranges (Number of accessible jobs)

ATOS Score	Score Range	Map Colour
A	More than one standard deviation above the average	
B	Above the average, but not by more than one standard deviation	
C	Average or below, but not by more than one standard deviation	
D	Between one and two standard deviations below the average	
E	More than two standard deviations below the average	

Figure 3-11 shows the results of the ATOS analysis for walking accessibility to employment. As would be expected, areas closer to and with direct routes to the town centre and Maynooth University score more highly than peripheral areas further from the town centre.

A possible limitation of the ATOS access to employment methodology can be seen to the south of the town, as the area within and surrounding Maynooth business campus has a low score. This may be partly due to the fact that one of the main Workplace Zones covering the business park is undeveloped for a significant proportion of its total area. This means that the overall job density of this WPZ is low and this feeds into the ATOS calculation, despite the fact that job density is much higher in the specific part of the WPZ.

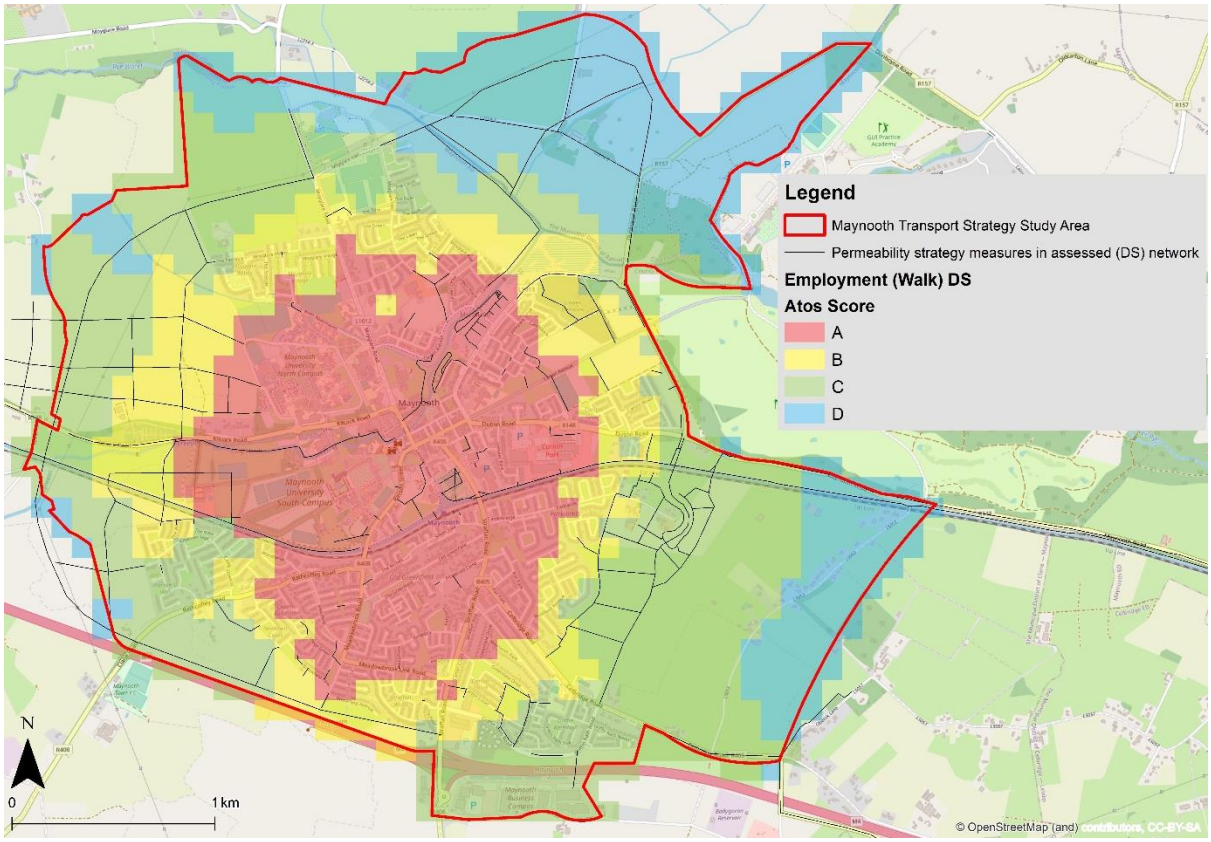

Figure 3-11 ATOS Analysis of Walking Accessibility to Employment (Future Network)

Figure 3-12 shows the results of the ATOS analysis for walking accessibility to primary schools in Maynooth. The tool was set to search for the two nearest primary schools to each grid square (within a twenty-minute walking distance). More than half of all origin grid squares (55 percent) have two primary schools within a twenty-minute walk. Another 19 percent of grid squares have access to one primary school within a twenty-minute walk. Of these the majority have an E rating. However, there are a small number of grid squares in the north of the town which have an A or B rating despite only one primary school being accessible due to their proximity to Gaelscoil Ruairí.

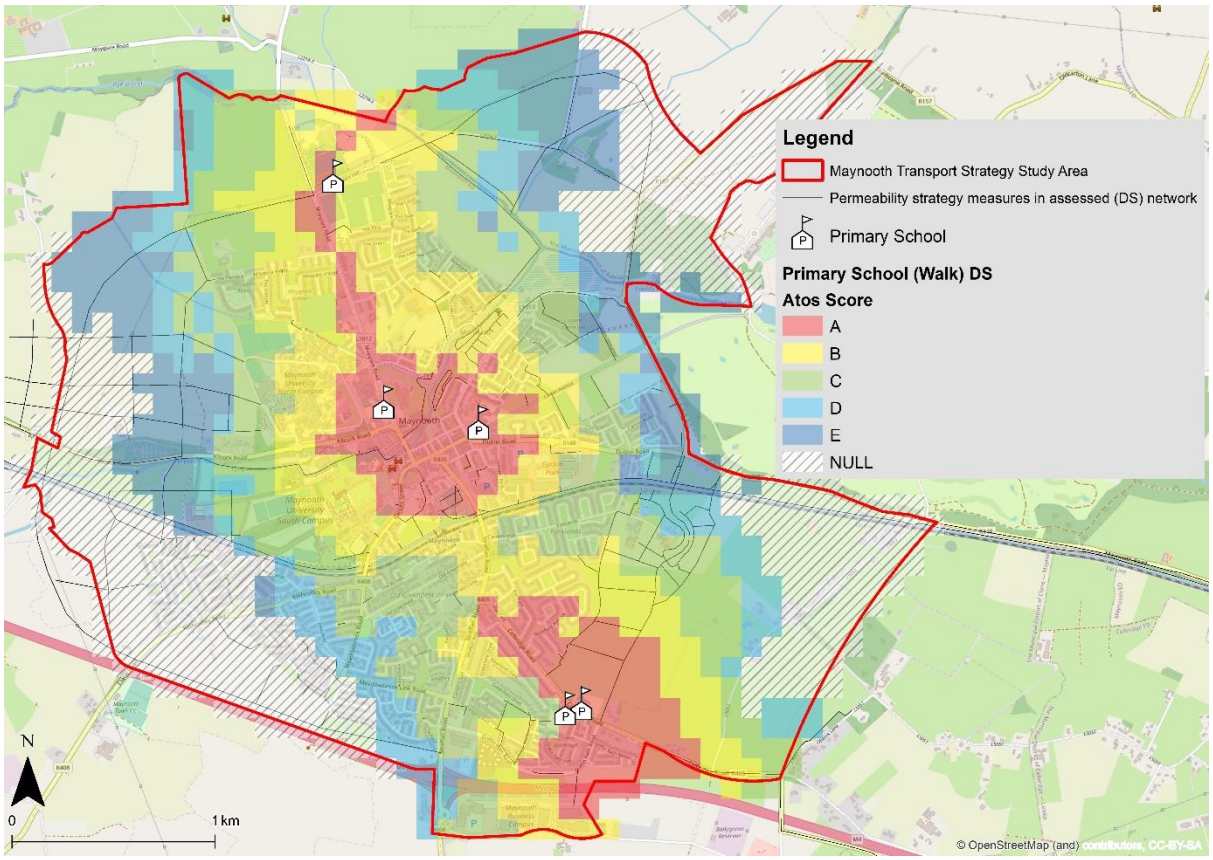

Figure 3-12 ATOS Analysis of walking Accessibility to Primary Schools (Future Network)

Figure 3-13 shows the results of the ATOS analysis for walking accessibility to secondary schools in Maynooth. The tool was set to search for the two nearest secondary schools to each grid square (within a twenty-minute walking distance). A large proportion of grid squares in the study area (43 percent) do not have access to any secondary school within a twenty-minute walk. Just under one quarter (23 percent) of grid squares have access to two secondary schools within a twenty-minute walk. One third have access to one secondary school within a twenty-minute walk. However, many grid squares which only have access to one secondary school have access to Gaelcholáiste Mhaigh Nuad, an Irish-medium school. The proportion of the overall study area from which pupils can access an English medium secondary school within a twenty-minute walk is very low, due to the peripheral location of the new Maynooth Education Campus. This highlights the importance of providing infrastructure to facilitate cycling to secondary schools as an alternative to walking. It also highlights the need to ensure that access from residential areas which are remote from existing secondary schools is considered as part of the future selection of a site for a new secondary school in Maynooth.

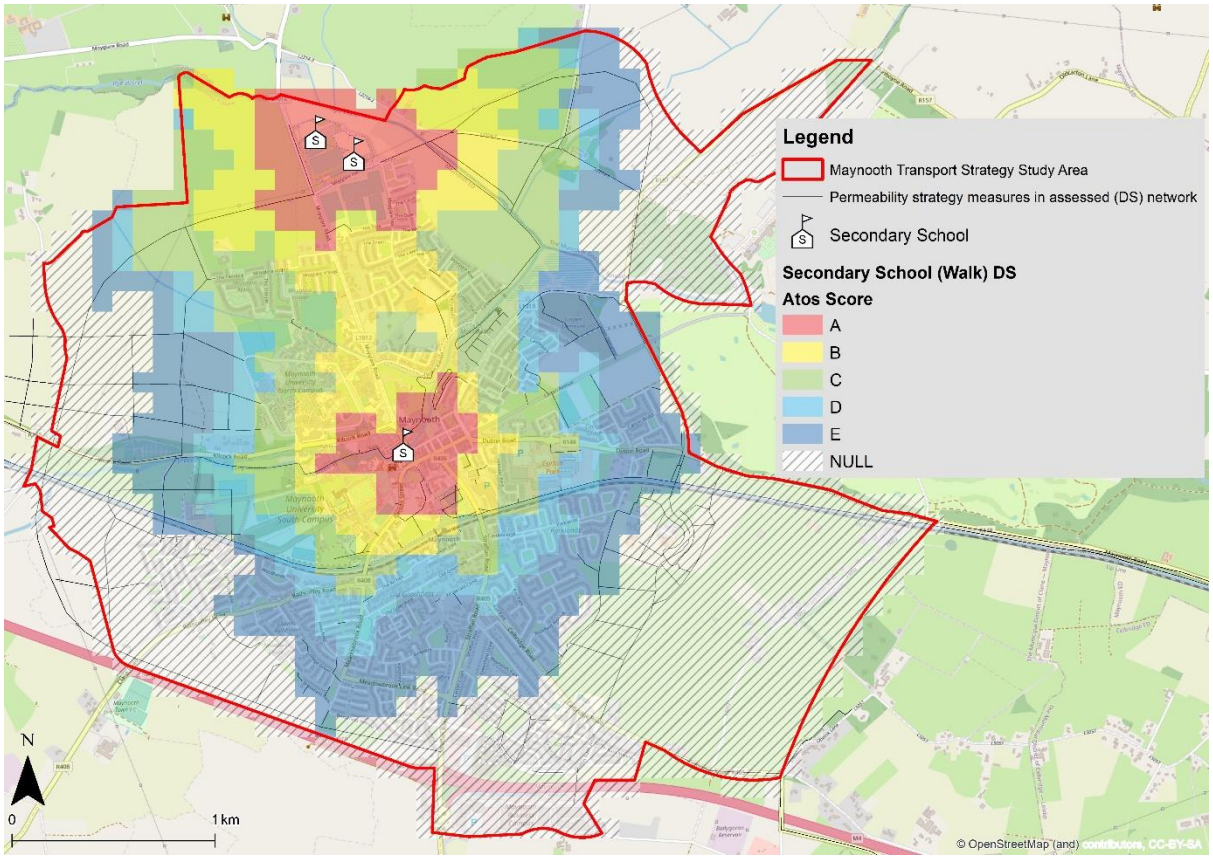

Figure 3-13 ATOS Analysis of walking accessibility to secondary schools (Future Network)

Figure 3-14 shows the results of the ATOS analysis for walking accessibility to GP services in Maynooth. The tool was set to search for the two nearest GP services to each grid square (within a twenty-minute walking distance). The map shows that GP services are reasonably well distributed around the central part of the study area. Two thirds of all grid squares in the study area can access at least one GP service within a 20-minute walk with the majority of these (48 percent of all grid squares) having access to at least two services. One third of all grid squares in the study area do not have access to any GP service within a 20-minute walk. However, these are almost all in undeveloped areas or areas without significant residential development.

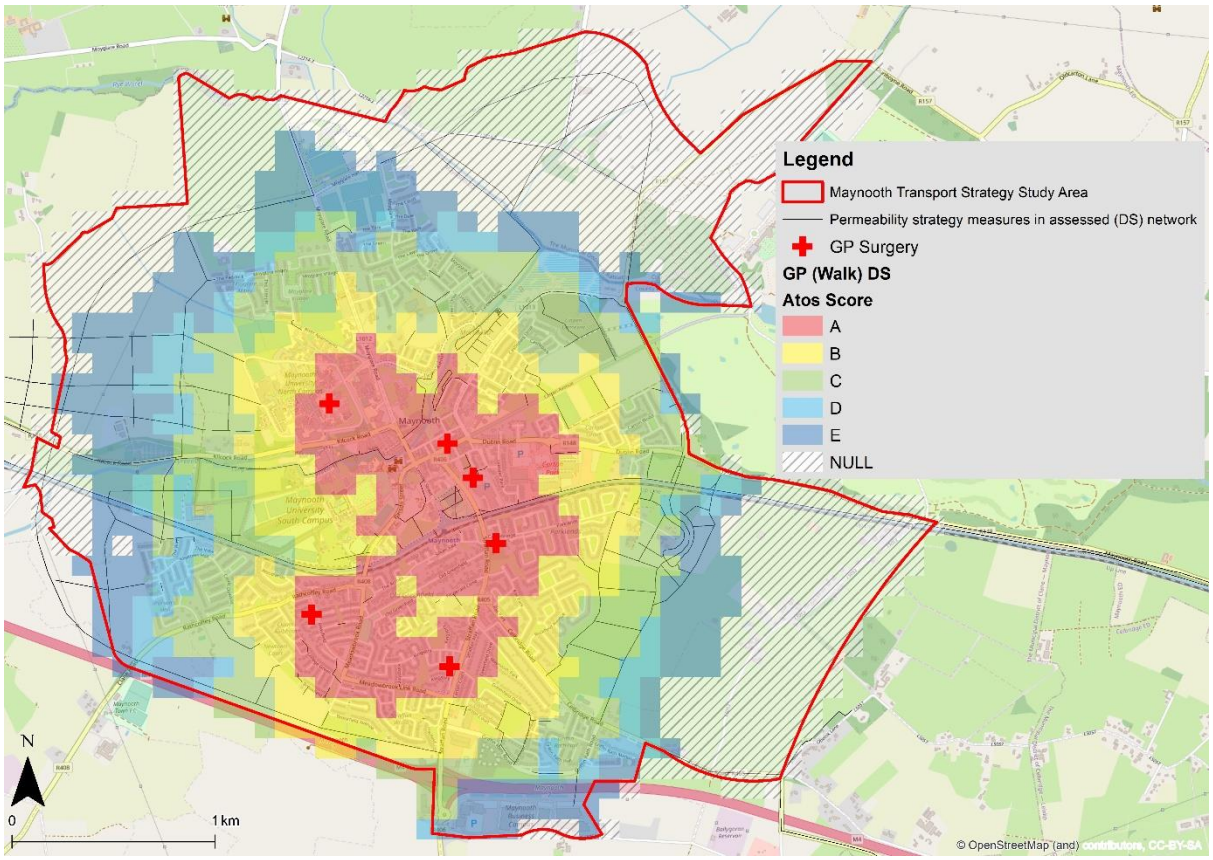

Figure 3-14 ATOS Analysis of Walking Accessibility to GPs (Future Network)

Figure 3-15 shows the results of the ATOS analysis for walking accessibility to supermarkets in Maynooth. In contrast to the analysis undertaken for access to schools and GP services, in this case the tool was set to search for only the nearest supermarket to each grid square. The map shows that supermarkets are concentrated mainly in the central part of the study area. Over two thirds of grid squares in the study area have access to a supermarket within 20 minutes of walking. The majority of grid squares which do not have access to a supermarket within 20 minutes of walking are in undeveloped areas. However, the Newtown Hall residential area in the southwest of the town also falls into this category even though the future path network incorporates several permeability improvements in this area. Access to supermarkets from this area could potentially be further improved in future if a new supermarket is delivered in the western development area to the north of the Newtown Hall area.

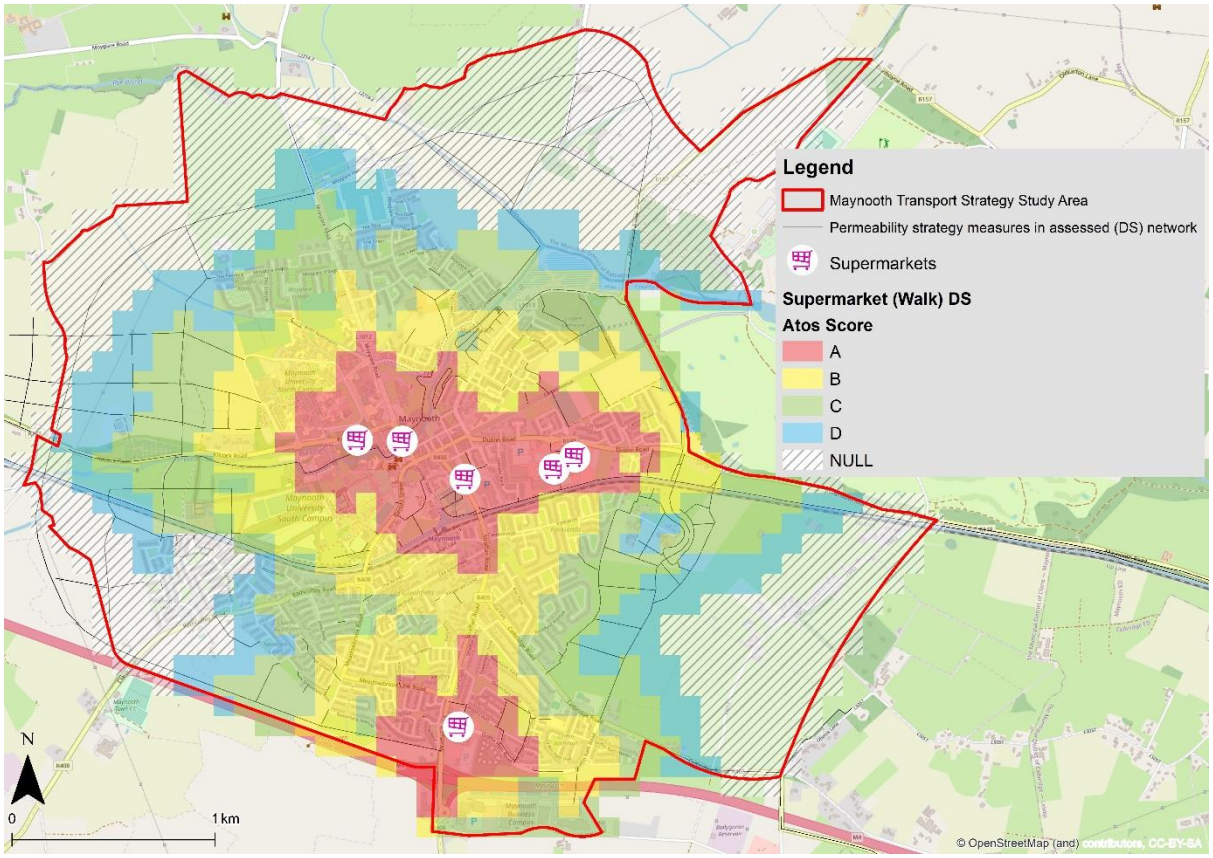

Figure 3-15 ATOS Analysis of Walking Accessibility to Supermarkets (Future Network)

Figure 3-16 shows the results of the ATOS analysis for walking accessibility to parks and open spaces in Maynooth. Similar to supermarkets, in this case the tool was set to search for only one park or open space. More than half of all grid squares (54 percent) have access to at least one park/ open space within 20 minutes of walking. The remainder are further than this from a park or open space. The vast majority of these are in areas without significant residential development. However, most of the Griffin Rath Hall and Griffin Rath Manor estates do not have access to one of the parks or open spaces shown within 20 minutes of walking. Most of the Railpark future development area in the east of the study area is also outside of the defined distance. There may be scope to improve access to parks in this area by providing a new park in the area in connection with future residential development. Similarly, a new park should also be provided in the western development area.

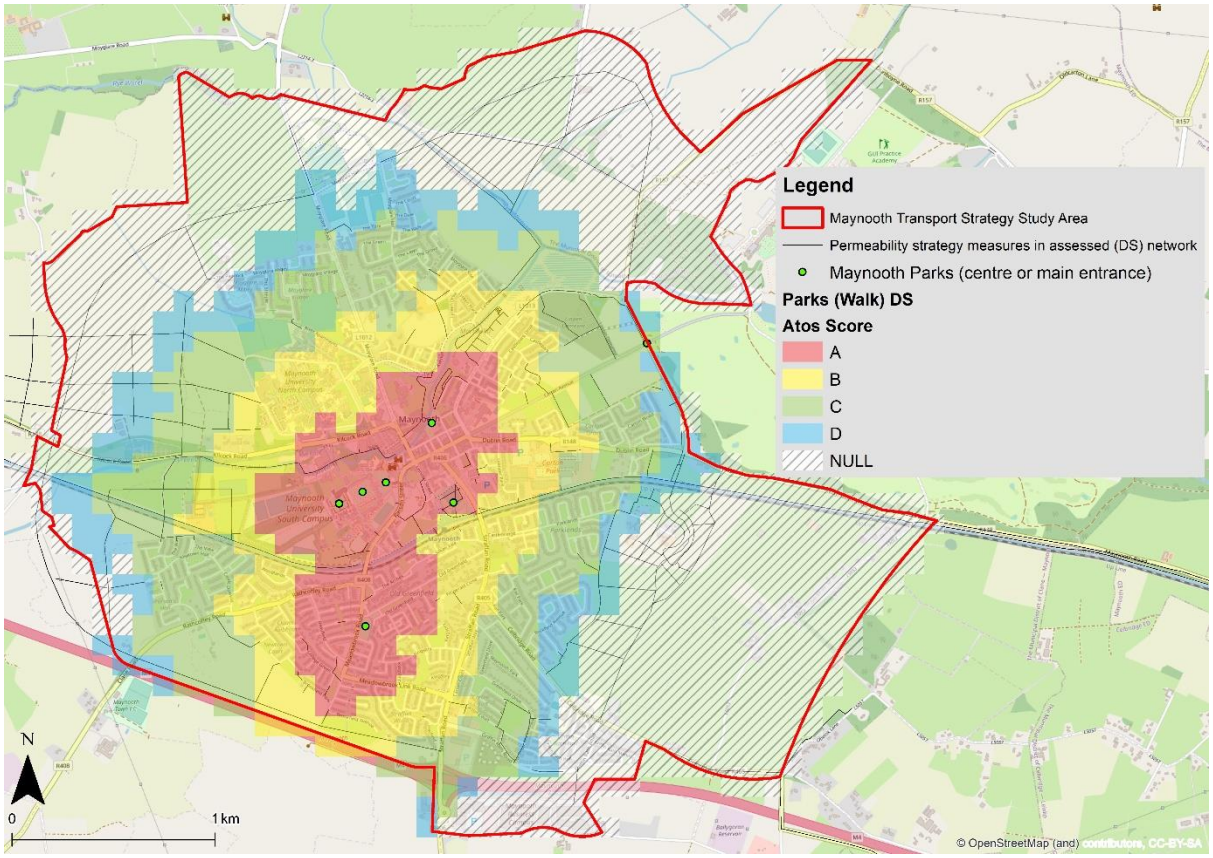

Figure 3-16 ATOS Analysis of Walking Accessibility to Parks (Future Network)

3.3 Roads Options Assessment

The road options assessment takes place in two parts, firstly the VISUM modelling is presented for the relevant road options and secondly, the MCA assessment of road options takes place to identify the preferred measures. The purpose of the road options assessment is to identify the preferred options which will be included as measures in the final MEABTA.

3.3.1 Road Options Modelling

This section presents the findings of the strategic transport modelling (VISUM) assessment conducted to inform the MCA process. Difference plots from the VISUM modelling are included for each Do-Something (DS) option and these plots illustrate the changes in flow difference compared to the Do-Minimum (DM). In the difference plots, **red** roads indicate an increase in traffic, while **green** areas indicate a reduction in traffic. The difference plots presented in this section are focused on the 2038 future year, so that the impact of full development growth can be assessed, primarily in the AM peak which is generally the most focused peak where the highest traffic flows are observed. The network statistics will provide a full overview of all results in 2028 and 2038 in the AM and PM peaks in comparison with the DM.

It should be noted that road options 4 (reduce speed limits), 7 (additional green time), 9 (HGV ban) and 11 (signalised junctions) are not included in the VISUM modelling assessment. This is because these options are policy-led interventions which are being introduced on safety grounds and need to go through a proper design process to define further (e.g. the green time changes at junctions) before they can be modelled effectively at a later stage.

The road option modelling in this section is focused on VISUM strategic modelling of options to assess the impact across the study area. The options that affect the town centre were also assessed in the VISSIM microsimulation model of Maynooth, the results of this exercise can be found in the VISSIM TMR located in Appendix E, in Volume 2. The results of the VISSIM modelling fed into the option assessment conclusions in this section of the MEABTA.

3.3.1.1 Do-Minimum Scenario

In the future scenarios, it is assumed that the Do-Minimum road network shown in Figure 3.17 is in place by 2028 and 2038. For the difference plots for DS options, they are compared against the DM scenario. The base model network reflects 2019 so the DM roads are roads which are either in place in 2023 or close to implementation. The DM roads are:

- **Moyglare Hall**: This through-road via a housing estate was not open in 2019 for the base network but it is in operation in 2023 so it is included in the DM network.
- **Lyreen Avenue**: This inner northern bypass of the town centre was not complete in 2019 but it is in operation in 2023 so it is included in the DM network.
- **Straffan Link Road**: This road is near completion and so it is included in the DM network.

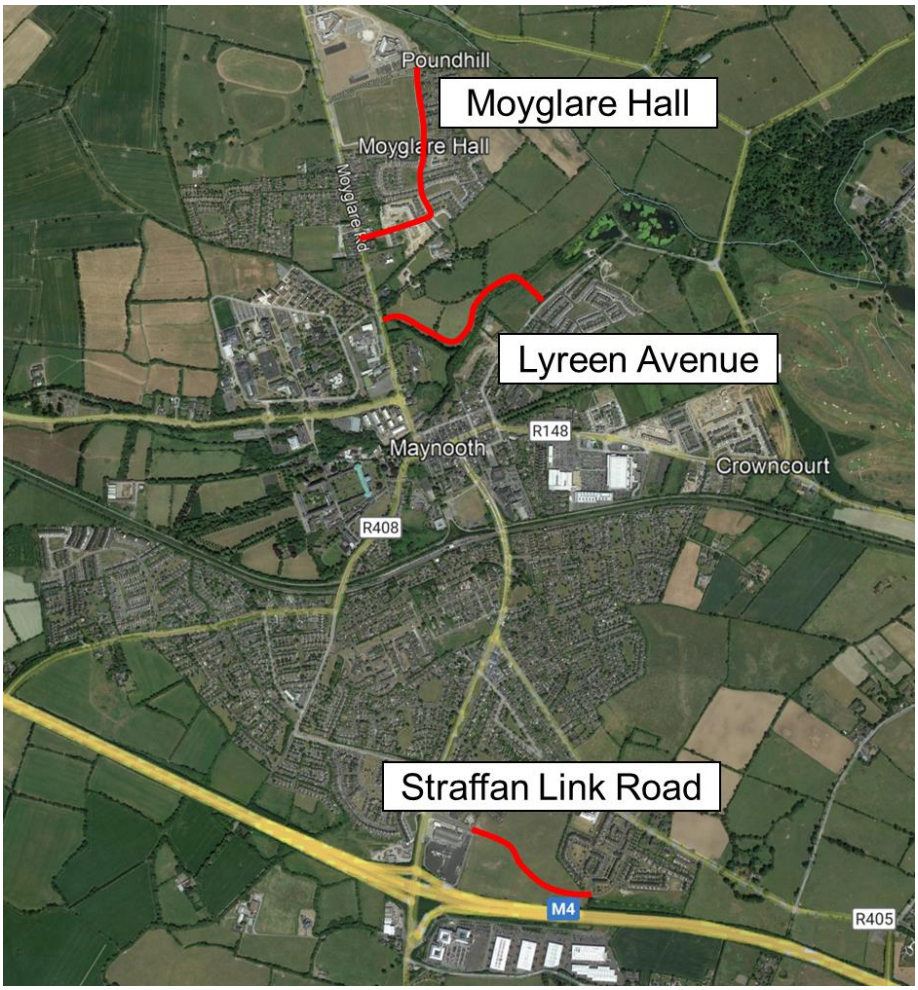

Figure 3.17 Do-Minimum Road Network

3.3.1.2 Option 1: Maynooth Outer Orbital Road (1A-1C)

Option 1A: MOOR Section from Straffan Road to Rathcoffey Road

Option 1A was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.18. The difference plot highlights that the introduction of the 1A MOOR from Straffan Road to Rathcoffey Road has reduced traffic volumes on the M4, Beaufield Close and Meadowbrook Link Road by facilitating east-west traffic movement via a different route.

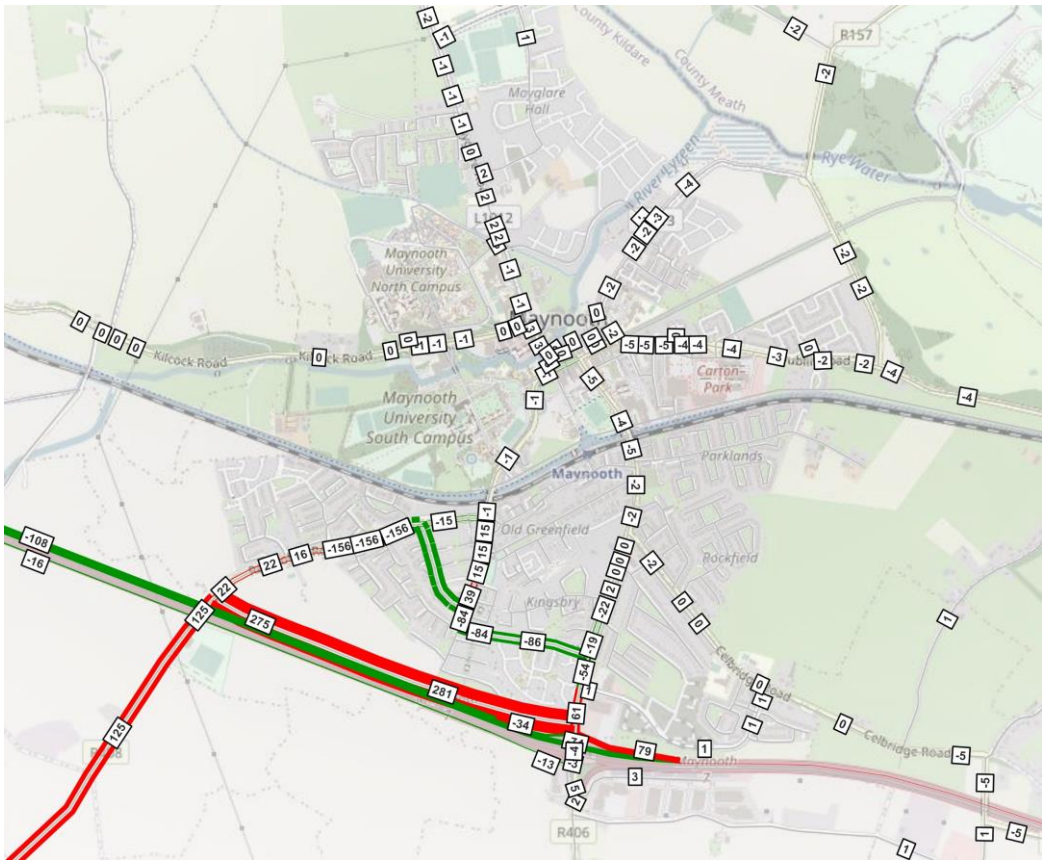

Figure 3.18 Flow Comparison (Option 1A vs DM Scenario) 2038 AM

Option 1B: MOOR Section from Rathcoffey Road to Kilcock Road

Option 1B was compared against the Do-Minimum scenario for the 2038 AM peak and the difference is shown in Figure 3.19. The difference plot highlights that the introduction of the 1B MOOR from Rathcoffey Road to Kilcock Road has reduced traffic volumes on the Kilcock Road, Dublin Road, Mill Street and in the town centre, by facilitating traffic movements between the South and West of the town without the need to travel through central areas.

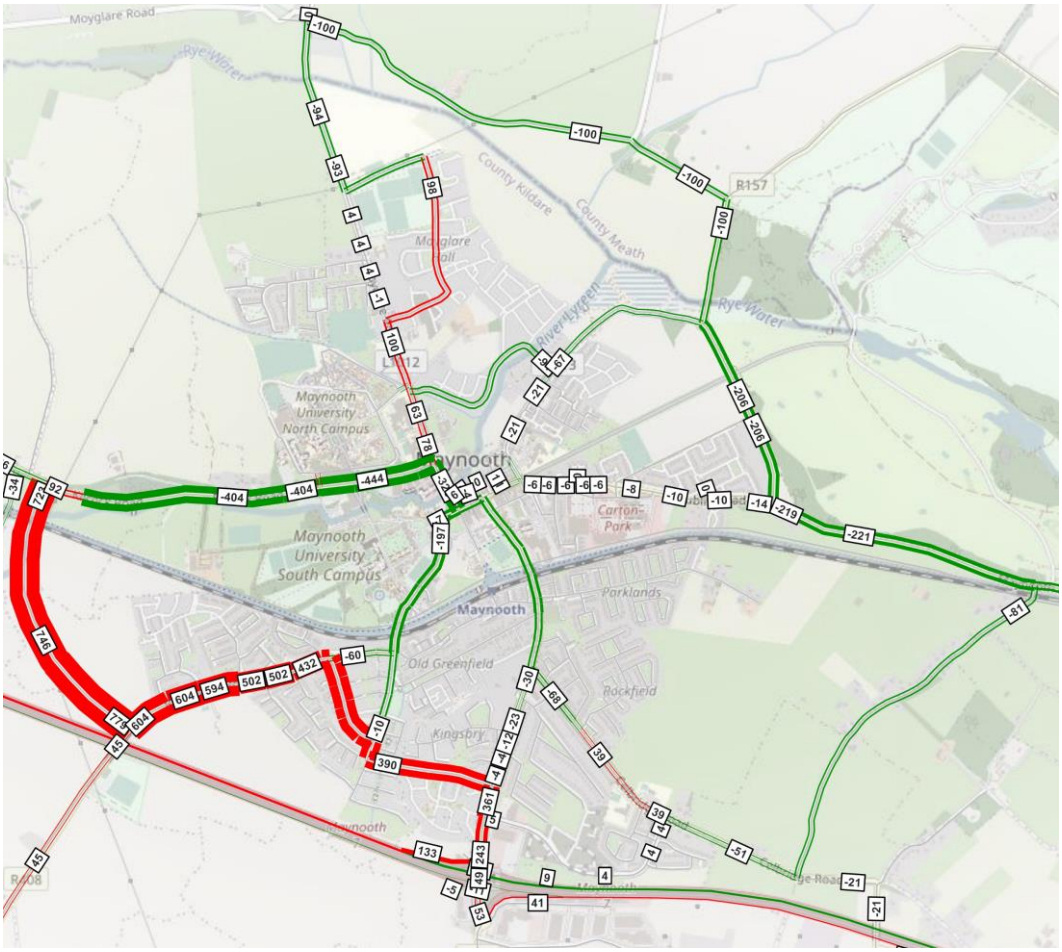

Figure 3.19 Flow Comparison (Option 1B vs DM Scenario) 2038 AM

Option 1C: MOOR Section from Kilcock Road to Moyglare Road

Option 1C was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.20. The difference plot highlights that the introduction of the MOOR 1C from the Kilcock Road to Moyglare Road has reduced traffic volumes on the Moyglare Road and the Kilcock Road, which is near the university and several schools, by providing an alternative orbital route.

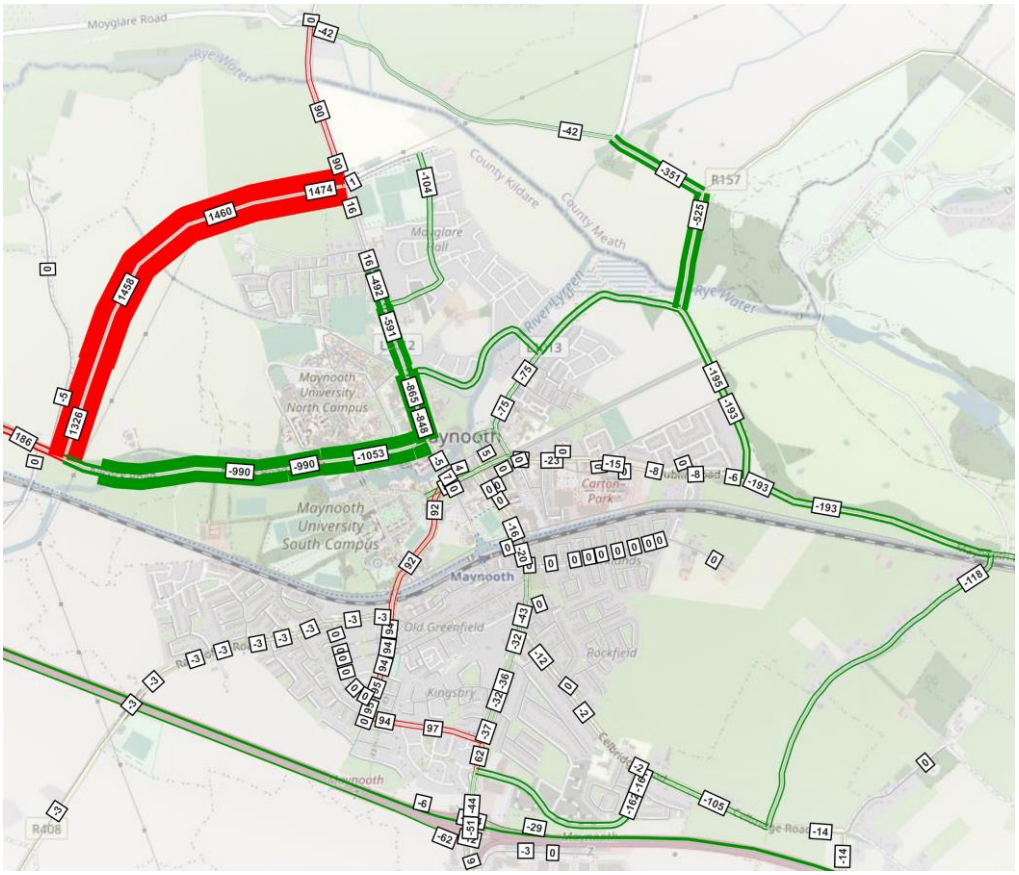

Figure 3.20 Flow Comparison (Option 1C vs DM Scenario) 2038 AM

Option 1A-1C Combined MOOR

Combined Option 1A-1C was compared against the Do-Minimum scenario for the 2038 AM peak and the difference is shown in Figure 3.21. The difference plot highlights that the introduction of the combined MOOR has reduced traffic volumes on the Kilcock Road, Dublin Road, M4 and in the town centre, by facilitating north-south traffic movements without the need to travel through central areas. This difference plot shows how the introduction of the MOOR will play a key role in reducing vehicular trips through the town centre to facilitate the reallocation of space to buses and active modes.

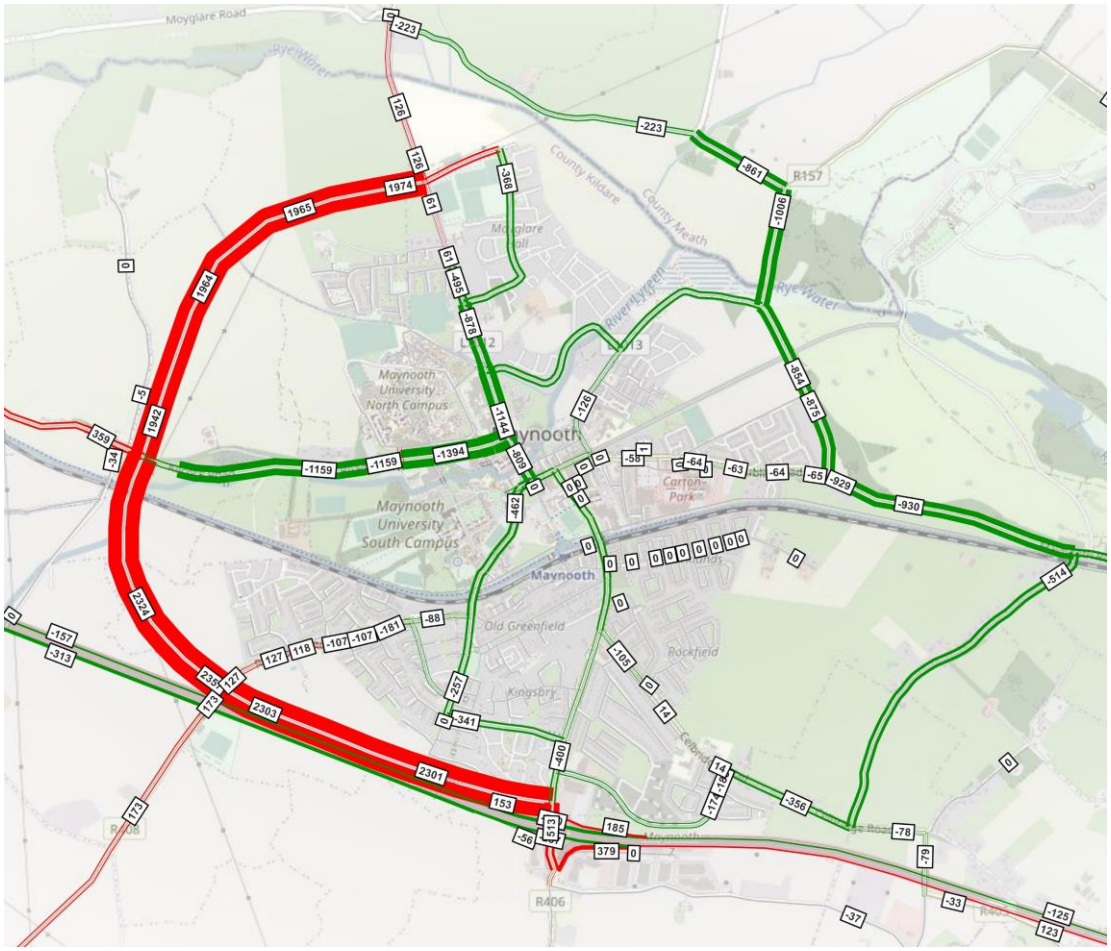

Figure 3.21 Flow Comparison (Option 1A-1C vs DM Scenario) 2038 AM Peak

3.3.1.3 Option 2A (Upgrade Existing M4 Junction)

Option 2A was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.22. It is important to note that option 2A was modelled with supporting orbital roads: MOOR, MERR and Moygaddy orbital in order to properly assess the traffic volumes from new development areas which would access the upgraded junction. The difference plots shows that the MOOR and MERR will be catering for large volumes of traffic (circa 1,000-2,000 vehicles) for trips to/from the vicinity of the M4 junction.

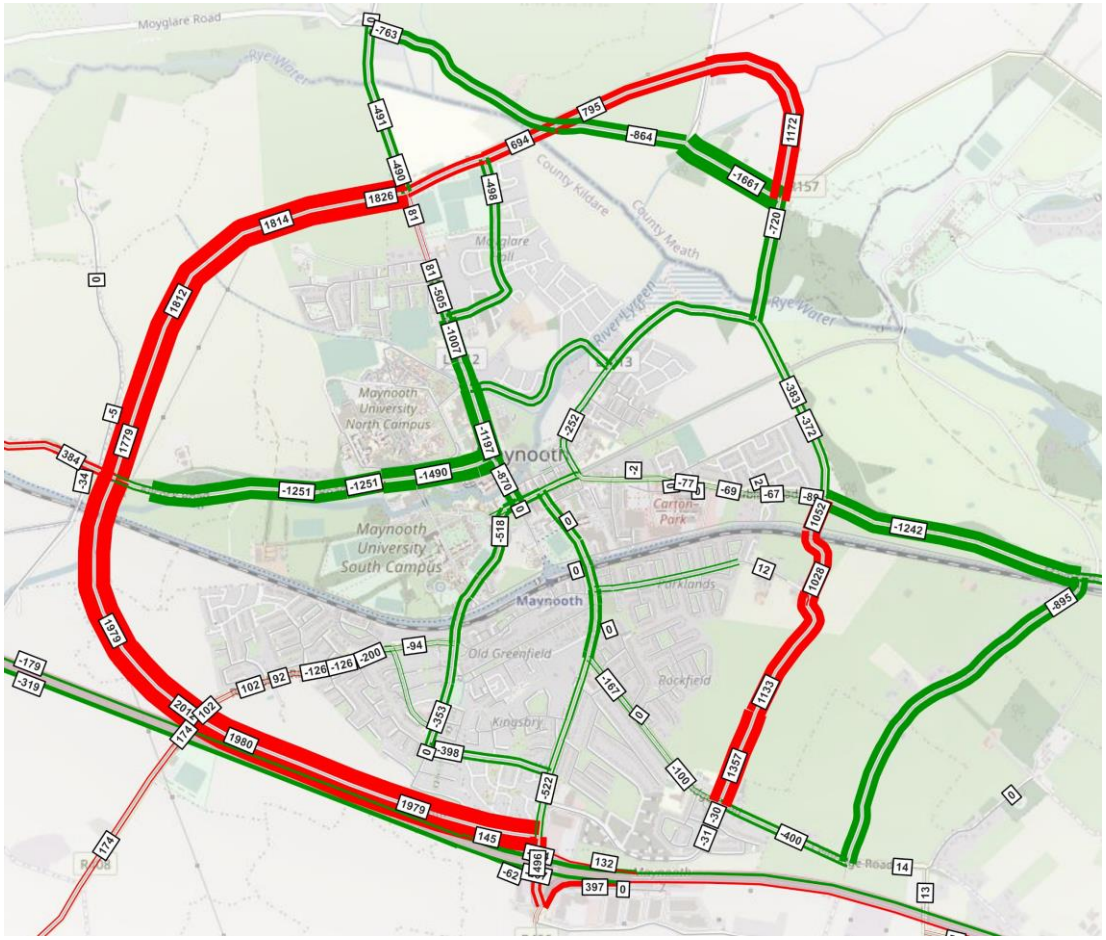

Figure 3.22 Flow Comparison (Option 2A vs DM Scenario) 2038 AM Peak

Option - 2A – Alt 1 Version

This is a modification of Scenario 2A, where the only supporting option is the MERR and the MOOR has not been included in the scenario. This alternative scenario was compared against the Do-Minimum scenario for 2038 in the AM peak with the flow difference plot shown in Figure 3.23. Similar to the Option 2A results, the largest flow differences are caused by the supporting road option rather than the junction upgrade, therefore the junction upgrade is tested on its own in the Alt-2 version. This option was not modelled in 2028.

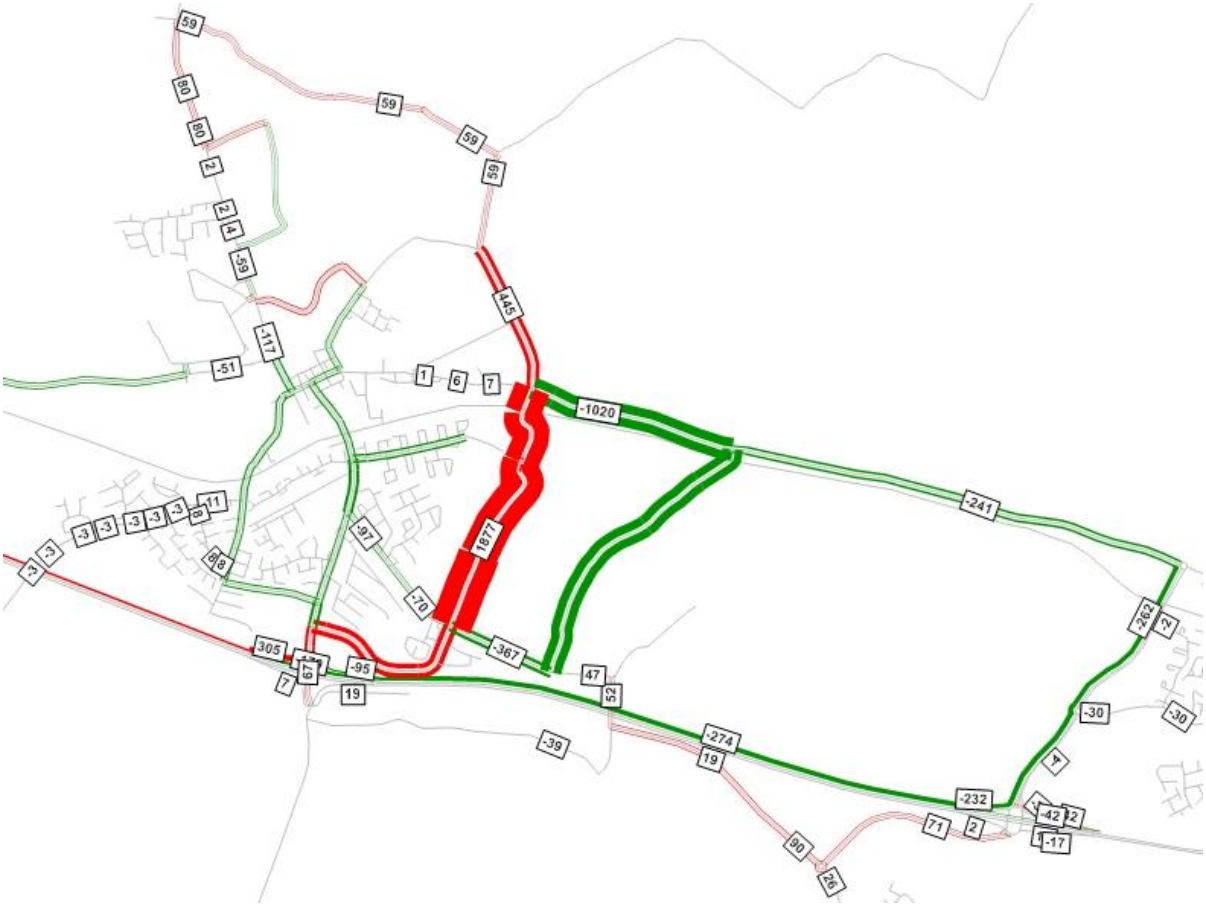

Figure 3.23 Flow Comparison (Option 2A-Alt1 vs DM Scenario) 2038 AM Peak

Option 2A – Alt 2 Version

Option 2A – Alt 2 tests the impact of the upgraded N4 junction without any changes to the surrounding roads, in Figure 3.24. From the figure it can be observed that there is no major difference in traffic flows when the junction is upgraded without supporting road improvements, when compared to the DM. The rerouting observed in the difference plot involves very low (under ten vehicles) changes in traffic flow on links surrounding the junction. This alternative scenario was not modelled in 2028.

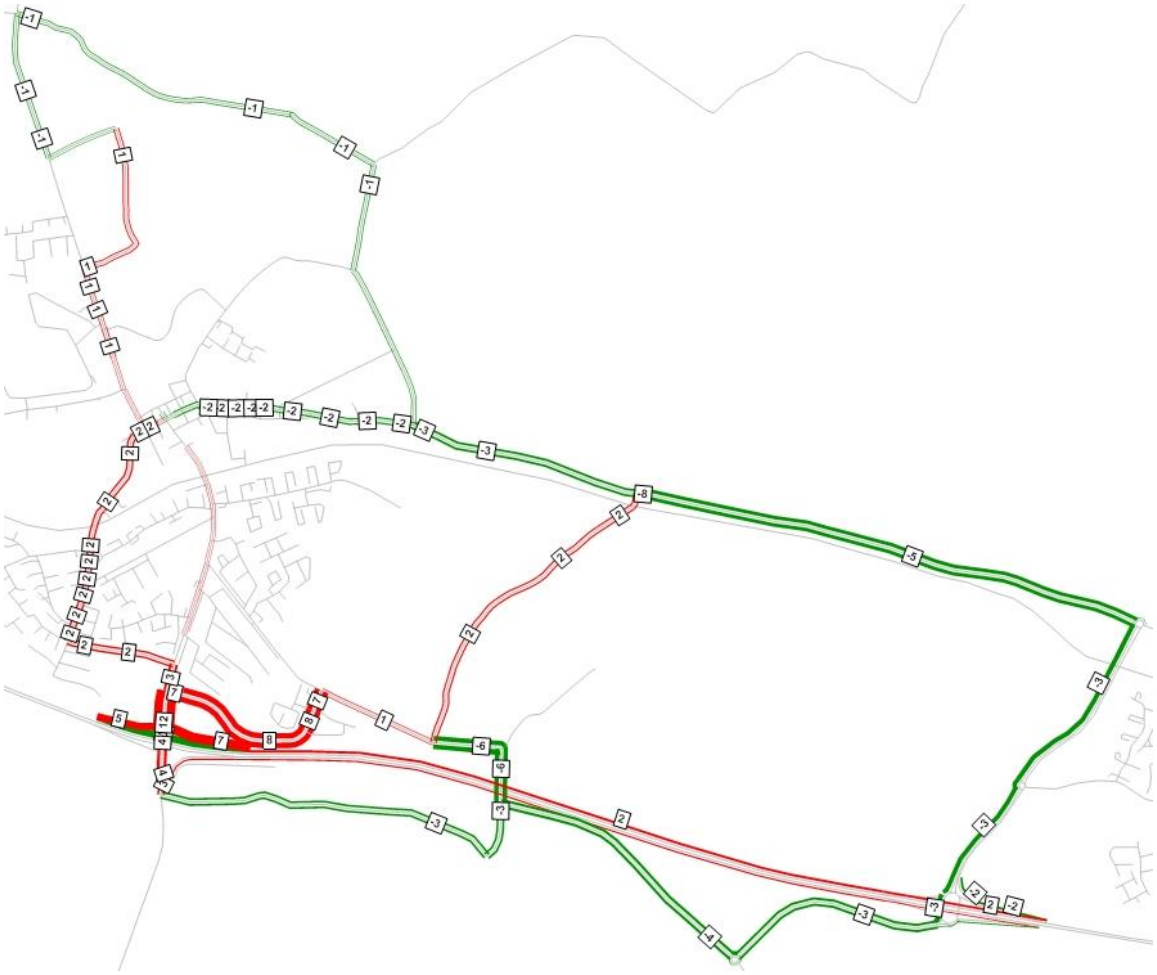

Figure 3.24 Flow Comparison (Option 2A-Alt 2 vs DM Scenario) 2038 AM Peak

3.3.1.4 Option 2B (New M4 Junction and Convert Existing M4 Junction to an Overbridge)

Option 2B was compared against the Do-Minimum scenario for the 2038 AM peak and the difference is shown in Figure 3.25. It is important to note that option 2B was modelled with supporting orbital roads: MOOR, MERR and Moygaddy orbital in order to properly assess the traffic volumes from new development areas which would be accessing the relocated M4 junction. The difference plot highlights that the relocated of the M4 junction to the south-west has caused a reallocation of traffic on the M4 with the MOOR catering for high numbers (circa 2,500) vehicle trips to access this location. Traffic levels have reduced in the vicinity of the old M4 junction which has closed to traffic and become an overbridge.

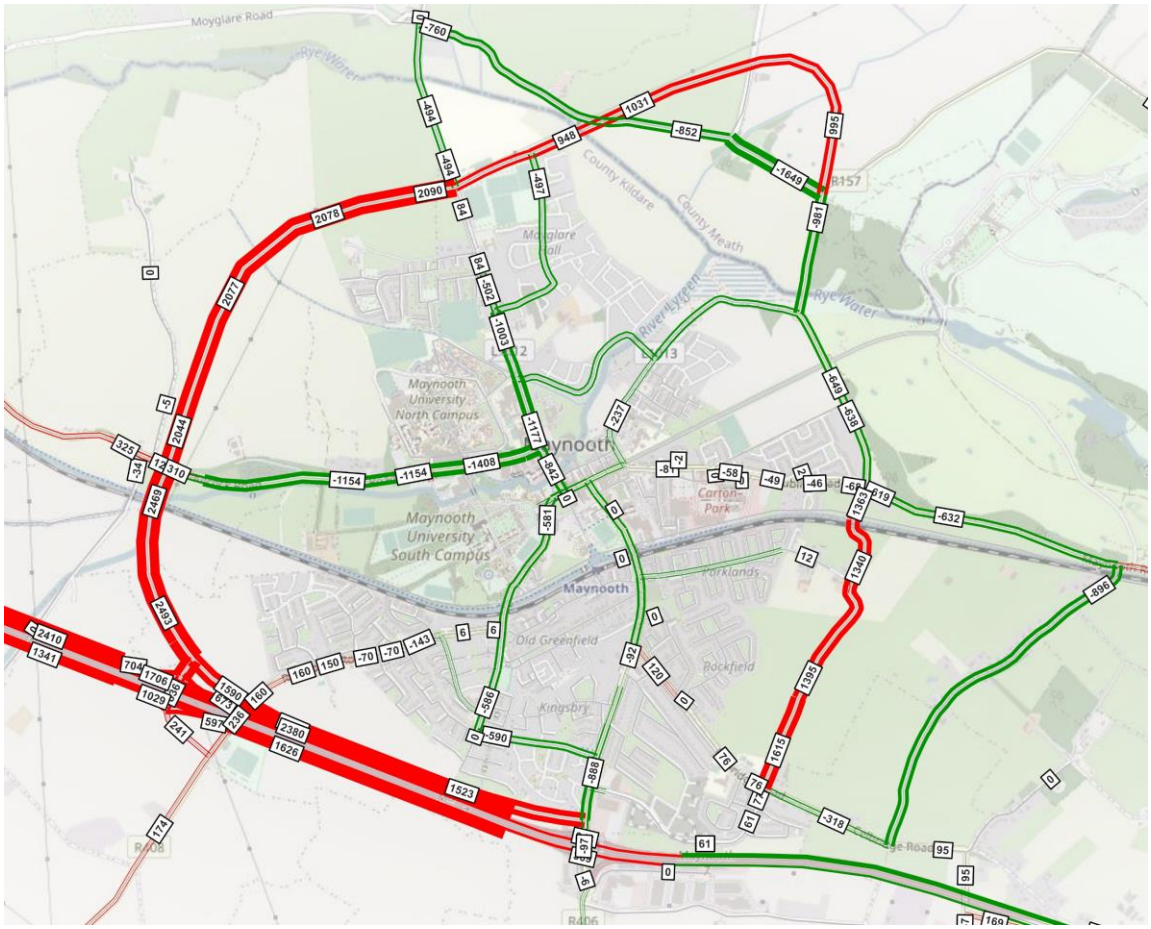

Figure 3.25 Flow Comparison (Option 2B vs DM Scenario) 2038 AM Peak

3.3.1.5 Option 3 Maynooth Eastern Ring Road (MERR)

Option 3 was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.26. The difference plot highlights that the introduction of the Maynooth Eastern Ring Road (MERR) has reduced traffic volumes on the Dublin Road and Ballygoran View by facilitating north-south movement to the east of the town. There is also a certain amount of traffic reduction on Straffan Road and the town centre.

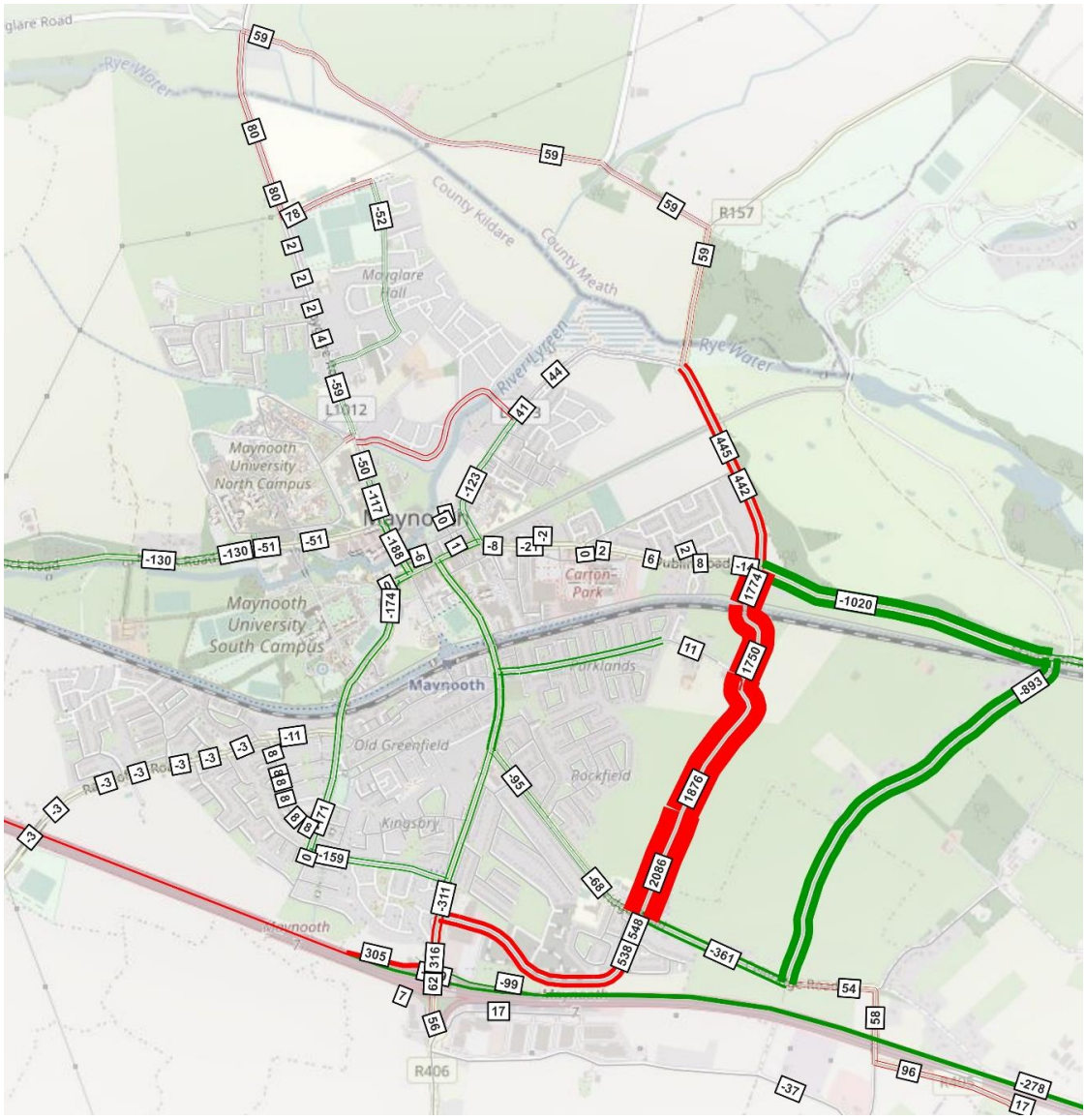

Figure 3.26 Flow Comparison (Option 3 vs DM Scenario) 2038 AM Peak

3.3.1.6 Option 5 North-Eastern MOOR to Moygaddy

Option 5, the north-eastern MOOR to Moygaddy, was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.27. The difference plot highlights that the introduction of the North-Eastern MOOR to Moygaddy has reduced traffic volumes on the Moyglare Road and lanes near Moygaddy by facilitating a more direct route to northern Maynooth. The difference plot highlights the circa 1,000 vehicles which will be passing in front of the MEC school campus on the new orbital road, which will require careful design to reduce conflicts.

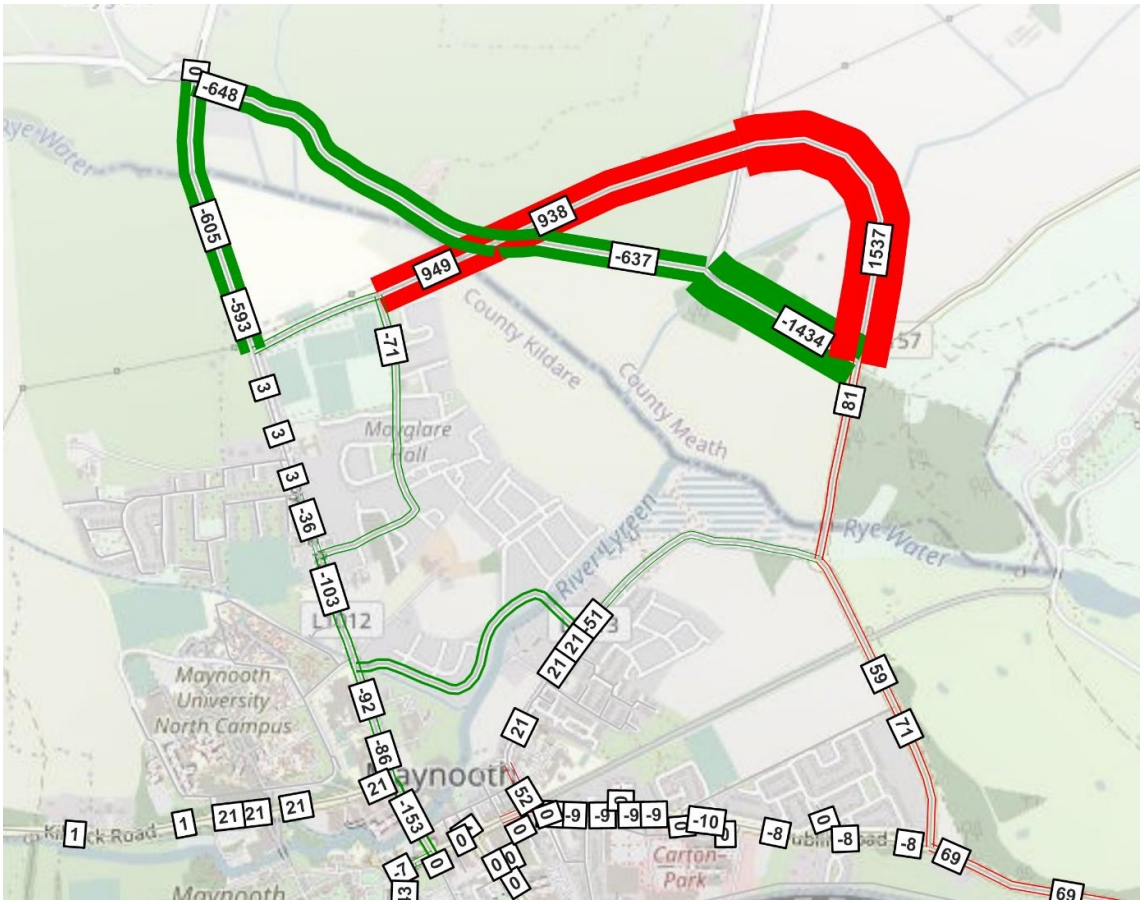

Figure 3.27 Flow Comparison (Option 5 vs DM Scenario) 2038 AM Peak

3.3.1.7 Option 6: Moygaddy Radial Link and Local Road Upgrades

Option 6 was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.28. The difference plot highlights that the introduction of the Moygaddy Radial Link and Local Road Upgrades reduces traffic on the R157 to the east. The difference plot highlights an issue with the connection to Lyreen Avenue where circa 700 vehicles an hour will be using a residential road to access the proposed radial link to Moygaddy.

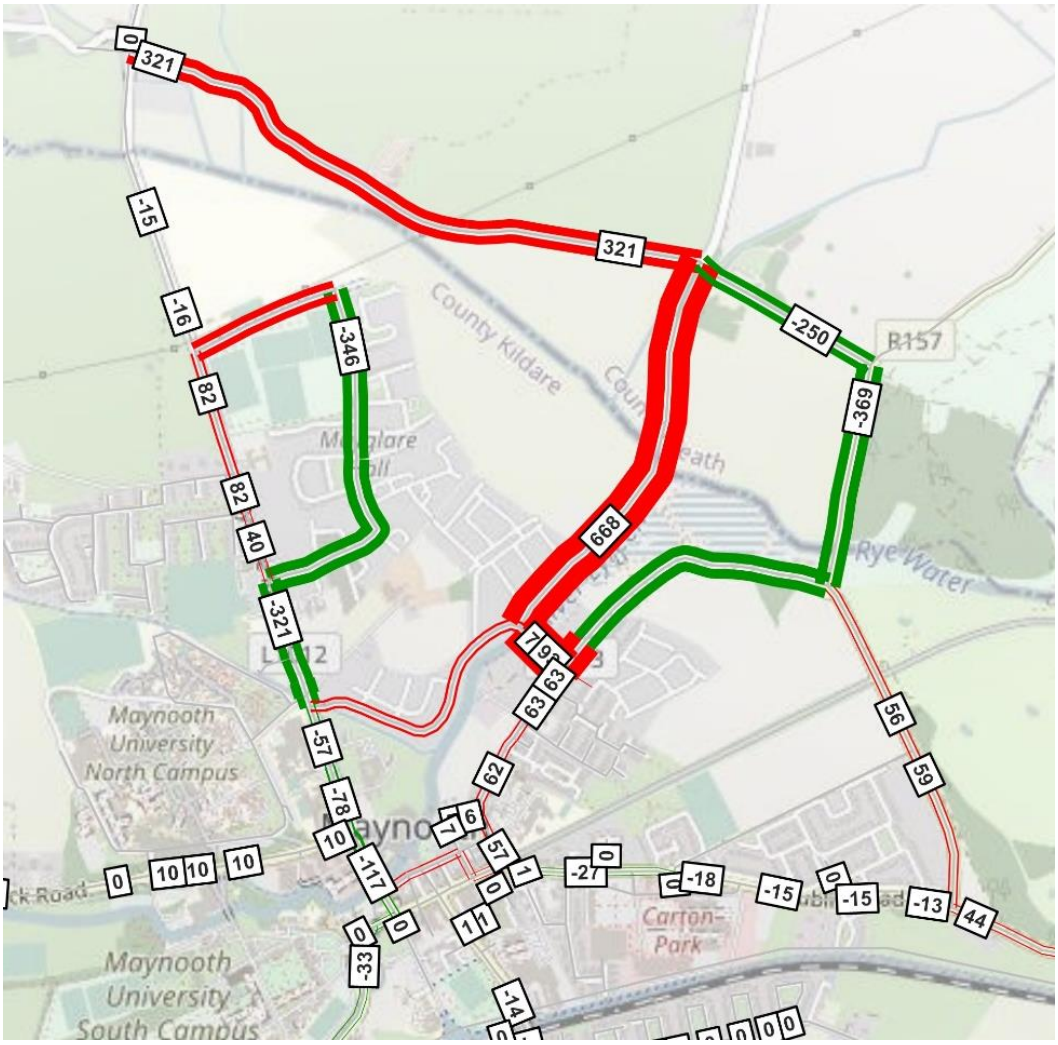

Figure 3.28 Flow Comparison (Option 6 vs DM Scenario) 2038 AM Peak

3.3.1.8 Option 8: New Southern Access to Leinster Street from Parsons Street

Option 8 was compared against the Do-Minimum scenario for the 2038 AM peak and the difference plot is shown in Figure 3.29. The difference plot highlights that the introduction of a new southern access to Leinster Street from Parsons Street attracts circa 200 vehicles in the AM peak hour, while there is a slight reduction in traffic travelling via Main Street to reach Leinster Street.

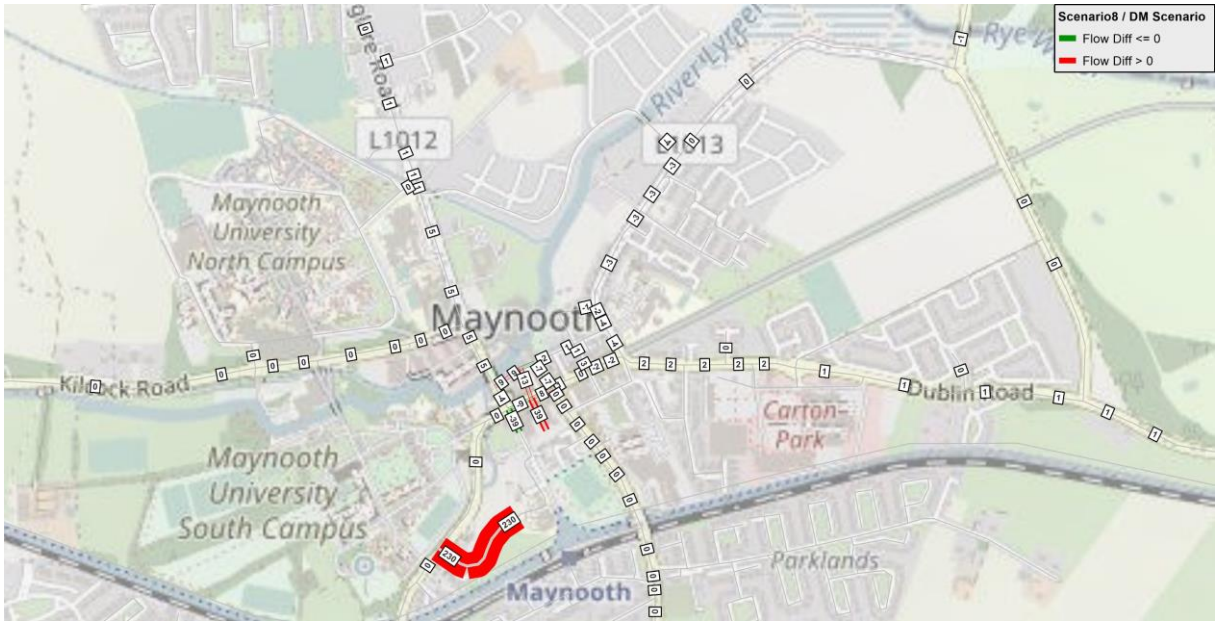

Figure 3.29 Flow Comparison (Option 8 vs DM Scenario) 2038 AM Peak

3.3.1.9 Option 10: Close Eastern Maynooth University Entrance to Motor Vehicle Traffic

Option 10 was compared against a Do-Minimum scenario with the MOOR (section 1C) in place for the 2038 AM peak so that the difference plot focuses simply on the impact from closing the eastern university vehicular entrance in Figure 3.30. The difference plot highlights that the closure of the eastern Maynooth University entrance to motor vehicle traffic reduces traffic on the Moyglare Road as planned and redirects this traffic via the MOOR and Kilcock Road.

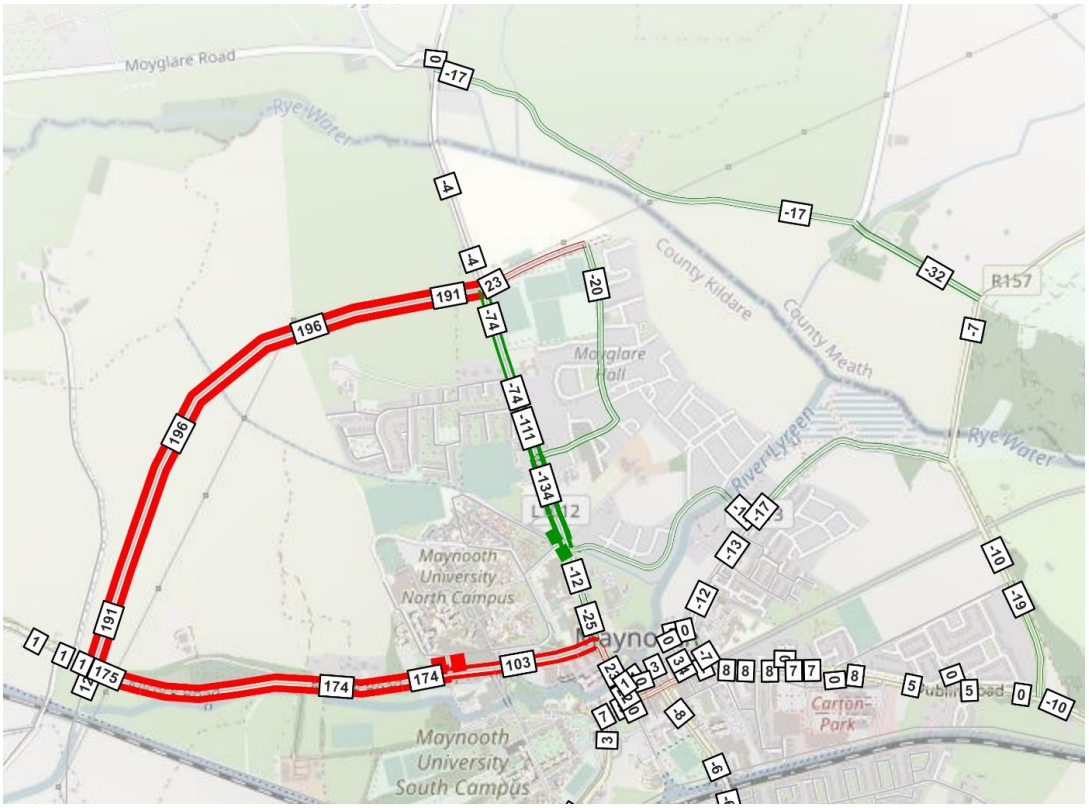

Figure 3.30 Flow Comparison (Option 10 vs DM Scenario) 2038 AM Peak

3.3.1.10 VISUM Network Statistics

The tables in this section provide the network statistics for combined LV and HV traffic in 2028 and 2038 during the AM and PM peaks. The network statistics for each option are compared to the relevant DM scenario. Table 3.7 presents the results for the 2028 AM Peak and Table 3.9 provides the 2038 AM peak results, the equivalent results for the PM peak are provided in Table 3.8 and Table 3.10.

Comparing the results, Option 2A, which implements the full MOOR route, shows the most beneficial results in terms of total network travel time, likely due to the numerous changes it entails. Option 2B, which also implements the full MOOR, has similar benefits to Option 2A.

Option 6 (Moygaddy Radial Link and Local Road Upgrades) and Option 8 (New Southern Access to Leinster Street from Parsons Street) have minor impacts on the network statistics, and they are primarily designed to improve pedestrian and cyclist access.

Option 1C, which implements the MOOR from Kilcock to Moyglare, is the most beneficial among all the scenarios for the Western/Southern Orbital. Meanwhile, Option 3 (MERR) is the most beneficial scenario for the eastern parts of the MOOR.

Table 3.7 Network Statistics for the DM and DS Options in 2028 AM Peak

All User Class (LV and HV)					
Model	**Scenario Name**	**Total Network Trips**	**Total Vehicle km**	**Total Network Travel Time (hrs)**	**Avg. Network Vehicle Speed (kph)**
Do Min - 2028 AM Peak	Do Minimum Network	19,829	180,042	4,178	43.10
1A - 2028 AM Peak	Maynooth Outer Orbital Road (MOOR): Straffan Road to Rathcoffey Road	19,829	179,238	4,158	43.10
1B - 2028 AM Peak	MOOR: Rathcoffey Road-Kilcock Road	19,829	179,452	4,090	43.88
1C - 2028 AM Peak	MOOR: Kilcock Road-Moyglare Road	19,829	177,987	3,987	44.64
1A/1B/1C - 2028 AM Peak	Full MOOR Route	19,829	176,842	3,613	48.95
2A - 2028 AM Peak	Upgrade Existing M4 Junction	19,829	173,637	3,398	51.11
2B - 2028 AM Peak	Provide one new M4 junction and convert existing M4 junction to an overbridge	19,829	173,447	3,436	50.47
3 - 2028 AM Peak	Maynooth Eastern Ring Road (MERR)	19,829	178,111	3,943	45.17
5 - 2028 AM Peak	North-Eastern MOOR to Moygaddy	19,829	179,593	4,027	44.60
6 - 2028 AM Peak	Moygaddy Radial Link and Local Road Upgrades	19,829	181,134	4,036	44.88
8 - 2028 AM Peak	New Southern Access to Leinster Street from Parsons Street	19,829	180,073	4,179	43.09
10 - 2028 AM Peak	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	19,829	177,324	3,626	48.91

Table 3.8 Network Statistics for the DM and DS Options in 2028 PM Peak

All User Class (LV and HV)					
Model	**Scenario Name**	**Total Network Trips**	**Total Vehicle km**	**Total Network Travel Time (hrs)**	**Average Network Vehicle Speed (kph)**
Do Min - 2028 PM Peak	Do Minimum Network	20,849	189,608	4,385	43.24
1A - 2028 PM Peak	Maynooth Outer Orbital Road (MOOR): Straffan Road to Rathcoffey Road	20,849	188,079	4,368	43.05
1B - 2028 PM Peak	MOOR: Rathcoffey Road-Kilcock Road	20,849	188,772	4,272	44.19
1C - 2028 PM Peak	MOOR: Kilcock Road-Moyglare Road	20,849	188,621	4,251	44.37
1A/1B/1C- 2028 PM Peak	Full MOOR Route	20,849	186,103	3,930	47.35
2A - 2028 PM Peak	Upgrade Existing M4 Junction	20,849	183,433	3,712	49.42
2B - 2028 PM Peak	Provide one new M4 junction and convert existing M4 junction to an overbridge	20,849	184,112	3,767	48.87
3 - 2028 PM Peak	Maynooth Eastern Ring Road (MERR)	20,849	188,078	4,154	45.28
5 - 2028 PM Peak	North-Eastern MOOR to Moygaddy	20,849	189,076	4,306	43.91
6 - 2028 PM Peak	Moygaddy Radial Link and Local Road Upgrades	20,849	189,996	4,293	44.26
8 - 2028 PM Peak	New Southern Access to Leinster Street from Parsons Street	20,849	189,636	4,387	43.23
10 - 2028 PM Peak	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	20,849	186,647	3,942	47.34

Table 3.9 Network Statistics for the DM and DS Options in 2038 AM Peak

All User Class (LV and HV)					
Model	**Scenario Name**	**Total Network Trips**	**Total Vehicle km**	**Total Network Travel Time (hrs)**	**Average Network Vehicle Speed (kph)**
Do Min - 2038 AM Peak	Do Minimum Network	20,225	187,636	4,457	42.10
1A - 2038 AM Peak	Maynooth Outer Orbital Road (MOOR): Straffan Road to Rathcoffey Road	20,225	186,760	4,439	42.07
1B - 2038 AM Peak	MOOR: Rathcoffey Road-Kilcock Road	20,225	186,620	4,291	43.49
1C - 2038 AM Peak	MOOR: Kilcock Road-Moyglare Road	20,225	184,455	4,132	44.64
1A/1B/1C- 2038 AM Peak	Full MOOR Route	20,225	182,627	3,707	49.27
2A - 2038 AM Peak	Upgrade Existing M4 Junction	20,225	179,919	3,524	51.05
2A: Alt 1 - 2038 AM Peak	Existing M4 Junction Upgrade (Supporting Options: Option 3 MERR)	20,225	185,756	4,243	43.77
2A: Alt 2 - 2038 AM Peak	Existing M4 Junction Upgrade (No Supporting Options)	20,225	187,619	4,454	42.13
2B - 2038 AM Peak	Provide one new M4 junction and convert existing M4 junction to an overbridge	20,225	179,844	3,560	50.51
3 - 2038 AM Peak	Maynooth Eastern Ring Road (MERR)	20,225	185,745	4,248	43.73
5 - 2038 AM Peak	North-Eastern MOOR to Moygaddy	20,225	186,671	4,330	43.11
6 - 2038 AM Peak	Moygaddy Radial Link and Local Road Upgrades	20,225	188,230	4,338	43.39
8 - 2038 AM Peak	New Southern Access to Leinster Street from Parsons Street	20,225	187,665	4,459	42.09
10 - 2038 AM Peak	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	20,225	183,074	3,722	49.18

Table 3.10 Network Statistics for the DM and DS Options in 2038 PM Peak

All User Class (LV and HV)					
Model	**Scenario Name**	**Total Network Trips**	**Total Vehicle km**	**Total Network Travel Time (hrs)**	**Average Network Vehicle Speed (kph)**
Do Min - 2038 PM Peak	Do Minimum Network	21,069	196,980	4,619	42.64
1A - 2038 PM Peak	MOOR Section: Straffan Road to Rathcoffey Road	21,069	195,457	4,600	42.49
1B - 2038 PM Peak	MOOR Section: Rathcoffey Road-Kilcock Road	21,069	195,903	4,440	44.12
1C - 2038 PM Peak	MOOR Section: Kilcock Road-Moyglare Road	21,069	195,570	4,409	44.36
1A/1B/1C- 2038 PM Peak	Full MOOR Route	21,069	192,642	4,039	47.69
2A - 2038 PM Peak	Upgrade Existing M4 Junction	21,069	190,242	3,857	49.33
2A: Alt 1 - 2038 PM Peak	Existing M4 Junction Upgrade *(Supporting Options: Option 3 MERR)*	21,069	195,889	4,414	44.38
2A: Alt 2 - 2038 PM Peak	Existing M4 Junction Upgrade *(No Supporting Options)*	21,069	196,944	4,614	42.68
2B - 2038 PM Peak	Provide one new M4 junction and convert existing M4 junction to an overbridge	21,069	191,263	3,914	48.87
3 - 2038 PM Peak	Maynooth Eastern Ring Road (MERR)	21,069	195,887	4,418	44.34
5 - 2038 PM Peak	North-Eastern MOOR to Moygaddy	21,069	196,335	4,559	43.07
6 - 2038 PM Peak	Moygaddy Radial Link and Local Road Upgrades	21,069	197,178	4,545	43.38
8 - 2038 PM Peak	New Southern Access to Leinster Street from Parsons Street	21,069	196,997	4,621	42.63
10 - 2038 PM Peak	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	21,069	193,127	4,054	47.64

3.3.1.11 Reduction in Town Centre Traffic Assessment

Table 3.11 provides a summary of analysis showing the percentage two-way reduction in traffic flow on Mill Street (shopping centre), Straffan Road (Square), Parsons St (Garda station) and Main Street (AIB) for different options when compared to the do-minimum scenario in 2038. This table allows for the impact of each modelled road option on reducing town centre traffic to be assessed. The introduction of the MOOR has the largest impact on town centre traffic, with major reductions in the town centre observed.

Table 3.11 Percentage Reduction in Traffic flow in DS Scenarios in 2038

Option	Scenario name	Mill Street	Straffan Road	Parsons Street	Main Street
	AM Peak				
Option 1A	MOOR Section: Straffan Road to Rathcoffey Road	0.2%	-0.4%	-0.2%	-1.1%
Option 1B	MOOR Section: Rathcoffey Road-Kilcock Road	-23.4%	-15.7%	-22.0%	-14.3%
Option 1C	MOOR Section: Kilcock Road-Moyglare Road	-0.4%	-2.7%	0.9%	-7.7%
Combined Option 1A-1C	Full MOOR Route	-57.9%	-37.9%	-55.8%	-30.9%
Option 2A	Upgrade Existing M4 Junction *(Supporting Options: Option 4 MOOR, Option 10 North-Eastern Moygaddy MOOR and MERR)*	-62.3%	-54.5%	-65.4%	-43.5%
Option 2B	Provide new M4 junction to the West and convert existing M4 junction to an overbridge *(Supporting Options: Option 4 MOOR, Option 10 North-Eastern Moygaddy MOOR and Option 3 MERR)*	-60.3%	-55.8%	-68.9%	-47.3%
Option 2A_Alt 1	Existing M4 Junction Upgrade *(Supporting Options: Option 3 MERR)*	-13.5%	-19.3%	-20.0%	-6.9%
Option 2A_Alt 2	Existing M4 Junction Upgrade *(No Supporting Options)*	0.0%	0.0%	0.1%	0.1%
Option 3	Maynooth Eastern Ring Road (MERR)	-13.5%	-19.3%	-20.0%	-6.9%
Option 5	North-Eastern MOOR to Moygaddy	-10.9%	-1.9%	-5.9%	1.7%
Option 6	Moygaddy Radial Link and Local Road Upgrades	-8.4%	-1.2%	-4.0%	-2.5%
Option 8	New Southern Access to Leinster Street from Parsons Street	0.3%	0.0%	-0.1%	-1.0%
Option 10	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic *(Supporting Options: 1A-1C in place as alternative route)*	-56.3%	-38.9%	-54.8%	-29.4%
Option 1A	MOOR Section: Straffan Road to Rathcoffey Road	0.4%	-0.4%	-0.6%	-0.8%
Option 1B	MOOR Section: Rathcoffey Road-Kilcock Road	-29.9%	-10.6%	-28.7%	-5.6%
Option 1C	MOOR Section: Kilcock Road-Moyglare Road	0.0%	-2.8%	-5.5%	2.1%
Combined Option 1A-1C	Full MOOR Route	-51.2%	-27.9%	-47.6%	-13.4%
Option 2A	Upgrade Existing M4 Junction *(Supporting Options: Option 4 MOOR, Option 10 North-Eastern Moygaddy MOOR and Option 3 MERR)*	-57.1%	-40.8%	-54.1%	-23.2%

Option 2B	Provide new M4 junction to the West and convert existing M4 junction to an overbridge *(Supporting Options: Option 4 MOOR, Option 10 North-Eastern Moygaddy MOOR and Option 3 MERR)*	-48.3%	-43.0%	-64.9%	-33.5%
Option - 2A_Alt 1	Existing M4 Junction Upgrade *(Supporting Options: Option 3 MERR)*	-12.7%	-16.1%	-16.2%	-6.2%
Option 2A_Alt 2	Existing M4 Junction Upgrade *(No Supporting Options)*	0.2%	0.0%	0.1%	0.2%
Option 3	Maynooth Eastern Ring Road (MERR)	-12.9%	-16.1%	-16.5%	-6.3%
Option 5	North-Eastern MOOR to Moygaddy	-2.5%	-0.6%	-3.1%	-0.9%
Option 6	Moygaddy Radial Link and Local Road Upgrades	-5.9%	-1.6%	-2.6%	-1.2%
Option 8	New Southern Access to Leinster Street from Parsons Street	0.2%	0.1%	-0.6%	5.4%
Option 10	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic *(Supporting Options: 1A-1C in place as alternative route)*	-48.3%	-28.4%	-47.0%	-9.9%

3.3.2 Road Options MCA Assessment

The road options are assessed in MCA tables. The MCA assessment is informed by the transport modelling and baseline review, but it is primarily a qualitative high-level assessment to identify the most beneficial options.

3.3.2.1 Option 1 MOOR: 1A, 1B, 1C and Combined

Option 1 consists of four variations: the three sub-sections (1A-1C) and the combined option 1, which are assessed in Table 3.12.

Orbital roads can have varying impacts on decarbonisation, depending on their design and supporting infrastructure. While they can provide efficient routes for vehicles and support sustainable transportation alternatives in the centre of town, if designed solely for high-speed motor vehicle traffic without adequate policies in place, they may encourage car use and increase emissions. The provision of bus priority on the MOOR does mean it will be a multimodal solution which improves public transport as well as car travel.

However, if designed to accommodate sustainable transport options and implemented fully, such as Option 1A-1C, an orbital road can have a positive impact on land-use integration, accessibility, modal shift, and strategy integration. The MOOR will facilitate development growth by providing access to the greenfield sites in close proximity to the Maynooth West train station, which have the greatest potential to promote sustainable travel. The MOOR will also provide access to the new park and ride facility at the Maynooth West train station. . As long as the MOOR is integrated with larger transportation strategies to reallocate space to sustainable modes in the town centre, it will have a positive role in sustainable travel even if the primary mode using the road are cars. With the recommendation to provide bus priority infrastructure on the MOOR in the public transport strategy and the provision of walking/cycling routes in the active travel strategies, it is more appropriate to consider the MOOR as a multi-modal corridor instead of a traditional road. It is a necessary road to deliver the growth targets, which is integrated with sustainable travel measures to promote modal shift as much as possible.

Furthermore, an orbital road can have broader positive impacts on public health, accessibility, economic development, and sustainability goals. By being designed with consideration of community needs and concerns, it can improve mobility and remove HGVs from the town centre. Realised in its full alignment, Option 1 benefits the local community far more than each option individually. This is due to the completed orbital being able to take people from the north of Maynooth to the south and giving access to M4 and Maynooth University without travelling through the town centre or residential roads. The provision of an orbital bypass will allow for bus-only streets in the centre, which will positively impact the community, as well as the safety benefit of removing heavy vehicles from streets.

It is important to note that while the MOOR may have these positive impacts, it also comes with a high capital cost and a lengthy delivery time. Nonetheless, the potential benefits of such a road, and its role in the integrated transport strategy to promote sustainable travel, should be considered despite its cost and time requirements.

Table 3.12 Option 1 MCA

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 1A: Straffan Road to Rathcoffey Road				
Option 1B: Rathcoffey Road to Kilcock Road				
Option 1C: Kilcock Road to Moyglare Road				
Option 1 (1A-1C)				

3.3.2.2 Option 2A (Upgrade Existing M4 Junction) and Option 2B (New M4 Junction and Convert Existing M4 Junction to an Overbridge)

Option 2A and Option 2B both consider junction options to the M4 with the full MOOR implemented and are compared in Table 3.13.

Option 2A offers several benefits compared to Option 2B. Upgrading a motorway junction with Option 2A has the potential to reduce traffic congestion and promote sustainable transportation options, encouraging modal shift and contributing to wider decarbonization goals. Integration with other modes of transportation can further improve mobility and efficiency and upgrading can be part of wider transport strategies.

Moreover, Option 2A can reduce the negative environmental impacts of traffic, such as emissions from idling vehicles, which can contribute to air pollution and climate change. Upgraded junctions can also improve road safety, and reduce the impact of severance, which can divide communities and negatively impact natural habitats. In the case of the N4 junction, there is an existing pedestrian path but no safe crossing points in a high traffic environment or cycling facilities, which the option would resolve from a severance perspective. Option 2A is also more in line with NIFTI which prioritises upgrading and making better use of existing infrastructure, before building new road infrastructure.

On the other hand, while Option 2B also has benefits, such as increasing access to services and opportunities for previously isolated communities or new development areas, it may face significant constraints, such as a high associated cost for infrastructure and construction. The option may also have to contend with constraints such as funding, land availability, and environmental regulations. Option 2B essentially moves the same traffic 2km to the west of the existing junction, with very little benefit considering the cost and construction involved in doing so.

Overall, Option 2A offers a more comprehensive and sustainable approach to upgrading a motorway junction, providing benefits for the environment, communities, and transportation systems, while minimizing negative impacts on the natural environment and local communities.

Table 3.13 Option 2A and Option 2B MCA

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 2A: Upgrade Existing M4 Junction				
Option 2B: New M4 Junction and Convert Existing Junction M4 to an Overbridge				

3.3.2.3 Option 3 Maynooth Eastern Ring Road (MERR)

Option 3 considers an Eastern Ring Road around the town of Maynooth, its MCA criteria is assessed in Table 3.14.

Constructing a ring road can have negative impacts on climate change and the local environment due to energy and resource use during construction, habitat destruction, increased traffic, and transportation leading to increased greenhouse gas emissions, noise, air pollution, and habitat fragmentation. While it may improve traffic flow and reduce congestion, a ring road's potential for decarbonisation is limited, and it would need to encourage low-carbon modes of transportation such as cycling, walking, and public transportation to have a more significant impact. However, the provision of an orbital road will allow for the reallocation of space in the town centre to prioritise sustainable travel modes as part of an integrated approach.

In contrast, a ring road to the east of Maynooth Town could have several positive impacts, such as reducing traffic congestion, improving accessibility, promoting sustainable urban planning, and aiding future development. Additionally, it may positively impact social connectivity and safety by reducing noise and air pollution and separating through-traffic from local traffic. However, the construction of a ring road may also result in some negative impacts such as severance and negatively impacting the visual amenity of the surrounding countryside.

To mitigate these potential impacts, careful planning and community engagement would be necessary. Additionally, the impact of the proposed ring road in terms of cost, constraints, and realism of delivery would depend on various factors such as the proposed route, land acquisition, environmental impact, and funding. Construction could be costly and require significant resources, and constraints such as the availability of suitable land and potential impacts on existing infrastructure could present challenges. The realism of delivery would also depend on factors such as funding availability, community support, and regulatory approval processes. The MERR has progressed to Part 8 planning and design so it is regarded as quite feasible, subject to funding.

Table 3.14 Option 3 Maynooth Eastern Ring Road

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 3: Maynooth Eastern Ring Road (MERR)				

3.3.2.4 Option 4 Reduce Speed Limits Across Maynooth

Option 4 considers reducing speed limits across Maynooth, its MCA criteria is assessed in Table 3.15.

Reducing speed limits in Maynooth can bring about multiple benefits, including reduced fuel consumption and greenhouse gas emissions from vehicles, improved air quality, and less noise pollution and vibrations for local residents and wildlife. This, in turn, can encourage the use of low-carbon modes of transportation and contribute to decarbonisation efforts.

Lowering speed limits in Maynooth can also promote land-use integration, accessibility, and modal shift towards low-carbon transportation. It can be part of a broader strategy to promote sustainable transportation and urban planning, creating a more equitable and inclusive environment.

Additionally, reducing speed limits can improve social equity by creating safer and more accessible streets for all residents, regardless of age, ability, or income. This can promote social inclusion, community cohesion, and reduce the social isolation caused by high-speed roads.

While there may be costs associated with changing signage, public education, and enforcement, these are generally low compared to other transportation investments. Moreover, the benefits of reduced emissions, improved safety, and enhanced quality of life for local residents can offset these costs in the long run.

Table 3.15 Option 4 Reduce Speed Limits Across Maynooth

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 4: Reduce Speed Limits Across Maynooth				

3.3.2.5 Option 5 North-Eastern MOOR to Moygaddy and Option 6 Moygaddy Radial Link and Local Road Upgrades

Option 5 and 6 both consider options regarding road access to Moygaddy and are compared with their MCA criteria in Table 3.16.

Option 5 (orbital MOOR to Moygaddy) has the potential to greatly improve transportation efficiency and connectivity in the region by improving access to and from the Moygaddy site. However, the development of this peripheral site in combination with an orbital road will have a negative impact on sustainable travel. Careful planning and design will be required to mitigate potential negative safety impacts on the MEC school campus. This road is regarded as more feasible because it was designed in previous local area plans and is supported by Meath County Council. In general orbital roads favour car travel over sustainable travel modes because they involve longer distances.

In contrast, Option 6 (radial link to Moygaddy) risks creating negative safety and health impacts by channelling a large volume of vehicles through a residential road in Lyreen Avenue. However, a radial link would be more suitable for promoting sustainable modes of transportation, such as walking, cycling, and public transport

as it is more direct. The potential for displacement, disruption to communities, and damage to natural habitats also present significant social impacts that must be carefully addressed. The challenge of implementation in a residential area also reduces the feasibility of this option.

Overall, Option 5 is the weaker option from a sustainable travel perspective, but it is much more feasible due to its designation in local and county policies and cross-border support. This road has been selected as the preferred outcome in the MEABTA, while the walking, cycling and public transport strategies will aim to connect Moygaddy to the existing areas of Maynooth instead.

Table 3.16 Option 5 and 6 MCA

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 5: North-Eastern MOOR to Moygaddy				
Option 6: Moygaddy Radial Link and Local Road Upgrades				

3.3.2.6 Option 7 Provide Additional Green Time at Traffic Signals for Pedestrians, Cyclists and Buses

Option 7 considers additional green time being provided at traffic signals for pedestrians, cyclists, and buses across Maynooth. Its MCA criteria are assessed in Table 3.17.

Providing additional green time at traffic lights for pedestrians, cyclists, and buses can have a positive impact on climate change by encouraging the use of sustainable modes. This option can enhance land-use integration and accessibility by improving access to nearby destinations, such as shops and public amenities by sustainable modes. This option can encourage modal shift and promote more sustainable travel behaviours, leading to reduced congestion and emissions.

Providing additional green time at traffic lights for pedestrians, cyclists, and buses can have positive social impacts by improving the safety, efficiency and comfort for active transport users. It can also reduce severance caused by busy roads and promote social inclusion by enabling more people to access essential services and facilities. Additionally, this option can enhance safety by reducing conflicts between different transport modes and vulnerable road users.

This option can be cost-effective compared to building new infrastructure and aligns with the NIFTI intervention hierarchy to prioritise improvements of existing infrastructure. However, it may require some upfront investment to modify existing traffic signal systems. Implementation may also be constrained by logistical challenges such as limited space, complex intersections, and conflicting demands for road space. Realistic delivery requires careful consideration of different factors, such as traffic volumes, travel patterns, and local context, to ensure that the strategy is effective and feasible.

Table 3.17 Option 7 Provide Additional Green Time at Traffic Signals for Pedestrians, Cyclists and Buses

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 7: Provide Additional Green Time at Traffic Signals for Pedestrians, Cyclists and Buses				

3.3.2.7 Option 8 New Southern Access to Leinster Street from Parsons Street

Option 8 considers a new southern access to Leinster Street to Parsons Street, its MCA criteria are assessed in Table 3.18.

The new Southern Access Route has the potential to bring about a positive impact on various aspects of the environment, including climate change, local environment, and decarbonisation. By diverting traffic away from a pedestrianised route, it can reduce air and noise pollution and encourage the use of sustainable forms of transportation, thereby benefiting the community in many ways. Furthermore, by diverting traffic away from delays which would involve idling vehicles in the town centre, emissions should be reduced.

However, it's important to consider the impact of the new route on other factors such as land use integration, accessibility, modal shift, and strategy integration. This new access route will be integrated with the new development plans on Parsons Street and support the pedestrianisation of Leinster Street.

In addition to the above factors, the new route may also have social impacts, safety concerns, and severance issues. Although it can improve safety by diverting traffic away and pedestrianising areas, it may negatively impact social cohesion and community severance by introducing new traffic to previously quiet areas, such as the existing housing estate on Parsons Street.

Finally, it's essential to evaluate the feasibility of the project and consider any constraints or challenges that may affect its successful delivery. These can include technical feasibility, financial constraints, and stakeholder engagement. A thorough analysis of the project's feasibility can help ensure realistic delivery and successful implementation. While this route is feasible, engagement and designing to accommodate emergency vehicles from the Garda and fire stations will be important and could complicate implementation.

Table 3.18 Option 8 New Southern Access to Leinster Street from Parsons Street

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 8: New Southern Access to Leinster Street from Parsons Street				

3.3.2.8 Option 9 HGV Ban in Maynooth (excluding delivery times) within MOOR/MERR

Option 9 considers banning HGVs in Maynooth within MOOR/MERR, its MCA criteria is assessed in Table 3.19.

Implementing a HGV ban around Maynooth Town can have significant benefits for the environment and local residents. By reducing HGV traffic, this measure can promote the use of more sustainable transport modes, by making central areas safer and easier to navigate for users of all abilities. These improvements can encourage modal shift to cycling and walking, thus improving air quality and supporting low-emission transport. However, careful consideration of potential impacts, costs and feasibility is important before implementation.

The ban can also have positive impacts on pedestrian and cyclist safety, reducing the number of heavy vehicles on the roads and improving the quality of life for local residents by reducing air/noise pollution and vibrations in central areas. Nevertheless, the ban may also inconvenience businesses relying on HGV transportation, despite the lifting of the ban during delivery hours. Therefore, appropriate measures will need to be taken to address these potential impacts during the design process.

Implementing a HGV ban would involve costs associated with enforcement and potential infrastructure changes, such as signage and traffic management. However, the benefits of reduced wear and tear on roads and bridges, as well as improved safety and air quality, will likely outweigh these costs. Implementation would require coordination with relevant stakeholders, such as businesses and haulage companies, and may face opposition. The feasibility and effectiveness of a HGV ban in achieving decarbonisation goals would depend on other factors, such as the availability of alternative transportation routes, supporting infrastructure (e.g. VMS signs) and effective enforcement.

Overall, implementing a HGV ban around Maynooth Town can have significant benefits for the environment, local residents, and sustainable transport modes, but careful consideration of potential impacts, costs, and feasibility is necessary before implementation.

Table 3.19 HGV Ban in Maynooth within MOOR/MERR

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 9: HGV Ban in Maynooth (excluding delivery times) within MOOR/MERR				

3.3.2.9 Option 10 Close Eastern Maynooth University Entrance to Motor Vehicle Traffic

Option 10 considers closing Eastern Maynooth University entrance to motor vehicle traffic, the MCA criteria are assessed in Table 3.20.

Closing the eastern Maynooth university entrance to motor vehicle traffic can have significant benefits for the environment, local residents, and sustainable transportation. By reducing car traffic to the east of the university, this measure can create safer and more inviting streets for pedestrians and cyclists and reduce the traffic generation impact of the university on Moyglare Road. Furthermore, this option should promote more sustainable transportation options and encourage active modes of transportation.

Closing the eastern Maynooth university entrance to motor vehicle traffic can also improve social equity and safety by creating safer streets for pedestrians and cyclists when accessing the university. However, opposition from drivers who rely on the eastern entrance may pose a challenge. Therefore, realistic delivery and implementation plans must be in place to ensure the success of the closure. This will be made easier by linking this option to the provision of Measure 1 (MOOR) to provide improved western access to the University without the need to travel through the town centre. The phasing for this option will require the MOOR to be in place before it is implemented.

Table 3.20 Option 10 Close Eastern Maynooth University Entrance to Motor Vehicle Traffic

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 10: Close Eastern Maynooth University entrance to Motor Vehicle Traffic				

3.3.2.10 Option 11: Introduce New Signalised Junctions

Option 11 considers introducing new signalised junction across Maynooth, its MCA criteria are assessed in Table 3.21.

Introducing signalised junctions around Maynooth Town can have both positive and negative impacts on traffic, the environment, and social aspects. While they can manage traffic congestion and create safer traffic flow, they may also lead to increased fuel consumption, noise, and the removal of green spaces to build up junctions. Using signalised junctions can prioritise public transportation and active transportation to promote modal shift.

Introducing signalised junctions can also have a positive impact on social aspects by promoting sustainable travel and improving safety for pedestrians, cyclists, and drivers when compared to roundabouts. The implementation of a signalised junction can face challenges related to cost, constraints, and realism of delivery. Planning, design, construction, and ongoing maintenance can be costly and experience technical or logistical constraints, such as limited space or conflicting road layouts, can arise. A thorough feasibility analysis can help ensure a realistic delivery and successful implementation of the signalised junction.

Table 3.21 Option 11 Introduce New Signalised Junctions

Option	Decarbonisation Impact	Sustainable Land Use and Transport Impact	Community Impact	Feasibility
Option 11: Introduce New Signalised Junctions				

3.3.3 Assessed Preferred Road Measures

As a result of the MCA assessment, the following options were ruled out as recommendations in the MEABTA:

- **Option 6: Radial road link to Moygaddy** – This route was removed due to its potential impact on residential areas in Lyreen Avenue. Alternative walking/cycling routes are provided to Moygaddy instead.

The potential measures for consideration to form part of the strategy measures are explained in Table 3.22. These are the measures related to the National Roads Network and as such separate requirements are applicable. For these measures KCC will work collaboratively with TII.

Table 3.22 Potential Road Strategy Measures and Numbering

Option No.	Short Description	Road Measure No.
1	Full MOOR Route	1
2A	Upgrade Existing M4 Junction	2A
2B	Relocation of M4 Junction	2B

The assessed preferred road options which have been included as strategy measures are explained in Table 3.23.

Table 3.23 Assessed Preferred Road Strategy Measures and Numbering

Option No.	Short Description	Road Measure No.
3	Maynooth Eastern Ring Road (MERR)	3
4	Reduced speed limits across Maynooth	4
5	North-Eastern orbital MOOR to Moygaddy	5
7	Additional green time at junctions for sustainable modes	6
8	New Southern Access to Leinster Street from Parsons Street	7
9	HGV ban in central Maynooth	8
10	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	9
11	New signalised junctions	10

3.3.4 Note on Option 2A or 2B on the M4

A separate study will take place to determine the most appropriate future location for the M4 junction near Maynooth. This study will not conclude before the finalisation of the MEABTA, therefore the road strategy makes the following assumptions about the future M4 junction location:

- The MEABTA does not rule out either option 2A (upgrade) or 2B (relocation), allowing the MEABTA road strategy facilitate either outcome in the future
- However, assuming the implementation of both junctions would overestimate future network capacity and potentially underestimate the impact of future growth on the road network in the transport modelling assessment
- Therefore, the 'combined' road strategy modelling scenario uses the conservative assumption of a 2A junction upgrade for the future combined road strategy scenario, to assess the impact of the road improvements combined with a higher capacity junction in a larger Maynooth. Measure 2B is not included in this scenario to avoid overestimating road capacity.
- The use of Measure 2A in the combined modelling scenario is not a recommendation for this solution. The preferred M4 junction improvement will be determined later through a separate detailed assessment in a dedicated study. The MEABTA allows for both potential outcomes, 2A or 2B.

3.3.5 Impact of Combined Roads Strategy

The impact of the combined roads strategy measures was tested in VISUM, this used the measures defined in Table 3.24. The combined roads scenarios uses realistic assumptions about phasing, with the full MOOR route not included in the 2028 scenario, as this is unlikely to be in place by this time. The 2038 scenario includes the full MOOR route and the closure of the eastern Maynooth University entrance once the orbital road is in place.

Table 3.24 Road Measures Used in 2028 and 2038 Combined Scenarios

Scenario	Options Included
2028 combined roads strategy	• DM network • Measure 2 (N4 Junction Upgrade) • Measure 3 (MERR) • Measure 5 (North-Eastern orbital MOOR road to Moygaddy) • Measure 7 (New Southern Access to Leinster Street from Parson Street)
2038 combined roads strategy	• DM network • Measure 1 (Full MOOR Route) • Measure 2 (N4 Junction Upgrade) • Measure 3 (MERR) • Measure 5 (North-Eastern orbital MOOR road to Moygaddy) • Measure 7 (New Southern Access to Leinster Street from Parson Street) • Measure 9 (Eastern university entrance closure)

3.3.5.1 Network Statistics

Network statistics comparing the impact of the combined roads strategy against the DM scenario are provided in Table 3.25. Compared to the DM, it can be observed that the road strategy leads to a significant reduction in vehicle KM travelled and delay as well as a substantial increase in average network speed.

Table 3.25 Network Statistics Comparing Combined Roads Scenario and DM

Model	Total Network Trips	Total Vehicle km	Total Network Travel Time (hrs)	Avg. Network Vehicle Speed (kph)
DM 2028 AM Peak	19,829	180,042	4,178	43.10
Strategy - 2028 AM Peak	19,829	176,743	3,794	46.59
DM 2028 PM Peak	20,849	189,608	4,385	43.24
Strategy - 2028 PM Peak	20,849	187,161	4,070	45.98
DM 2038 AM Peak	20,225	187,636	4,457	42.10
Strategy - 2038 AM Peak	20,225	180,536	3,545	50.92
DM 2038 PM Peak	21,069	196,980	4,619	42.64
Strategy - 2038 PM Peak	21,069	190,802	3,875	49.23

3.3.5.2 Reduction in Town Centre Traffic

Table 3.26 provides a summary of analysis showing percentage two-way reduction in traffic flow on Mill Street (shopping centre), Straffan Road (Square), Parson St (Garda station) and Main Street (AIB) for the combined road strategy scenario when compared to the DM scenario. This shows that the road strategy measures in 2028, such as the MERR, have a significant impact on reducing town centre traffic by a large percentage, particularly in the AM peak. In 2038, the percentage reductions increase substantially with the introduction of the MOOR with AM traffic flow reductions in the town centre ranging from 40-63% compared to the DM scenario.

Table 3.26 Percentage Reduction in Traffic Flow in Combined Roads Strategy

% Reduction in Traffic Flow on Street Compared to DM				
Peak	**Mill Street**	**Straffan road**	**Parsons Street**	**Main Street**
2028 AM	-28.6%	-25.4%	-31.6%	-8.7%
2028 PM	-20.7%	-21.3%	-22.1%	-4.5%
2038 AM	-59.7%	-54.9%	-63.9%	-40.7%
2038 PM	-53.8%	-40.6%	-52.7%	-14.8%

3.3.5.3 2028 Volume/Capacity Maps for Combined Strategy

The peak hour traffic volume to capacity plots were extracted for the Do minimum and the Combined Road strategy scenarios and are presented in Figure 3.31 to Figure 3.34. The modelled link level volume to capacity ratio is represented in colour bands. The introduction of road strategy measures in 2028 help in reducing congestion level in the Maynooth town centre compared to the Do minimum scenario. The M4 junction improvement also observed to be having a positive impact.

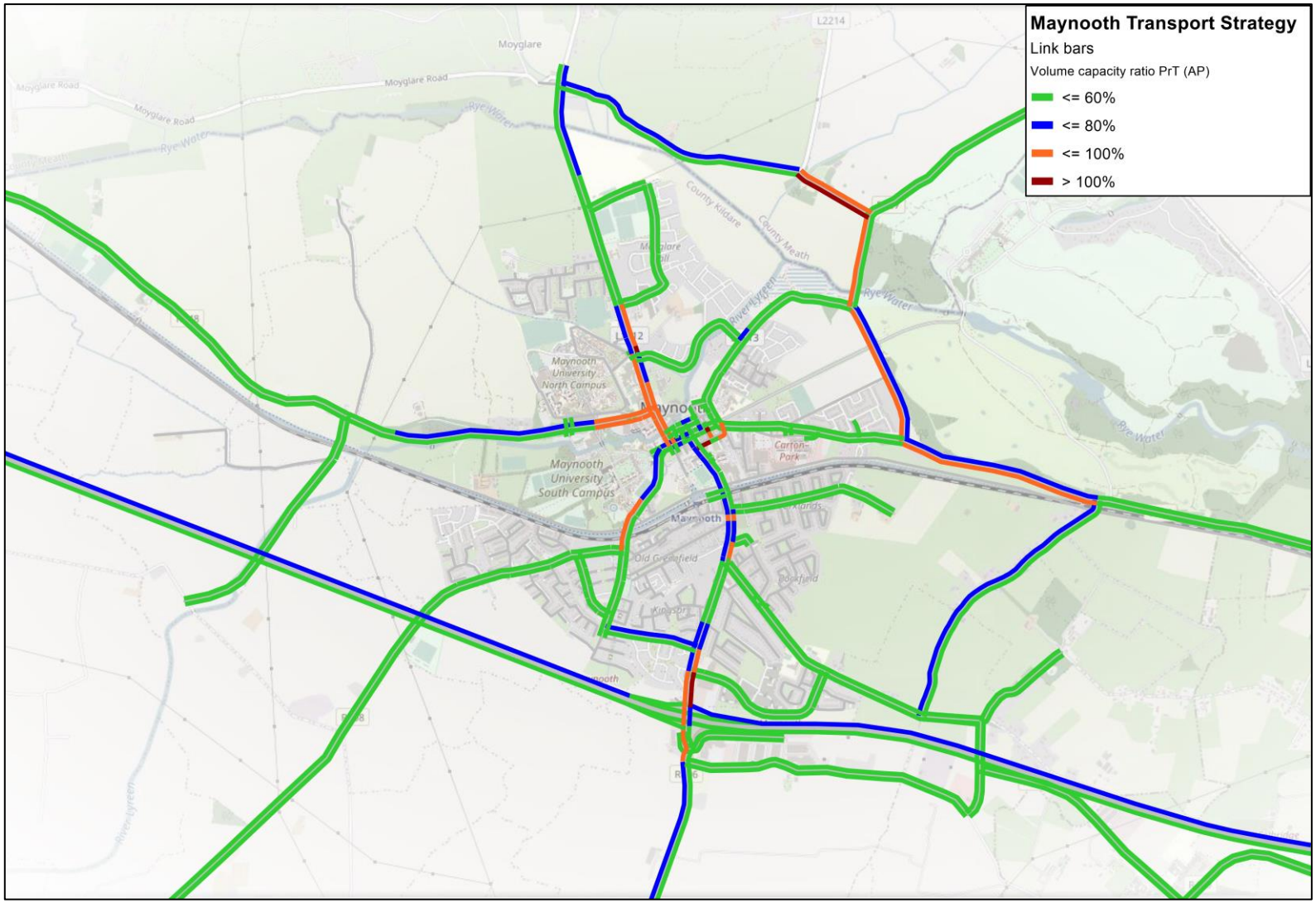

Figure 3.31 Volume to Capacity Plot Do Minimum 2028 - AM Peak

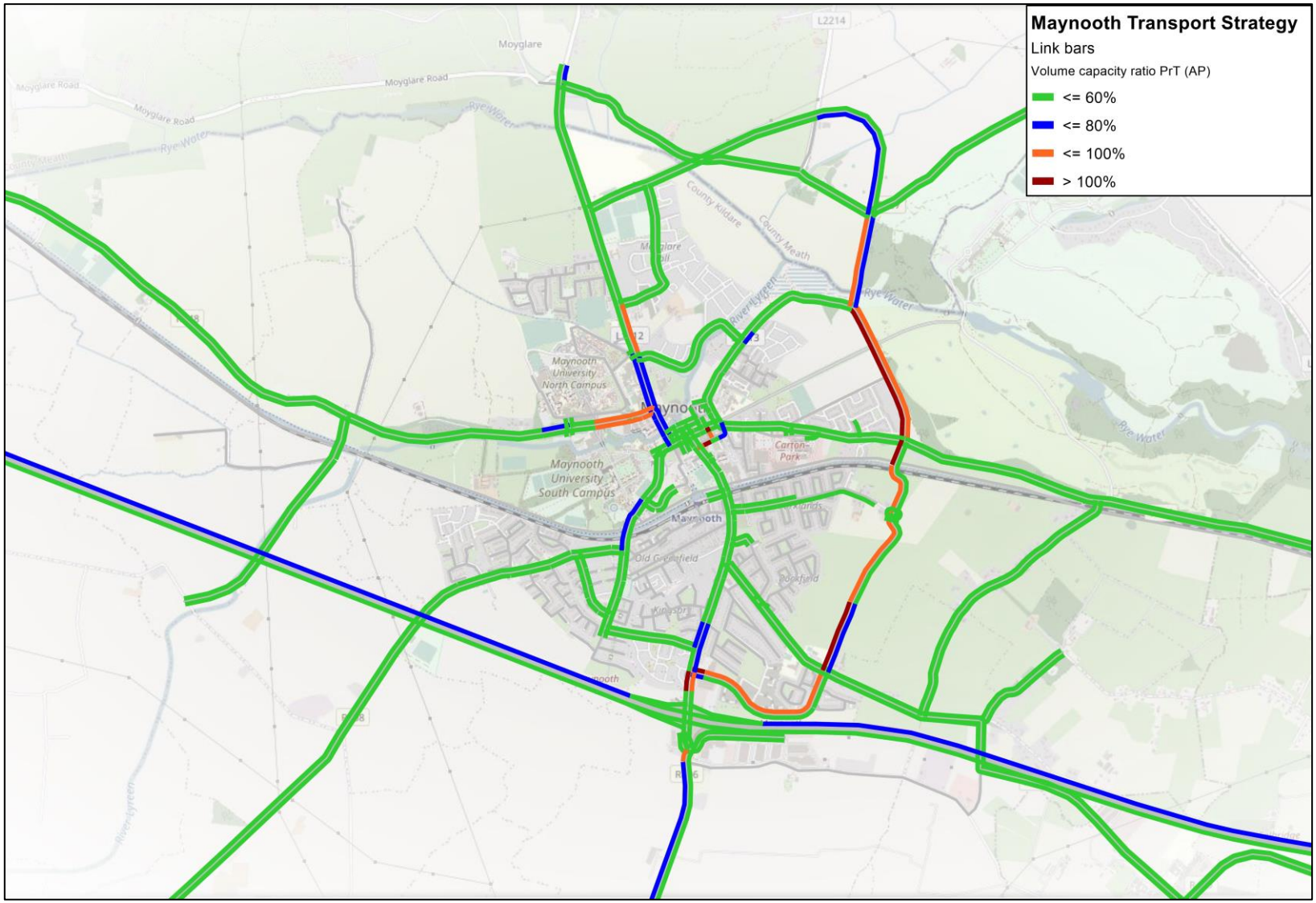

Figure 3.32 Volume to Capacity Plot Combined Road Strategy 2028 - AM Peak

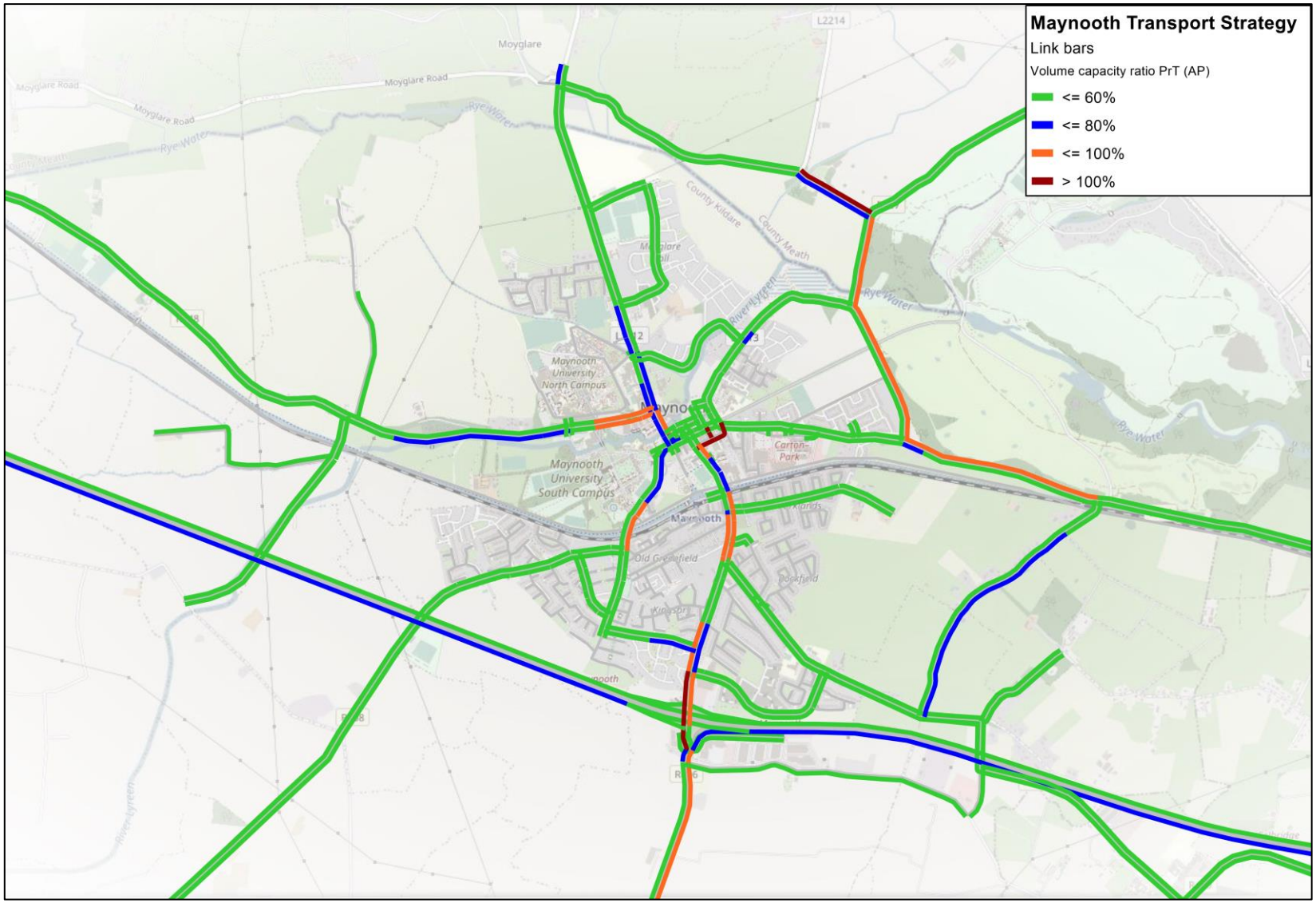

Figure 3.33 Volume to Capacity Plot Do Minimum 2028 - PM Peak

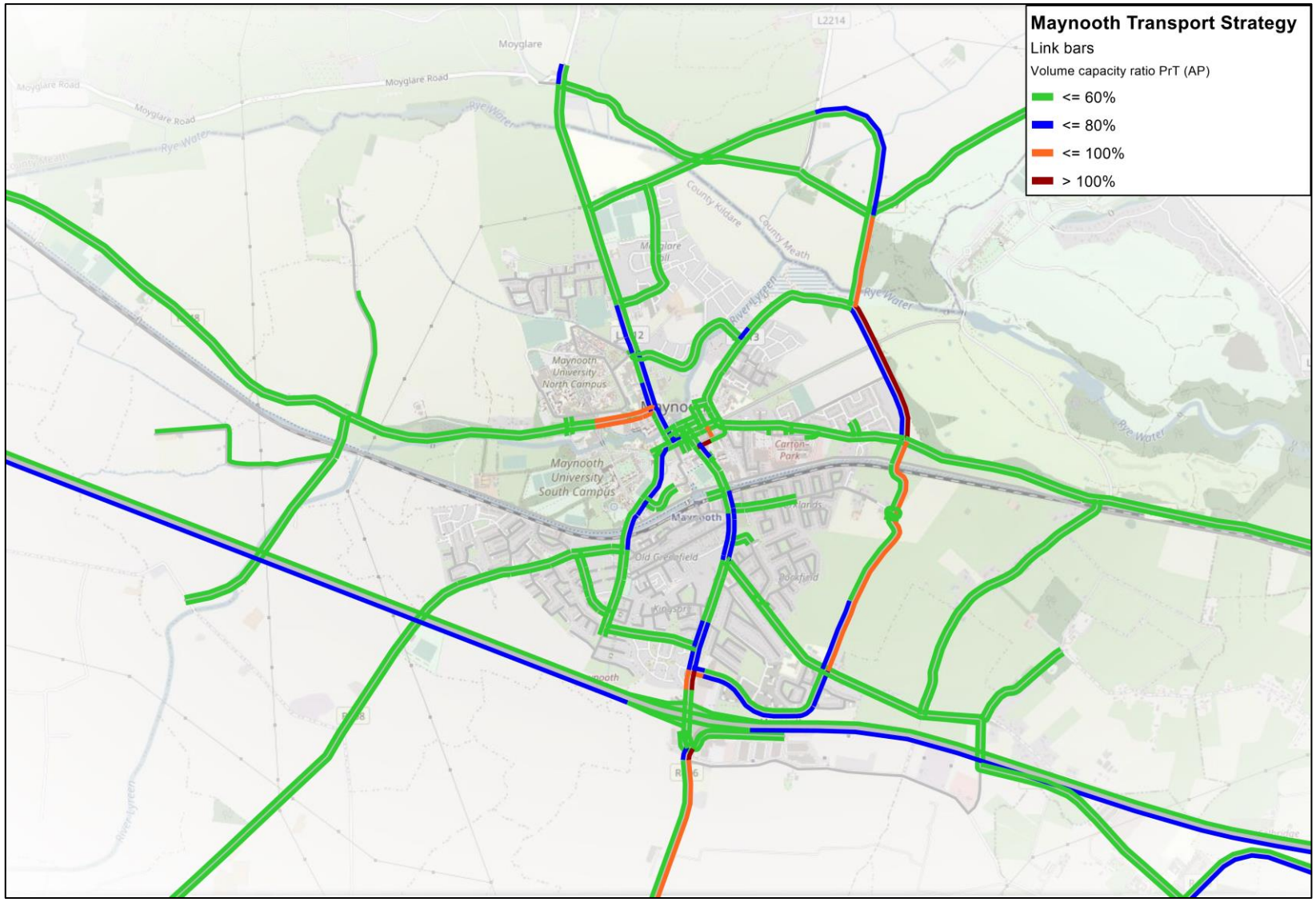

Figure 3.34 Volume to Capacity Plot Combined Road Strategy 2028 - PM Peak

3.3.5.4 2038 Volume/Capacity Maps for Combined Strategy

The peak hour traffic volume to capacity plots were extracted for the Do minimum and the Combined Road strategy scenarios and are presented in Figure 3.35 to Figure 3.38. The introduction of road strategy measures in 2038 significantly reduces the congestion levels in the Maynooth town centre compared to the Do minimum scenario. In the main, the road network operates well in 2038 in the combined road strategy, with the MOOR carrying the majority of traffic.

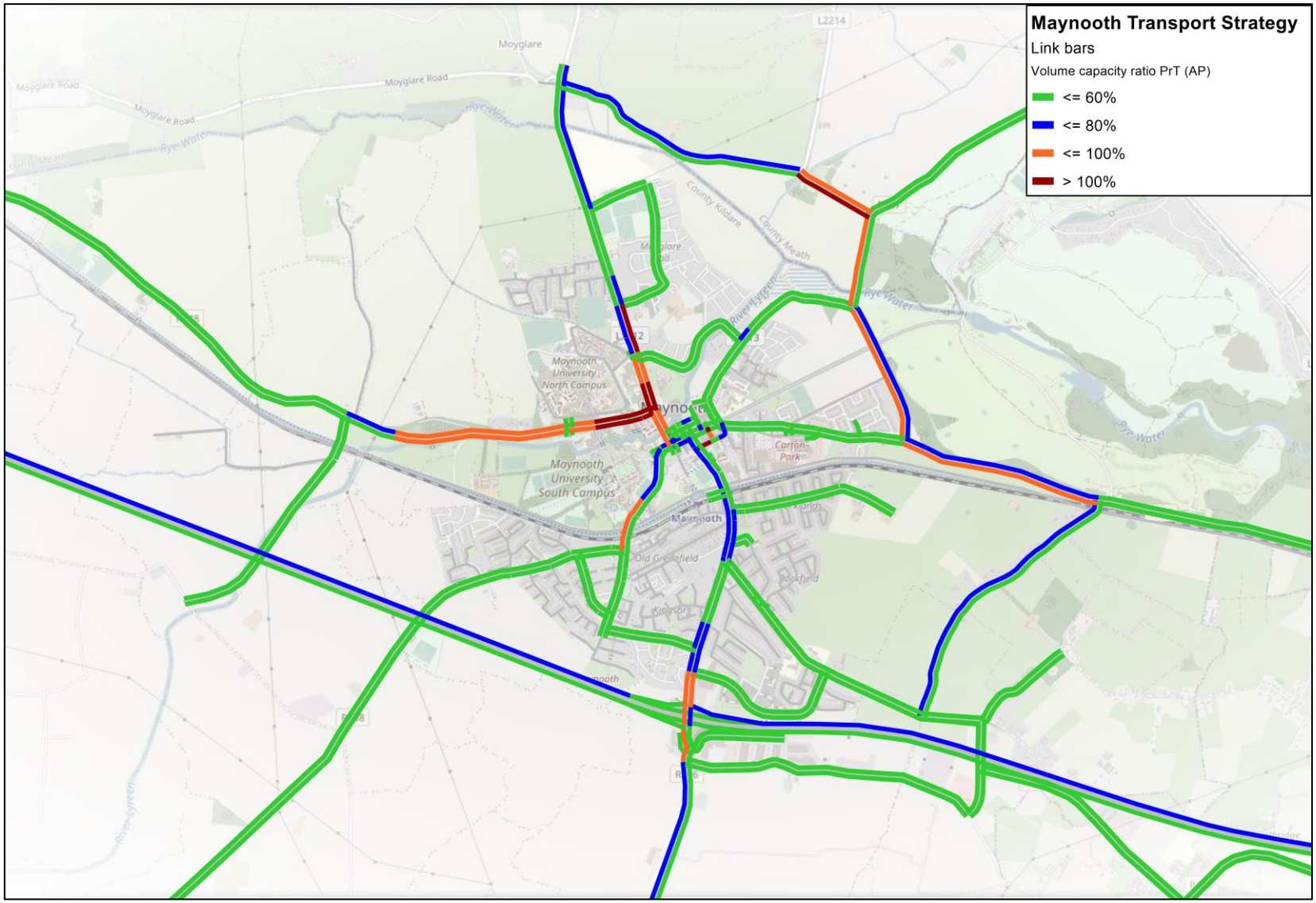

Figure 3.35 Volume to Capacity Plot Do Minimum 2038 - AM Peak

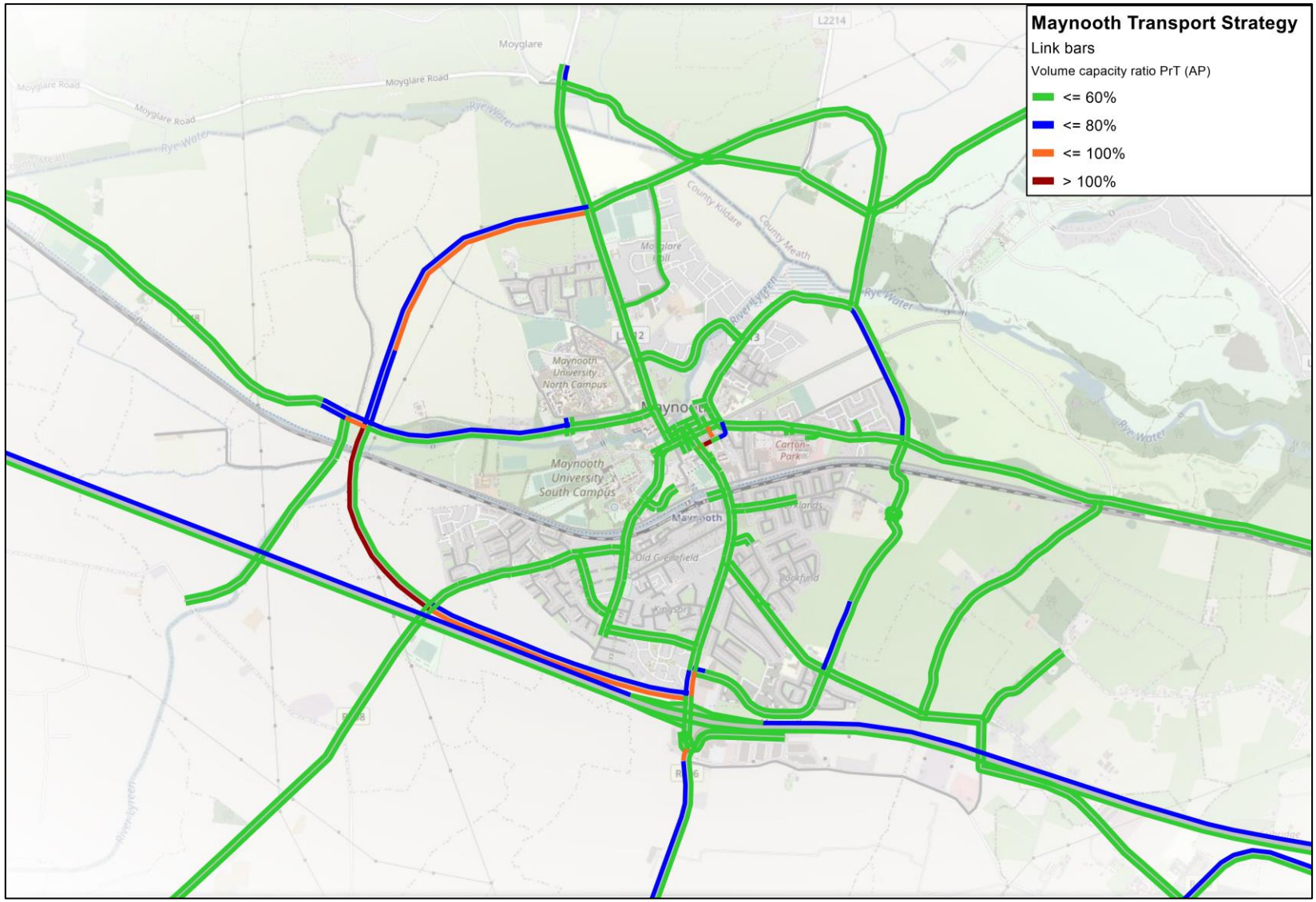

Figure 3.36 Volume to Capacity Plot Combined Road Strategy 2038 - AM Peak

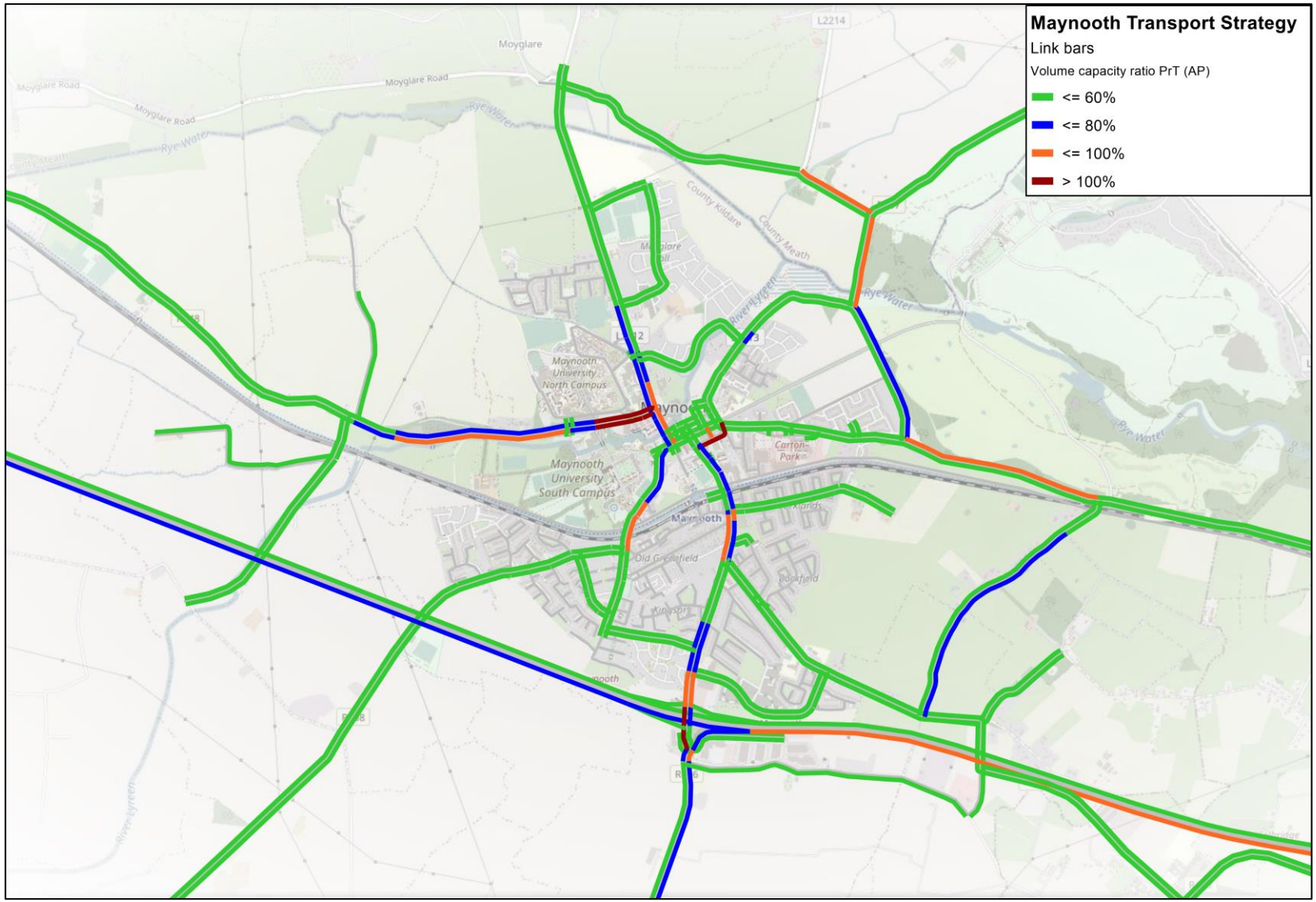

Figure 3.37 Volume to Capacity Plot Do Minimum 2038 - PM Peak

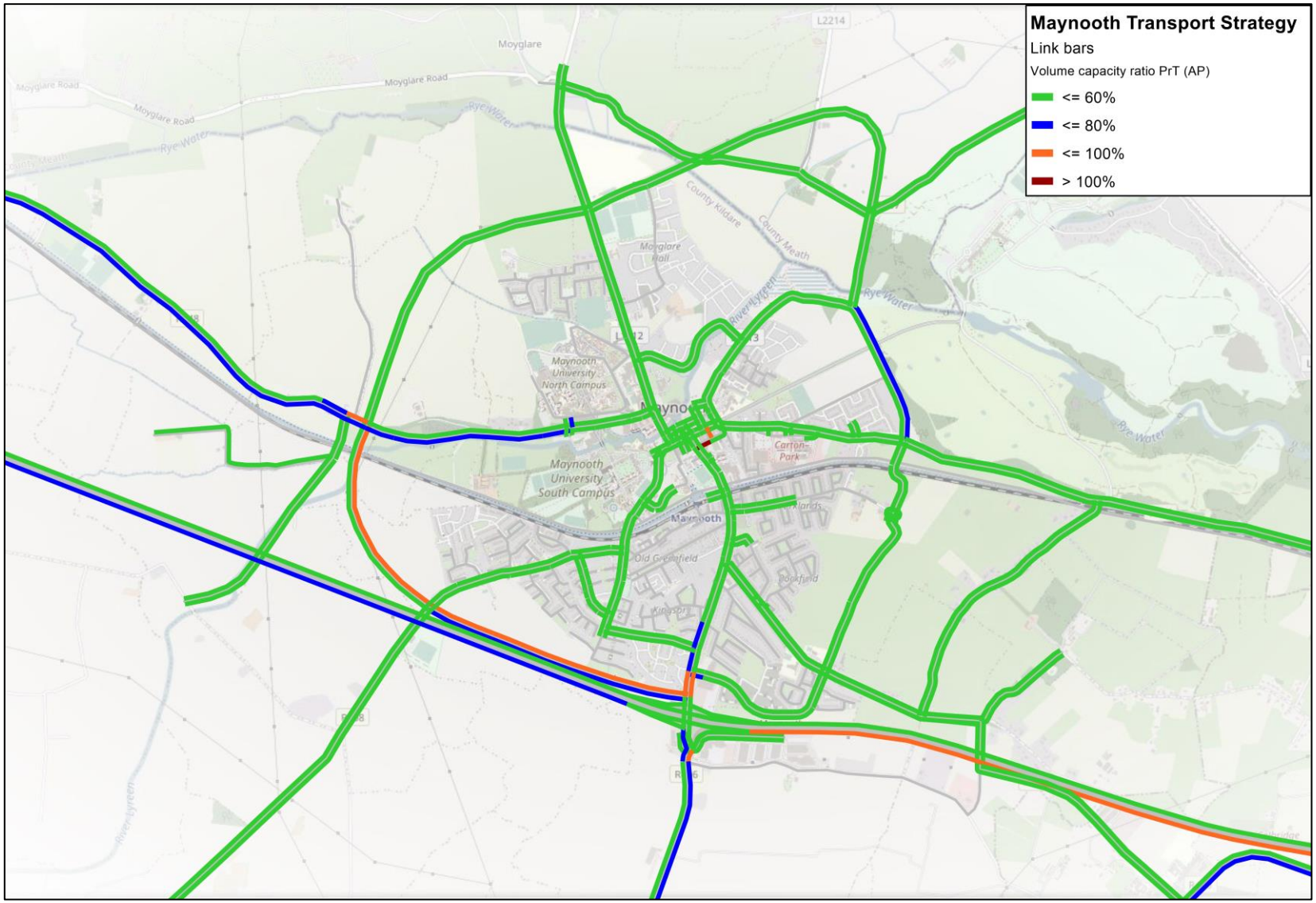

Figure 3.38 Volume to Capacity Plot Combined Road Strategy 2038 - PM Peak

3.4 Public Transport Options Assessment and Strategy

This section identifies and assesses options to improve public transport services and reliability within Maynooth Town based on an MCA where the rationale for the scoring of each option is provided. The public transport strategy is integrated with the active modes, road, and parking strategies to ensure mutually supportive measures are implemented.

The public transport priority options have been grouped and assessed comparatively against each other as there are multiple options to provide public transport priority routes through Maynooth. The purpose of the assessment is to find the best routing for the priority option through Maynooth. The proposals have been grouped and assessed by geographic area.

3.4.1 Maynooth Town Centre Proposals

A number of priority proposals were developed to provide a public transport priority routing through Maynooth Town Centre. Given the majority of public transport bus routes that serve Maynooth and its environs pass through the centre of Maynooth it is important to ensure a priority routing for public transport vehicles through the centre. The priority route will have a positive impact on improving journey time reliability and decreasing journey times for bus routes serving Maynooth, helping to make this mode of travel more attractive for trips to and from Maynooth. All town centre proposals are shown in Figure 3.39 and Figure 3.40.

Figure 3.39 – Maynooth Town Centre Priority Proposals

Figure 3.40 – Maynooth Town Centre Priority Proposals Option 4

3.4.1.1 Option 1 – Partially removing traffic from Main Street

This option has two main components these are:

- 1A: Removing westbound general traffic from Main Street
- 1B: Accommodate westbound general traffic from Main Street on Doctors Lane and the MERR

This option was developed to provide a priority routing in the westbound direction for public transport along main street by redirecting local traffic along Doctors Lane and more general east-west traffic along the MERR once it is in place. Given the poor cross section of Doctors Lane and the inability to improve this it was felt this option would not be able to cater adequately for local movements. As shown in Table 3.27 this option would result in major disbenefits under feasibility and also have some negative community impacts as such it was not considered further.

3.4.1.2 Option 2 - Conversion of part of Maynooth Square to two-way bus interchange

Option 2 was developed to provide a priority arrangement at a key pinch point in Maynooth the junction of Main Street and Straffan Road. Option 2 would reroute public transport vehicles through a new bus only priority link through the northern part of Maynooth Square. This arrangement would allow vehicles jump the queuing associated with the movement for Straffan Road to Main Street and vice versa. It would also involve the installation of associated bus stops and waiting areas on the square helping to animate the square throughout the day.

As shown in Table 3.27 this option produces disbenefits under community impacts dues the loss of the northern part of Maynooth Square for community use. Given these negative impacts and the historical context of Maynooth Square this option was not considered further.

3.4.1.3 Option 3 – Main Street turn bans

This option is made up of three proposals, these are:

- 3A - General traffic right turn ban on Straffan Road to Main Street
- 3B - General traffic turn ban from Main Street to Mill Street with conversion of turning lane to bus only
- 3C - General traffic turn ban from Mill Street to Main Street with conversion of turning lane to bus only

The purpose of these options is to try and redirect as much general traffic away from main street. Encouraging general traffic away from Main Street would create a lower traffic environment that would improve the passage of public transport vehicles through the centre of Maynooth. These options are shown in Figure 3.39.

It was envisioned that this proposal could be implemented relatively quickly and with minimum cost. However, upon examination of the impacts on general traffic it was felt that imposing turn bans in advance of alternative routes being in place, the MOOR and MERR, such an option was considered premature. The MCA results for these options are shown in Table 3.27. The table highlights that while this option would have major benefits on decarbonising the feasibility of implementing this in the absences of alternative routes would cause major disbenefits.

3.4.1.4 Option 4 – Traffic free Main Street

Having considered an intermediate arrangement that would reduce traffic on Main Street outlined under option 3 this option was developed to build on the opportunities of the MOOR and MERR being in place. With the MOOR and MERR providing alternative routings for north -south and east-west traffic through Maynooth it is possible to close Main Street to general traffic. This option prioritises public transport vehicles, walking and cycling on Main Street and the approaches of Straffan Road and Mill Street.

With alternative routes in place this option seeks to relocate as much through traffic as possible to the outskirts of Maynooth making the centre a low traffic environment. The option will also make it easier to travel by sustainable modes to and from Maynooth positively impacting journey time reliability and improving journey times for bus services. The MCA results for this option are shown in Table 3.27 as can be seen from the table this option provides major benefits across all MCA criteria. However it should be noted that this option is dependent on the delivery of the MOOR and MERR.

3.4.1.5 Town Centre Proposals MCA

Table 3.27 contains the MCA results for the town centre priority options discussed in the previous subsections.

Table 3.27 – MCA Results for Town Centre Priority Options

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 1A				
Option 1B				
Option 2				
Option 3A				
Option 3B				
Option 3C				
Option 4				

3.4.1.6 Assessed Preferred Town Centre Options

Having regard to the MCA results, Option 4 (traffic free main street) is being brought forward as the option that best meets the objectives of the strategy.

3.4.2 Maynooth Northern Priority Route Options

Priority proposals were developed to provide a public transport priority route from the northern part of Maynooth through to the Town Centre. Given the significant and expanding population in this part of Maynooth, presence of Maynooth schools complex and Maynooth University this is an important trip origin and destination for trips to and from Maynooth.

Ensuring a priority routing for public transport vehicles through the north and centre of Maynooth is a key element of the public transport strategy. The priority route will have a positive impact on improving journey time reliability and decreasing journey times for bus routes serving Maynooth, helping to make this mode of travel more attractive for trips to and from Maynooth. All options are shown in Figure 3.41.

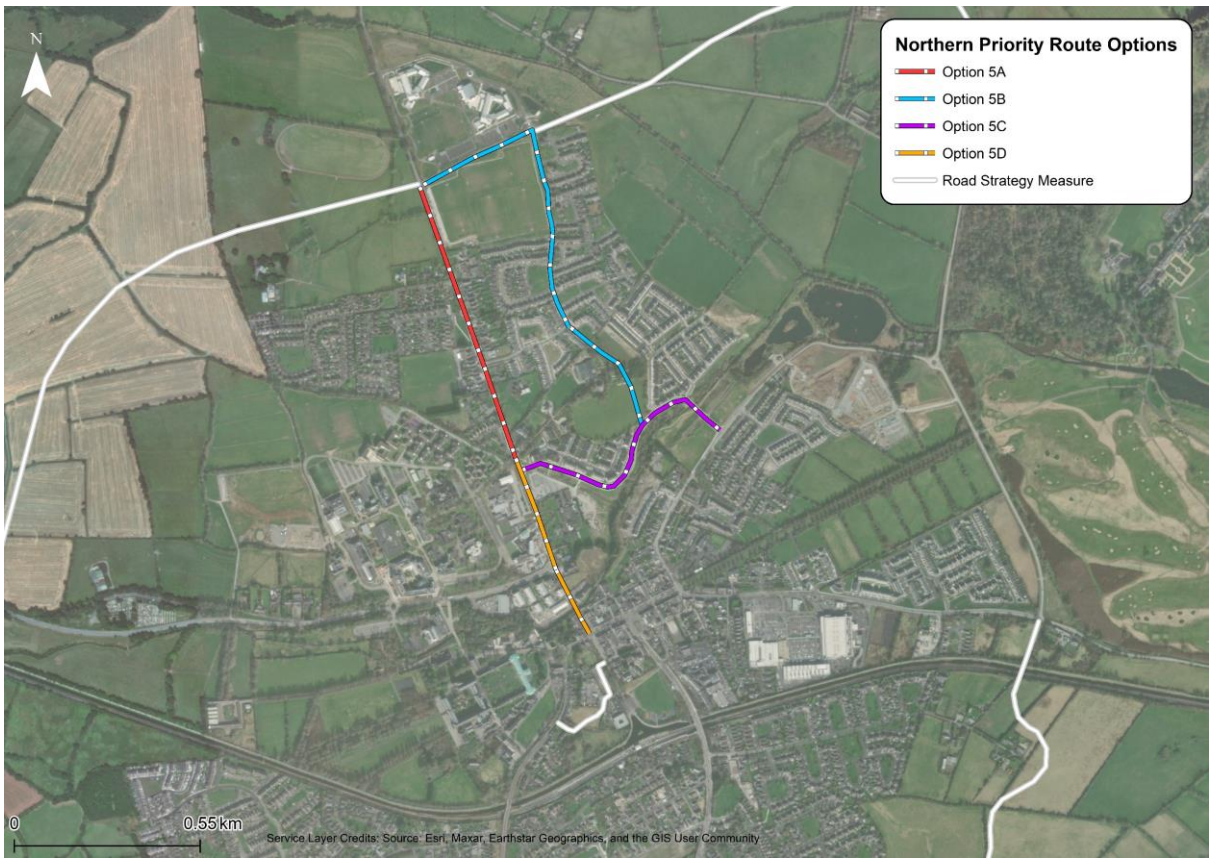

Figure 3.41 – Maynooth Northern Priority Proposals

3.4.2.1 Option 5A – Upper Moyglare Road Priority Route

This route extends from the Maynooth Schools complex south to the junction with Lyreen Avenue. Given the constrained cross section of Moyglare Road this option would likely have to involve the installation of junctions at key points along Moyglare Road that would allow public transport vehicles get a jump over general traffic using a flare lane for buses and holding general traffic at the junction. This option would also have to involve a significant amount land take at certain points along the road to widen the cross section and install some small section of bus lanes in one direction this would give rise to significant negative impacts on the community in this area of Maynooth.

3.4.2.2 Option 5B - Moyglare Hall Priority Route

This option routes through Moyglare Hall Estate using a new public transport, pedestrian and cycling link only to connect with Lyreen avenue. This option also includes a bus gate at the roundabout at the top of Moyglare Hall and the Maynooth Schools complex that would close this route off to general traffic reducing through traffic through Moyglare Hall Estate. This route would then afford buses the option to route back onto Moyglare Road using the junction with Lyreen Avenue or route east along Lyreen avenue and connect onto the Dunboyne Road.

3.4.2.3 Option 5C - Lyreen Avenue Priority Route

This option involves installing a bus priority route on Lyreen Avenue. Given the cross section of Lyreen Avenue this may involve the installations of a section of bus lane in one direction along Lyreen Avenue or bus priority arrangements at the junctions with Moyglare Road and Dunboyne Road. This option would tie into Option 5B providing a prioritised east-west movement for buses.

3.4.2.4 Option 5D – Lower Moyglare Road and Mill Street Priority Route

This option involves the installation of a priority route on the lower part of Moyglare Road extending from the Junction of Lyreen Avenue to Mill Street. Given the cross section of this part of Moyglare Road and Mill street there will be limited opportunities for land take so the priority measures will likely be in the form of priority junction arrangements at the junction of Moyglare Road and Kilcock Road and Mill Street and Main Street.

3.4.2.5 Northern Priority Proposals MCA

Table 3.27 contains the MCA results for the northern priority options discussed in the previous subsections.

Table 3.28 – MCA Results for Northern Priority Options

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 5A				
Option 5B				
Option 5C				
Option 5D				

3.4.2.6 Assessed Preferred Northern Priority Options

Having regard to the MCA results Options 5B, 5C and 5D are being brought forward as the options that best meets the objectives of the strategy.

3.4.3 Maynooth Western Priority Route Options

Priority proposals were developed to provide a public transport priority route from the western part of Maynooth through to the Town Centre.

Ensuring a priority routing for public transport vehicles through the west and centre of Maynooth is a key element of the public transport strategy. The priority route will have a positive impact on improving journey time reliability and decreasing journey times for bus routes serving Maynooth, helping to make this mode of travel more attractive for trips to and from Maynooth. All options are shown in Figure 3.42.

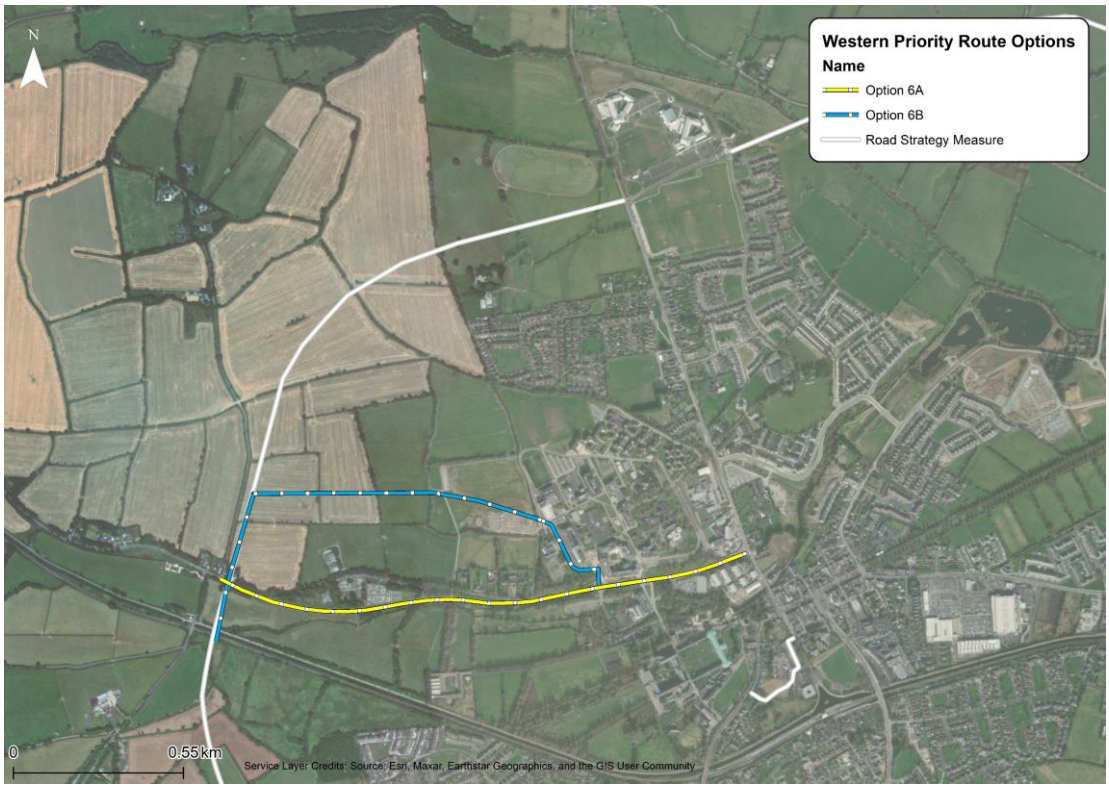

Figure 3.42 - Maynooth Western Priority Proposals

3.4.3.1 Option 6A – Bus Priority Route on Kilcock Road

This route extends from the junction with the proposed western orbital road, the MOOR, on the western outskirts of Maynooth, to the junction with the Moyglare road. This route will provide priority for public transport services operating from Kilcock and Enfield and also serve Maynooth University which is a large attractor of trips from the surrounding hinterland. Given the cross section of Kilcock Road it may be possible to take land on either side of the carriageway or convert the hard shoulder into bus lanes for a large part of the route. Closer to the junction with Moyglare road it may be possible to use priority arrangements at the junction to ensure buses are given priority over general traffic.

3.4.3.2 Option 6B - Bus Priority Route through along Western Orbital, New Development Area, and Maynooth University

This route involves the installation of bus lanes on a portion of the Western Orbital from the Junction with Kilcock road to the junction of new development lands continuing through the new residential development area and operating through the western part of Maynooth University Campus serving the bus station and then

connecting back onto Kilcock Road. This route could provide a priority link for services operating from Kilcock and Enfield and also serve Maynooth University too. Given that this route will utilise a lot of new roads it would be possible for these to be designed to cater for public transport services offering a high-quality priority route. This route could provide a bus only link through the new development lands West of Maynooth University which would ensure public transport is accessible and convenient for residents of these lands.

3.4.3.3 Western Priority Proposals MCA

Table 3.27 contains the MCA results for the western priority options discussed in the previous subsections.

Table 3.29 – MCA Results for Western Priority Options

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 6A				
Option 6B				

3.4.3.4 Assessed Preferred Western Priority Options

Having regard to the MCA results a shortened version of Option 6A extending from Maynooth University to junction with Moyglare Road and Option 6B are being brought forward as the option that best meets the objectives of the strategy. Both options will combine to form a western priority link as shown in Figure 3.43.

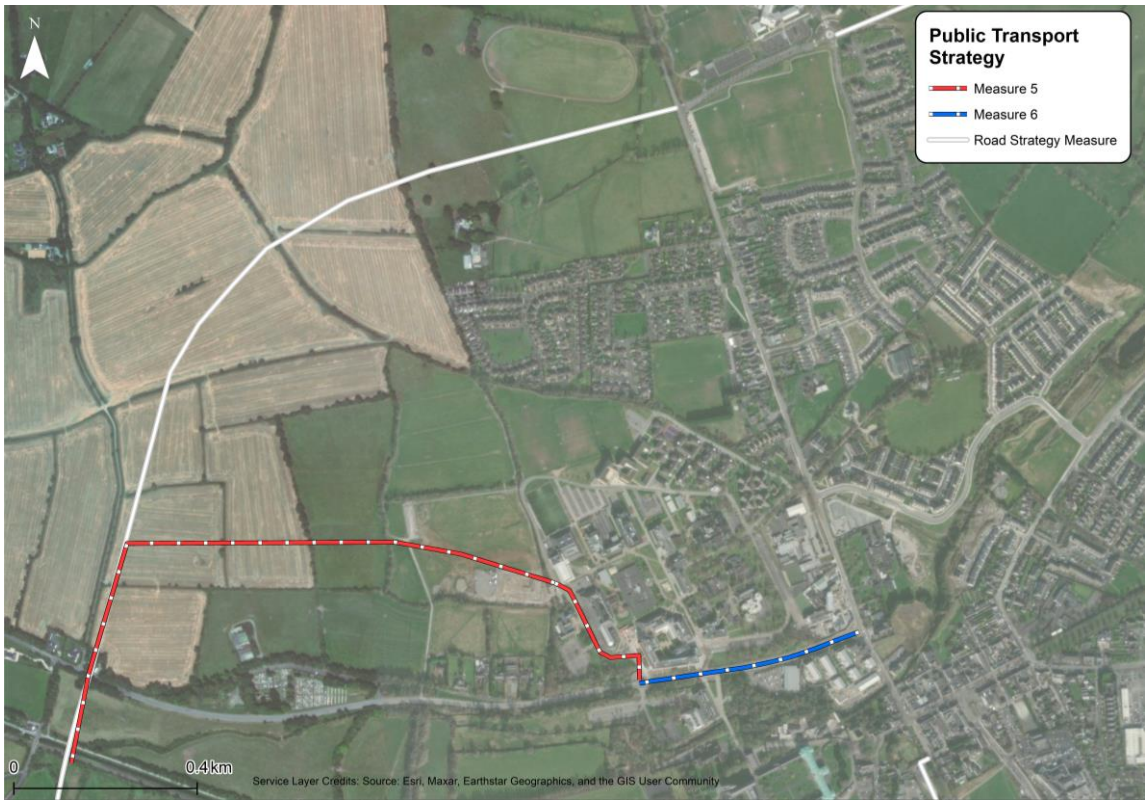

Figure 3.43 – Preferred Western priority Option

3.4.4 Maynooth Eastern Priority Route Options

3.4.4.1 Option 7 – Bus Priority Route on Leixlip Road

This route extends from Maynooth Town centre to the western outskirts of Leixlip along the Leixlip Road. This route will provide priority for public transport services operating from Leixlip and Dublin City and also serve the Intel Plant which is a large attractor of trips from the surrounding hinterland. Given the cross section of Leixlip Road, it may be possible to take land on either side of the carriageway or convert the hard shoulder into bus lanes for a large part of the route. Closer to Maynooth Town Centre it may be possible to use priority arrangements at the junction to ensure buses are given priority over general traffic. Option 7 is shown in Figure 3.44.

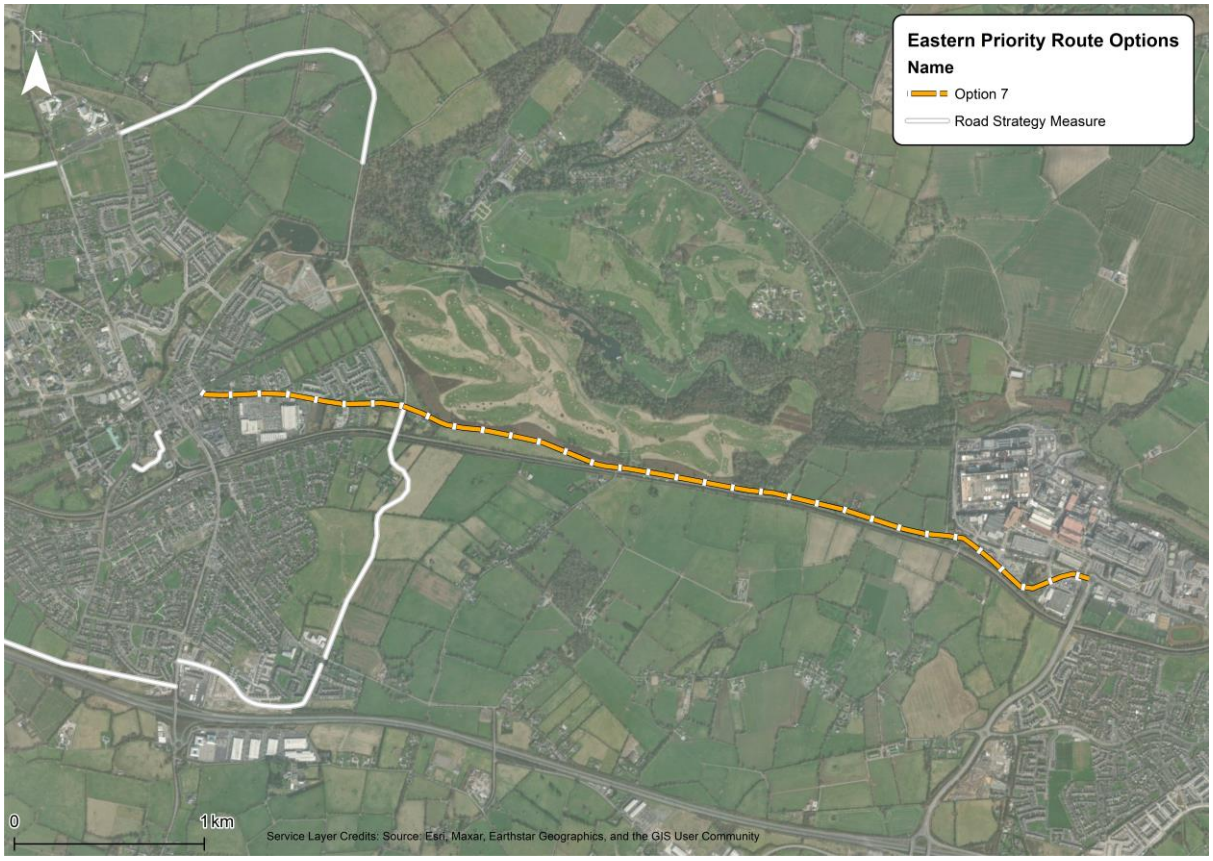

Figure 3.44 - Maynooth Eastern Priority Proposals

3.4.4.2 Eastern Priority Proposal MCA

Table 3.27 contains the MCA result for the Eastern priority option discussed in the previous subsections.

Table 3.30 – MCA Results for Eastern Priority Options

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 7				

3.4.4.3 Assessed Preferred Eastern Priority Options

Having regard to the MCA results Option 7 is being brought forward as the option that meets the objectives of the strategy.

3.4.5 Maynooth Southern Priority Route Options

Priority proposals were developed to provide a public transport priority route from the Southern part of Maynooth through to the Town Centre. Given the significant population in this part of Maynooth and the presence of the M4 corridor and junction, this is an important corridor and also trip origin and destination for trips to and from Maynooth.

Ensuring a priority routing for public transport vehicles through the south and centre of Maynooth is a key element of the public transport strategy. The priority route will have a positive impact on improving journey time reliability and decreasing journey times for bus routes serving Maynooth, helping to make this mode of travel more attractive for trips to and from Maynooth. All options are shown in Figure 3.45.

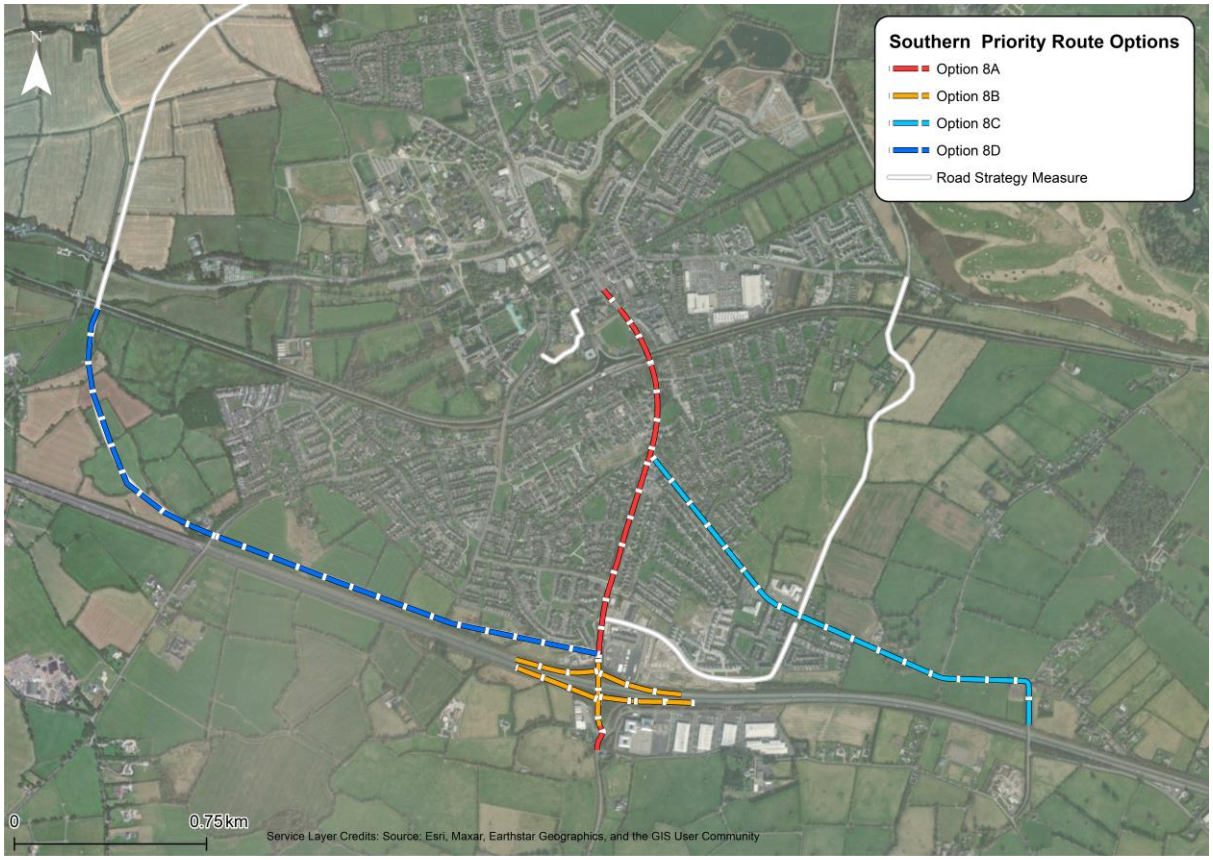

Figure 3.45 - Maynooth Southern Priority Proposals

3.4.5.1 Option 8A - Straffan Road bus priority route

This route extends from the M4 junction to Maynooth Town centre along the Straffan Road. This route will provide priority for public transport services operating between the M4 Junction and Maynooth Town Centre. Given the cross section of Straffan Road it may be possible to have some limited land take and make use of priority arrangements at the junction to ensure buses are given priority over general traffic. KCC would work collaboratively with TII to deliver this measure.

3.4.5.2 Option 8B - Bus priority measures on slips of M4 Junction

This option covers the installation of public transport priority measures on the M4 slip. This could be achieved through land take around the junction or through the use

of signalised junction arrangements that would give buses priority over general traffic. KCC would work collaboratively with TII to deliver this measure.

3.4.5.3 Option 8C - Celbridge Road bus priority route

This route extends from the Straffan Road junction to M4 overbridge along the Celbridge Road. This route will provide priority for public transport services operating between the Maynooth and Celbridge. Given the cross section of Celbridge Road it may be possible to have some limited land take and make use of priority arrangements at the junction to ensure buses are given priority over general traffic.

3.4.5.4 Option 8D - Installation of bus priority route on Section 1A and 1B of Outer Orbital

This route covers the installation of bus lanes along sections 1A and 1B of the Outer Orbital or MOOR. Given this is road has not been constructed it will be possible to ensure that it is designed to cater for public transport vehicles offering a priority link to the west of Maynooth and serving this growing part of Maynooth.

3.4.5.5 Southern Priority Proposals MCA

Table 3.27 contains the MCA results for the southern priority options discussed in the previous subsections.

Table 3.31 – MCA Results for Southern Priority Options

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 8A				
Option 8B				
Option 8C				
Option 8D				

3.4.5.6 Assessed Preferred Southern Priority Options

Having regard to the MCA results, all options are being brought forward as they all meet the objectives of the strategy. KCC would work collaboratively with TII to deliver all measures related to the National Roads Network.

3.4.6 Maynooth General Public Transport Improvements Options

To support the public transport strategy, a number of general public transport improvements are proposed to ensure the effective operation of public transport within Maynooth. These options are shown in Figure 3.46.

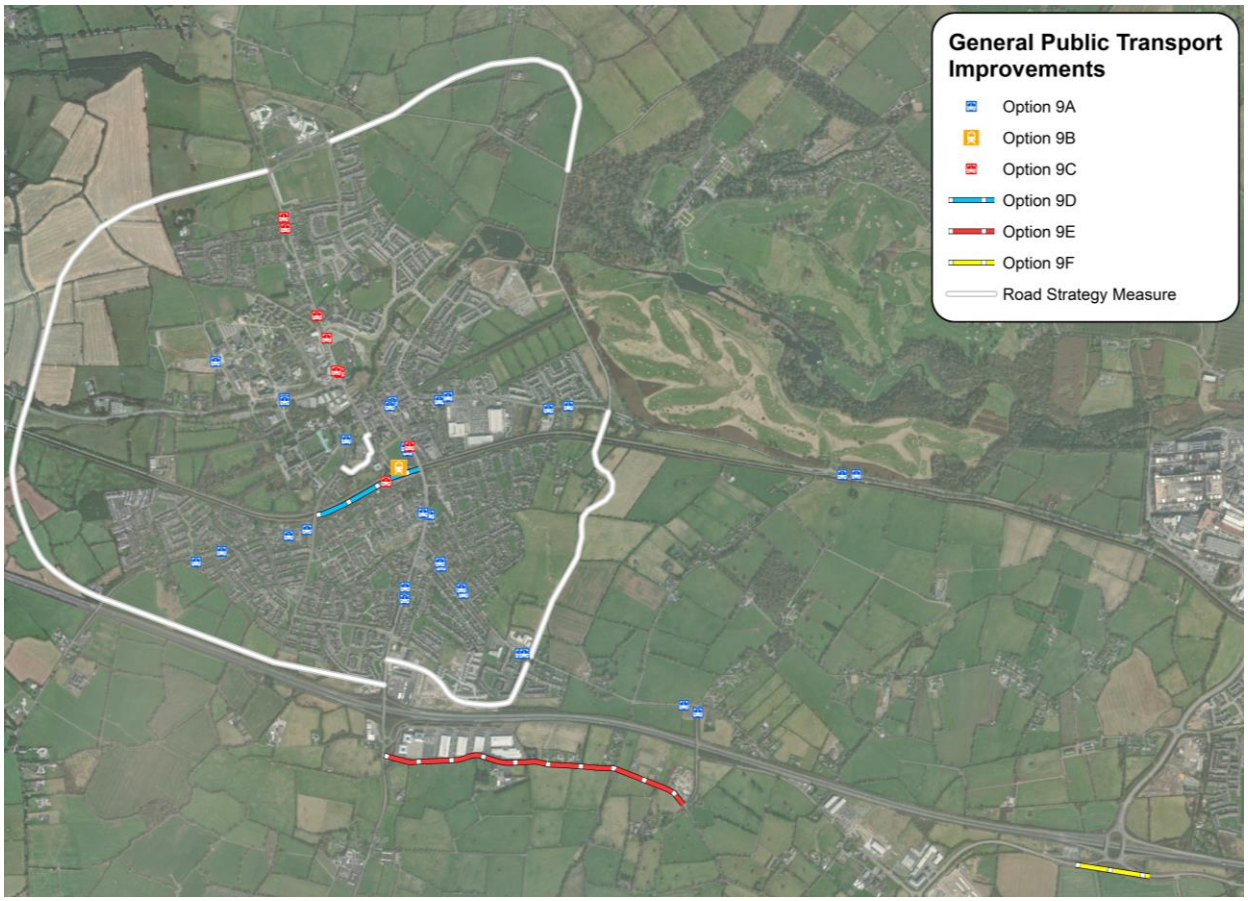

Figure 3.46 - General Public Transport Improvements Proposals

3.4.6.1 Option 9A - Upgrade of key bus stops within Maynooth

Kildare County Council will work collaboratively with the NTA to agree the upgrade of key bus stops within Maynooth.

3.4.6.2 Option 9B - Upgrade of Maynooth Train Station

Kildare County Council will work collaboratively with the NTA and Irish Rail to agree the upgrade of Maynooth Train Station with a focus on making it more accessible for all.

3.4.6.3 Option 9C – Installation of new bus stops

Kildare County Council will work collaboratively with the NTA to agree the installation of new bus stops for new and proposed bus services and proposed Priority Routes identified in previous sections.

3.4.6.4 Option 9D - New bus rail interchange

Kildare County Council will work collaboratively with the NTA and Irish Rail to agree and implement a new bus rail interchange at Maynooth Train Station. This option

would involve the relocation of general parking at Maynooth Train Station to a new Western Train Station delivered under Dart+ West. Kildare County Council will also collaborate with the NTA to agree the new and proposed bus services that could use this new interchange.

3.4.6.5 Option 9E - Upgrade of Ballygoran Road to cater for bus services

The upgrade of Ballygoran Road is required to cater for the operation of bus services along it. The Maynooth Business Campus is served by the Ballygoran Road to the south. The Maynooth Business Campus is a key employment location within Maynooth so serving this location by public transport is a key measure of the Maynooth Transport Plan.

3.4.6.6 Option 9F - New bus, cycle, and pedestrian link on southside of Leixlip M4 Junction

New two way bus, cycle and pedestrian link on southside of Leixlip M4 Junction to allow for the easier movement of Public transport vehicles, pedestrians and cyclists. KCC would work collaboratively with TII to deliver this measure.

3.4.6.7 General Public Transport Improvements MCA

Table 3.27 contains the MCA results for the general public transport improvements proposals discussed in the previous subsections.

Table 3.32 – MCA Results for General Public Transport Improvements Proposals

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 9A				
Option 9B				
Option 9C				
Option 9D				
Option 9E				
Option 9F				

3.4.6.8 Assessed Preferred General Public Transport Options

Having regard to the MCA results, all options are being brought forward as they all meet the objectives of the strategy. KCC would work collaboratively with TII to deliver all measures related to the National Roads Network.

3.4.7 Bus Service Proposals

An analysis was undertaken during the baseline review phase of this project in addition to public transport frequency, POWSCAR and population growth analysis that was undertaken during the options development phase. The purpose of which was to examine in detail the existing public transport provision to and from Maynooth. Using POWSCAR records for those commuting from Maynooth for work and third level education, and the records of people commuting to Maynooth for work and education, the existing trip patterns were examined in detail. This analysis has been used to inform the formulation of measures included in this section.

3.4.7.1 Option 10A - New Public Transport Connection from Maynooth to Edenderry

Kildare County Council will work collaboratively with the NTA to examine the possibility of providing a new direct public transport connection from Maynooth to Edenderry.

3.4.7.2 Option 10B - New Public Transport Connection from Maynooth to Newbridge

Kildare County Council will work collaboratively with the NTA to examine the possibility of providing a new direct public transport connection from Maynooth to Newbridge.

3.4.7.3 Option 10C - New Public Transport Connection from Maynooth to Dunboyne

Kildare County Council will work collaboratively with the NTA to examine the possibility of providing a new direct public transport connection from Maynooth to Dunboyne.

3.4.7.4 Option 10D - New Public Transport Connection from Maynooth to Adamstown

Kildare County Council will work collaboratively with the NTA to examine the possibility of providing a new direct public transport connection from Maynooth to Adamstown. There may also be the possibility to extend such a service south to Grange Castle Business Park depending on the outcome of more detailed demand analysis.

3.4.7.5 Option 10E - New Maynooth Town loop Bus Service

Kildare County Council will work collaboratively with the NTA to examine the possibility of providing a new Maynooth Town loop bus service. Such a service would link the key origins and destinations within Maynooth such as the Town Centre, New and Existing Train Stations, new development areas such as Moygaddy and Lands served by the MERR and Maynooth University.

3.4.7.6 Option 10F - Improve the Frequency on Key Bus Service Serving Maynooth

Kildare County Council will work collaboratively with the NTA to examine the possibility of improving the frequency on key bus services serving Maynooth. The

key services to be included in this review are listed below, however it should be noted that this is not an exhaustive list and it should be reviewed to ensure all key services are identified and improved where required.

Key bus services serving Maynooth:

- C3
- C4
- W6 (to be introduced under BusConnects)
- 115 / 115C
- 139
- 847

3.4.7.7 Bus Service Proposals MCA

Table 3.27 contains the MCA results for the bus service proposals discussed in the previous subsections.

Table 3.33 – MCA Results for Bus Service Proposals

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 10A				
Option 10B				
Option 10C				
Option 10D				
Option 10E				
Option 10F				

3.4.7.8 Assessed Preferred Bus Service Options

Having regard to the MCA results, all options are being brought forward as they all meet the objectives of the strategy.

3.5 Parking Options Assessment and Strategy

This section identifies and assesses options to improve parking facilities as part of the MEABTA. The parking options are integrated with the public transport, active modes and road strategies to promote sustainable travel through demand management where possible.

3.5.1 Parking Options Description and Assessment

3.5.1.1 Option 1: Reallocation of Main Street Parking

Table 3.34 provides the MCA for parking option 1 (reallocation of Main Street parking). The reallocation of Main Street parking and the utilisation of free space to enhance the public realm with wider footpaths and cycle tracks would have a very positive impact on the community, sustainable travel and safety. This option will tie into Option 10, which will increase public parking in Carton Retail Park, providing an alternative site for town centre parking nearby. While feasible, engagement with stakeholders will be important as part of the redesign of the Main Street to deliver this option.

Table 3.34 MCA Analysis of Parking Option 1

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 1				

3.5.1.2 Option 2: Enforcement of Kildare County Development Plan (CDP) Parking Provisions at New Development Sites

Enforcing CDP parking provisions at new development sites is highly feasible and low in cost to implement. The decarbonisation and sustainable travel impact is modestly positive as the CDP parking provision is quite generous and the probability of residents/visitors finding parking elsewhere is high. This is a short-term demand reduction measure, which can be capitalised upon further through the creation of car-free, or low car developments, elsewhere in Maynooth. The rationale for the scoring based on these points are illustrated in Table 3.35.

Table 3.35 MCA Analysis of Parking Option 2

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 2				

3.5.1.3 Option 3: Car-Free Developments at Public Transport Accessible Sites

Table 3.36 displays the MCA for parking option 3. Removing cars from developments with high planned unit densities would positively influence the decarbonisation of Maynooth town, with less cars emitting carbon emissions and air pollutants. Car-free development will help to achieve modal shift targets as housing without parking is likely to attract residents who will primarily walk, cycle or take public transport. Car free developments will have safer streets, resulting in a positive community impact. Feasibility is quite realistic, but the provision of e-mobility and vehicle sharing schemes to support car free developments could be more complicated to implement.

Table 3.36 MCA Analysis of Parking Option 3

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 3				

3.5.1.4 Option 4: Expansion of Pay and Display Parking at Maynooth University

Table 3.37 displays the MCA for parking option 4. Expansion of Pay and Display at Maynooth University has the potential to gently discourage students and staff driving to the University and promote the use of sustainable travel modes such as the bus, walking or cycling. Increasing Pay and Display parking is reasonably straightforward and may generate profits for the university rather than create extra costs. Utilising more sustainable transport modes will contribute to the overall goal of decarbonisation in Maynooth. Students/staff using fewer cars should result in a slight safety and community benefit.

Table 3.37 MCA Analysis of Parking Option 4

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 4				

3.5.1.5 Option 5: Restriction of Future Parking at Maynooth University

The MCA scoring for parking option 5 is shown in Table 3.38. This option is entirely feasible as no change is required to the existing parking levels at Maynooth University. Restricting parking should, in the long term, reduce the proportion of staff and students that drive to the University as it grows; and therefore benefit the environment.

Table 3.38 MCA Analysis of Parking Option 5

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 5				

3.5.1.6 Option 6: Upgrade Leinster Street Car Park with New Southern Access Route

Option 6 requires significant work such as upgrading the existing train station bridge, converting the train station car park and upgrading and expanding Leinster Street car park. In addition to this, a new access road from Parsons Street is required. There will be financial costs associated with these works, and potential disruptions to the public while the works are underway. Therefore, this option received a 'Moderate Disbenefit' score to feasibility as shown in Table 3.39. However, option 6 also has the possibility of bringing strong benefits to Maynooth town through prioritising and accommodating cyclists and pedestrians on Leinster Street and on the existing Canal Bridge. The T-junction being created at R408/R148 should help to improve traffic flow by removing an arm from the junction.

Table 3.39 MCA Analysis of Parking Option 6

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 6				

3.5.1.7 Option 7: Increase Parking Charges at Existing Maynooth Train Station to Encourage Park and Ride at New Maynooth West Train Station

Table 3.40 exhibits the MCA table for option 7. Increasing parking charges at the existing Maynooth train station should encourage the use of Park and Ride facilities at the new Maynooth West train station. Implementing this option is uncomplicated and requires engagement with Irish Rail. Higher prices for parking at the existing station should reduce vehicular trips to central areas of Maynooth, slightly reducing emissions and local environmental impacts. Accessibility may improve within the community and modal shift could result in the increased use of Park and Ride instead of driving.

Table 3.40 MCA Analysis of Parking Option 7

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 7				

3.5.1.8 Option 8: Improve and Reorganise Drop-Off Facilities at MEC School Campus

Currently, the drop-off and pick-up facilities designed as part of the MEC Campus are not being used effectively and dangerous conflicts are occurring as a result of using the GAA car park as an informal drop-off location. While the specific design of the solution at the MEC campus is yet to be determined by a detailed study, it is realistic to assume that this project will significantly improve safety, manage queuing, prioritise school buses and active travel while making use of existing infrastructure where possible to reduce costs. The scoring for this option is positive, as shown by the MCA analysis in Table 3.41.

Table 3.41 MCA Analysis of Parking Option 8

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 8				

3.5.1.9 Option 9: Presentation Girls School Park and Stride Facility

The MCA for option 9 is shown by Table 3.42. Introducing a Park and Stride facility for the Presentation Girls school in Maynooth would alleviate the safety concerns raised in the Phase 1 consultation survey where the drop-off and pick-up times are currently unsafe at this school. This option should reduce queuing and potential conflicts on the roads surrounding the school zone thereby improving accessibility. Other benefits such as increased physical activity and removing traffic from the town centre, as well as better utilisation of the Carton Retail Park

Table 3.42 MCA Analysis of Parking Option 9

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 9				

3.5.1.10 Option 10: Provision of Public Parking at Carton Retail Park

Table 3.43 shows the MCA for option 10. As this car park already exists, no works would be required to make this option feasible and financially viable. The main issue

will be securing the agreement of the car park owners to use this site, which would require stakeholder engagement. The use of Carton Retail Park as a public car park could reduce town centre traffic and aid integration by accommodating the relocated car park spaces which would be removed from the Main Street. This option would allow additional parking near the town centre which should support retail activity. However, as the provision of parking so close to Maynooth Town will encourage driving to town, the decarbonisation impact of this measure is not positive. However, there are other strong benefits to this option.

Table 3.43 MCA Analysis of Parking Option 10

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 10				

3.5.1.11 Option 11: Introduction of Mobility Management Plans for Major Employers

The MCA for option 11 can be seen in Table 3.44. The introduction of mobility management plans (MMPs) in locations such as Maynooth Business Campus would be low in cost and could potentially provide cost savings for businesses in the future if investment in further car parking is not required. MMPs should result in a certain amount of modal shift from the private car to sustainable modes which should benefit the environment, decarbonisation and safety at the businesses which implement MMPs.

Table 3.44 MCA Analysis of Parking Option 11

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 11				

3.5.1.12 Option 12: Installation of Variable Message (VMS) Parking Signs on Key Roads

While there are substantial financial costs required to invest in infrastructure for VMS signs such as installation, operation, and maintenance overheads; these signs will help to communicate and assist drivers with real-time information on directions and the availability of vacant parking spaces in Maynooth Town. This will help to eliminate unnecessary journeys circulating through Maynooth Town providing a safer and more environmentally friendly town centre for Maynooth. The provision of these signs will help to educate drivers about the bypass orbital roads to reduce town centre trips, as well as provide instructions to avoid traffic restrictions in the town centre. While the VMS signs will facilitate parking in the short term, their role will change over time as the infrastructure improves, with VMS signs being used primarily as directional signage to support sustainable travel and bus priority measures in the future. The scoring of the MCA in Table 3.45 has been conducted according to this rationale.

Table 3.45 MCA Analysis of Parking Option 12

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 12				

3.5.1.13 Option 13: Increase Parking Enforcement to Eliminate Illegal Parking in Road Space Designated for Sustainable Travel Modes

Table 3.46 displays the MCA for option 13. Introducing heavier parking enforcement measures to eliminate illegal parking in road space designated for sustainable travel modes would provide a practical solution to improving safety, bus efficiency and convenience for cyclists/pedestrians. Greater dedicated space for cycling may encourage people to shift from private vehicles to sustainable travel modes. Labour costs from greater enforcement would be the main feasibility issue to consider.

Table 3.46 MCA Analysis of Parking Option 13

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 13				

3.5.1.14 Option 14: Park and Ride Facility at Maynooth West Train Station

Introducing a Park and Ride facility at Maynooth West train station will improve regional accessibility and encourage modal shift away from driving for longer distance trips. There would be costs involved in constructing the car park on a flood plain as SUDS measures would be required for the site to be viable. The potential for modal shift means that this measure will have a positive impact on decarbonisation by reducing longer distance car trips and emissions. These benefits are exhibited by the MCA scoring of this option in Table 3.47.

Table 3.47 MCA Analysis of Parking Option 14

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 14				

3.5.1.15 Option 15: Create Local Mobility Hub at Existing Maynooth Train Station and Reduce Car Park Capacity

The MCA for option 15 is presented in Table 3.48. Creating a local mobility hub at the existing Maynooth train station aims to reduce the number of car drivers travelling to and from the train station as soon as Maynooth West station is in operation. This may bring a very positive decarbonisation impact with fewer cars in the town centre and a moderate positive sustainable travel impact by providing shared e-mobility options and bike storage. The costs associated with creating it may be substantial as bike and scooter share schemes are to be provided as well as repair facilities, but some of these costs will be covered by the future operator.

Table 3.48 MCA Analysis of Parking Option 15

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 15				

3.5.1.16 Option 16: Implementation of Smart Parking Measures and Provision of a Town Parking App

Table 3.49 displays the MCA for option 16. Smart parking measures and a town parking app use technology to benefit the community through summarising parking space availability and other services, allowing parking traffic to be managed better. The parking sensors and application development required to implement this measure would incur substantial costs. Furthermore, making parking easier may not aid sustainable travel, although this app would help to stop people driving via the town centre looking for spaces and creating unnecessary congestion. Overall, the impact on decarbonisation is deemed to be largely neutral, by reducing unnecessary car trips to full car parks it will lessen emissions to a certain extent, but it will also facilitate car parking which could encourage driving.

Table 3.49 MCA Analysis of Parking Option 16

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 16				

3.5.1.17 Option 17: Provision of Hidden Disability and Age Friendly Designated Parking Spaces

The provision of hidden disability and age friendly designated parking spaces would be a major benefit to the community through improving safety and accessibility for those more vulnerable within the community. This option would be relatively easy to implement as it is using parking spaces that already exist. The MCA scoring for option 17 can be seen in Table 3.50.

Table 3.50 MCA Analysis of Parking Option 17

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 17				

3.5.1.18 Option 18: Free Parking in KCC Owned Car Parking Spaces for Branded Car Sharing Vehicles

Free parking for branded car sharing vehicles in KCC owned car parking spaces encourages the use of these car sharing schemes and non-car households. As the parking spaces already exist, no major works would be necessary, therefore, the costs would be low as the spaces need to be renamed and enforced. The MCA scoring for option 18 is presented in Table 3.51.

Table 3.51 MCA Analysis of Parking Option 18

Option	MCA Criteria			
	Decarbonisation Impact	Sustainable Land-Use and Transport Impact	Community Impact	Feasibility
Option 18				

3.5.2 Assessed Preferred Parking Measures

As the MCA has indicated, all parking options scored positively and were demonstrated to be beneficial to Maynooth. Therefore, all options have been included as parking measures in the MEABTA with the same numbering retained e.g. Option 1 becomes Parking Measure 1.

3.5.3 Complimentary Parking Measures

In addition to the main parking measures, a number of short-medium term complimentary measures were also identified as part of the MEABTA Decarbonisation Report:

- Engage with Zero Emissions Vehicles Ireland (ZEVI) and local stakeholders to plan and design an EV charging network and implementation plan, with a particular focus on provision of residential area charging networks for residents without access to home/apartment charging solutions (note that a new suite of co-funding supports for local authorities will be available to support this work).
- Seek to provide EV charging points in KCC owned car parks in Maynooth through the Destination Charging Scheme being launched by ZEVI in 2023.
- Work with ZEVI to raise awareness of the Destination Charging Scheme among relevant businesses and organisations in Maynooth when it is launched.
- Work with ZEVI to raise awareness of the Apartment Charging Grant among relevant stakeholders in Maynooth and encourage and support eligible management companies to access the grant and install charging infrastructure.
- Ensure the most up to date building regulations regarding provision of EV charging infrastructure at new developments and developments undergoing major renovation are applied through the planning process and that compliance is monitored.
- Investigate potential to require developers to financially support the provision of a shared car for a period of time at relevant new developments if there is uncertainty as to the commercial viability of a location for operators.
- Require developers to provide reserved space at large new residential developments for shared cars.

3.6 Strategy Complimentary Measures

In addition to the main strategies for each mode of transport, a number of complimentary measures were also identified for the MEABTA strategy as a whole in the decarbonisation report. These are:

- Work with Government and local stakeholders to support future Climate Action and Sustainable Mobility Communications Strategy.
- Seek to appoint or dedicate staff with specialised skills to focus on delivery of behaviour change and communication initiatives and resource implementation of suitable initiatives.
- Ensure that improvements for sustainable modes of travel are communicated and celebrated in an attractive and inclusive way.
- Organise fun events, gamification initiatives and free or subsidised training opportunities to promote the use of sustainable travel modes.
- Implement measures to improve legibility of active travel routes and public transport options.
- Incentivise and monitor the use of sustainable travel modes among KCC staff for commuting and business purposes (leading by example)

Part 4
Refinement of Proposals

4. Part 4 - Refinement of Proposals

4.1 Sense Check of Proposals Based on ABTA 2018 Guidance

The 2018 ABTA guidance contains a checklist to ensure the transport measures associated with preferred development scenario cover certain key areas. The checklist and content check in the MEABTA is summarised in Table 4.1.

Table 4.1 ABTA Guidance Part 4 Checklist

ABTA Guidance Checklist	Check	MEATA Content
Connectivity and accessibility to public transport services, walking and cycling networks are safeguarded and provided for;	✓	The MEATA contains a large number of measures to improve public transport, walking and cycling networks. Both in respect to the range of destinations served and the quality of infrastructure.
Development phasing and the mechanism for transport infrastructure / services delivery, including the financial requirements, are fully considered;	✓	All measures have been phased and the feasibility assessed where appropriate.
Road proposals and associated junctions can meet the anticipated level of trip demand pertaining to each mode;	✓	Road modelling indicates that the road strategy will have sufficient capacity to cater for demand. While there will be capacity constraints on certain parts of the network, this is reasonable considering the level of growth planned and the MEABTA does not intend to facilitate unconstrained traffic growth. A reasonable level of traffic congestion is necessary to discourage car use, as the sustainable travel improvements introduced by the MEATBA are introduced, in order to encourage modal shift away from the car.
Where applicable, the strategic national road network will be protected from local car trip generation;	✓	The road strategy has taken measures to protect the strategic road network with M4 junction improvements to cater for additional local demand.
DMURS (Design Manual for Urban Roads and Streets) is reflected in the design process;	✓	This is a strategy, rather than a design document, so DMURS has been referred to in the planning principles section for future reference by designers when implementing the measures.
National Cycle Manual (NCM) is reflected in the design process;	✓	This is a strategy, rather than a design document, so NCM has been referred to in the planning principles section for future reference by designers when implementing the measures.

ABTA Guidance Checklist	Check	MEATA Content
The land use planning process, and transport planning, has been integrated in identifying the most appropriate land use and transport solutions.	✓	An integrated land-use-transport modelling process was completed to identify the preferred land-use scenario with all MEABTA measures integrated to support the new growth areas.
The proposed transportation options will ultimately ensure that appropriate levels of service will be provided across all modes of transport;	✓	Frequency improvements to public transport will cater for additional demand and VISUM transport modelling has shown that the roads strategy will be able to cater for future growth. As noted previously, sections of the road network will experience congestion at peak times, primarily on the orbital roads as shown by the volume/capacity plots in the roads modelling, but it is not the role of the MEABTA to facilitate unconstrained traffic growth. A certain amount of congestion is necessary to show the appeal of public transport alternatives and promote modal shift.
An appropriate level of contingency has been considered for each mode to allow for development-related growth in transport demand external to the Plan area; and,	✓	The strategy assumes the town will double in size by 2038 so the transport measures all involve increased capacity, which will also facilitate a growth in external trip generation.
Due to the proposed transportation options, excess capacity in relation to road and public transport networks will arise, notwithstanding the development objectives relating to the wider area.	✓	Excess capacity for public transport is the aim, but due to the decarbonisation focus in Maynooth, the MEABTA does not aim to provide excess road capacity and instead only provides new infrastructure when it can be used as part of an integrated approach to improve sustainable travel.

4.2 Refinement of Proposals after Phase 2 Consultation

Part 4 of the ABTA documents the changes which were made to the options to turn them into strategy measures.

4.2.1 Summary of Changes to MEATBA Measures

Table 4.2 provides a summary of the changes made to the draft strategy options released for Phase 2 consultation. The changes can regard options which were modified to create refined measures, options which were removed, or new measures which were added. These changes were made on the basis of the consultation results and new proposals which came from the decarbonisation report. In some cases, the changes listed in this section (e.g. complimentary measures) have already been introduced in Part 3 of the MEABTA as part of the modal strategies. This table is focused on explaining the changes to the initial draft strategy measures which were integrated into the MEABTA, or the source of additional measures added since Phase 2 consultation occurred.

Table 4.2 Summary of Changes to MEABTA Measures following Phase 2 Consultation

Transport Mode	Draft Strategy Option No.	Description	Option Removed/ Added/ Modified	Commentary
Roads	2A / 2B	Second M4 junction	Modified	2A (upgrade of existing junction) used as the future modelling scenario in the roads section, but the overall MEABTA strategy does not take a position on the best location for a new or improved motorway junction.
Roads	6	Radial road link to Moygaddy	Removed	Downgraded into walking/cycling link
Parking	2	Enforce Kildare County Development Plan Parking Provisions at New Development Sites	Modified	Option strengthened with content from decarbonisation report
Parking	3	Introduce Car-Free Developments at Public Transport Accessible Sites	Modified	Option strengthened with content from decarbonisation report
Parking	11	Introduce Mobility Management Plans for Major Employers	Modified	Option strengthened with content from decarbonisation report
Parking	15	Create a Local Mobility Hub at Existing Maynooth Train Station and Reduce Car Park Capacity	Modified	Option strengthened with content from decarbonisation report
Parking	N/A	Offer free parking in KCC owned car parking spaces for branded car sharing vehicles (with capped time duration).	Added	New parking measure from decarbonisation report
Parking	N/A	Engage with ZEVI and local stakeholders to plan and design an EV charging network and implementation plan, with a particular focus on provision of residential area charging networks for residents without access to home/apartment charging solutions (note that a new suite of co-funding supports for local authorities will be available to support this work).	Added	New complimentary parking measure from decarbonisation report
Parking	N/A	Seek to provide EV charging points in KCC owned car parks in Maynooth through the Destination Charging Scheme being launched by ZEVI in 2023.	Added	New complimentary parking measure from decarbonisation report
Parking	N/A	Work with ZEVI to raise awareness of the Destination Charging Scheme among relevant businesses and organisations in Maynooth when it is launched.	Added	New complimentary parking measure from decarbonisation report

Parking	N/A	Work with ZEVI to raise awareness of the Apartment Charging Grant among relevant stakeholders in Maynooth and encourage and support eligible management companies to access the grant and install charging infrastructure.	Added	New complimentary parking measure from decarbonisation report
Parking	N/A	Ensure the most up to date building regulations regarding provision of EV charging infrastructure at new developments and developments undergoing major renovation are applied through the planning process and that compliance is monitored.	Added	New complimentary parking measure from decarbonisation report
Parking	N/A	Investigate potential to require developers to financially support the provision of a shared car scheme for a period of time at relevant new developments if there is uncertainty as to the commercial viability of a location for operators.	Added	New complimentary parking measure from decarbonisation report
Parking	N/A	Require developers to provide reserved space at large new residential developments for shared cars	Added	New complimentary parking measure from decarbonisation report
General ABTA complimentary measure	N/A	Work with Government and local stakeholders to support future Climate Action and Sustainable Mobility Communications Strategy.	Added	New general strategy complimentary measure from decarbonisation report
General ABTA complimentary measure	N/A	Seek to appoint or dedicate staff with specialised skills to focus on delivery of behaviour change and communication initiatives and resource implementation of suitable initiatives.	Added	New general strategy complimentary measure from decarbonisation report
General ABTA complimentary measure	N/A	Ensure that improvements for sustainable modes of travel are communicated and celebrated in an attractive and inclusive way.	Added	New general strategy complimentary measure from decarbonisation report
General ABTA complimentary measure	N/A	Organise fun events, gamification initiatives and free or subsidised training opportunities to promote the use of sustainable travel modes.	Added	New general strategy complimentary measure from decarbonisation report

General ABTA complimentary measure	N/A	Implement measures to improve legibility of active travel routes and public transport options.	Added	New general strategy complimentary measure from decarbonisation report
General ABTA complimentary measure	N/A	Incentivise and monitor the use of sustainable travel modes among KCC staff for commuting and business purposes (leading by example)	Added	New general strategy complimentary measure from decarbonisation report
Walking	N/A (now 140)	Lyreen River & Rye River Greenway (south side of Rye River)	Added	Replaces previous measure of 'path on new road' on now removed road option 6 (radial link to Moygaddy) and provides connection to Maynooth Education Campus and recreational amenity.
Walking	N/A (now 141)	Active modes bridge over Rye River to Maynooth Environs (Moygaddy lands) – now 141	Added	In combination with 140, replaces previous measure of 'path on new road' on now removed road option 6 (radial link to Moygaddy)
Walking	N/A (now 142)	Rye River Greenway (north side, Maynooth Environs (Moygaddy lands)) – now 142	Added	Reflects an area of 'High Amenity Use' shown in the area and provides connection between south and west parts of Moygaddy lands to the Maynooth Education Campus
Walking	N/A (now 143)	Blackhall Little Greenway, Maynooth Environs (Moygaddy lands) – now 143	Added	This corridor is shown in the Moygaddy Masterplan. It connects to and complements the Lyreen River and Rye River Greenway.
Walking	93-95 (now 92)	Path on section of MOOR between Moyglare Hall and Maynooth Environs (Moygaddy lands)	Modified	Was previously shown as an ‘active modes link’ on draft walking and cycling strategy maps, now updated for consistency with roads strategy
Walking	N/A (now 94)	Lyreen Avenue to Moyglare Hall (path on new road) – now 94	Added	Added for consistency with PT strategy. There is a PT strategy medium term measure is a multi-modal sustainable transport link at this location
Walking	N/A (now 144)	Rye River Greenway connection to Dunboyne Road (north bank of Rye River, Maynooth Environs (Moygaddy lands))	Added	Added for consistency with Masterplan for Moygaddy lands. Note this link was added at strategy finalisation stage and was not included in the GIS assessments of the future permeability network
Walking	N/A (now 145)	Connection between Dublin Road and Royal Canal Greenway through future development site east of Carton Retail Park	Added	Connection through future development lands. Added at strategy finalisation stage, not included in the GIS assessments of the future permeability network

Walking	N/A (now 146)	Connection between future Greenfields housing development and Straffan Road	Added	Additional connection to future housing development. Added at strategy finalisation stage, not included in the GIS assessments of the future permeability network
Walking	Former 57 & 59	Amenity walk/linear park and path on new road, both within Lyreen Lodge development	Removed as measures (delivered)	These links are delivered and the category on maps has been changed to ‘link delivered since baseline assessment’ so they are no longer numbered measures in the strategy. The benefits of these links are still incorporated into the GIS analysis along with other measures in the ‘link delivered since baseline assessment’ category
Walking and Cycling	n/a	New and upgraded active modes crossing facilities throughout Maynooth, at locations including (but not limited to) the junction of Carton Avenue and the R157 and the junction of Newtown Road with Meadowbrook Road / Parson Street.	Added	New or upgraded active modes crossing facilities will be required at numerous locations throughout Maynooth in addition to the two specific locations mentioned here, but in most cases requirements will be best determined through the design process for the cycling and walking measures which are already measures in the strategy (e.g. cycle track measures and ‘path on new road’ measures). Public consultation highlighted need for a crossing facility between Carton Avenue and Carton Demesne and improved signal priority for pedestrians at various locations. Improved signal priority for sustainable modes is already a measure in roads strategy. Public consultation also highlighted issues with existing crossing facilities close to the Maynooth Education Campus on Moyglare Road and these issues can be considered in more detail as part of the design process for the strategy measures at Moyglare Road and/or Moyglare Hall.
Cycling	23 (now 20)	Carton Avenue Cycle Way	Modified	Concern was expressed during public consultation regarding conflicts between people walking and cycling on Carton Avenue. Measure changed from ‘Greenway' to 'Cycle Way' to emphasise that a cycle facility separate from the existing walking facility should ideally be provided to reduce potential conflicts. The feasibility of providing a separate facility is expected to be investigated in more detail by KCC Parks Department as part of the Carton Avenue Masterplan.

Cycling	29 (now 26)	Newtown Road, east (Beaufield Close – Maynooth Lodge nursing home)	Modified	This measure was extended slightly at the southern end from Maynooth Town Football Club to the entrance to Maynooth Lodge nursing home.
Cycling	52 (now 48)	Cycle track along north-eastern MOOR at Maynooth Environs (Moygaddy lands)	Modified	Changed from TBC to cycle track
Cycling	N/A (now 55)	Cycle track along existing local roads to/through Maynooth Environs (Moygaddy lands)	Added	There is a commitment in the Moygaddy Masterplan to promote active travel modes on secondary roads in Moygaddy Masterplan area.
Cycling	N/A (now 56)	Cycle track along road linking Moyglare Hall and Maynooth Environs (Moygaddy lands)	Modified	This link was previously shown as an active modes link on the draft cycling strategy map and the category has now been updated to make it consistent with the roads strategy
Cycling	N/A (now 57)	Cycle track between Lyreen Avenue and Moyglare Hall	Added	Added for consistency with PT strategy which proposes a multi-modal connection at this location
Cycling	33 (now 29)	University south campus main active mode link	Modified	Category changed from 'shared street' to 'university main active modes link' on request of St. Patrick's College and in recognition that the importance of this link as a through route to the north campus for walking and cycling will increase when proposed permeability measure to provide an additional active mode entrance from Parson Street, at the south eastern end of the south campus is implemented
Cycling	n/a	Seek to introduce or support small scale bike loan schemes for individuals/households and small businesses with a particular focus on e-bikes and e-cargo bikes	Added – complimentary measure	Measure was developed as part of the Decarbonisation report after the draft cycling strategy had been published
Cycling	n/a	Organise ‘come and try it’ opportunities and loan schemes for different types of micro mobility vehicles.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report after the draft cycling strategy had been published
Cycling	n/a	Work with NTA to achieve a coordinated approach to the provision of shared bikes and/or e-scooters in Maynooth and the surrounding region to ensure effective regulation, avoid a proliferation of different	Added – complimentary measure	Measure was developed as part of the Decarbonisation report. There were a number of comments highlighting the potential benefits of a bike share scheme as part of the

		unconnected schemes and ensure that potential negative safety and accessibility impacts are minimised.		Phase 2 public consultation process and support for a bike share scheme was also expressed by Maynooth University and internal stakeholders within KCC.
Cycling	n/a	Consider the quality of cycling infrastructure in Maynooth and anticipated timelines for improvement on each corridor when planning the introduction and expansion of shared bike or e-scooter scheme(s) and identifying hubs/station locations	Added – complimentary measure	Measure was developed as part of the Decarbonisation report. Public consultation did not specifically raise this issue but raised issues with quality of active travel infrastructure generally, including issues of crowding and conflicts on Moyglare Road and Main Street as well as fears of conflicts with cyclists on Carton Avenue. The introduction of a bike share or e-scooter share scheme in advance of introducing measures to better separate pedestrians from people cycling or using e-scooters could potentially exacerbate existing conflicts on shared paths.
Cycling	n/a	If supporting a one-way bike share / e-scooter share scheme to operate in the area, consider potential redistribution challenges associated with each station and how these will be addressed.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	If allowing an e-scooter share scheme to operate in the area, consider introduction of a fleet ratio target to incentivise the operator to offer bikes in addition to e-scooters.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report and was not specifically raised in the consultation process. However, there were some positive comments regarding the potential for a bike share scheme in the public consultation survey and there were no comments in the same survey requesting a shared e-scooter scheme or more support for e-scooters in general.
Cycling	n/a	Work with NTA, operators and developers to seek introduction of an on-demand ‘back to base’ share scheme offering e-cargo-bikes	Added – complimentary measure	Decarbonisation report, not specifically raised in consultation
Cycling	n/a	Upgrade Main Street cycle parking as part of future redesign of the street and consider potential to provide a small secure hub at a nearby off-street location to improve the cycle parking options available for people working in the Main Street area.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report. There were a number of comments regarding the need for more sheltered secure cycle parking in Maynooth by respondents to the Phase 2 consultation, but most of these comments did not refer to specific locations.

Cycling	n/a	Work with Irish Rail and NTA to significantly enhance cycle parking options at Maynooth Train Station and provide a higher security option, in addition to sheltered standard cycle parking.	Added – complimentary measure	As per previous comment regarding cycle parking
Cycling	n/a	Work with businesses, sports clubs, schools and other relevant destinations to secure delivery of high-quality cycle parking facilities and ensure cycle parking is prominent and visible. Consider part funding new infrastructure to incentivise private sector stakeholders to invest in upgrades in a timely manner.	Added – complimentary measure	As per previous comment regarding cycle parking
Cycling	n/a	Work with Irish Rail and NTA (and potentially also relevant businesses and Maynooth University) to secure delivery of bike repair and bike cleaning facilities at train stations and other suitable locations	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	Following legalisation of e-scooters, seek to provide dedicated e-scooter parking solutions on Main Street and work with stakeholders to encourage provision of suitable facilities at other destinations, particularly the train station and Maynooth University.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	Assess interest the Bike Bunker concept among residents of areas where there are clusters of dwellings without access to suitable cycle storage solutions and seek to provide the facility where interest exists.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	Support residents to install secure front garden cycle storage solutions in suitable areas.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	Work with landowners to seek provision of a secure cycle parking option within Carton Retail Park lands which could be used by people accessing bus services on Dublin Road.	Added – complimentary measure	Measure was developed as part of the Decarbonisation report.
Cycling	n/a	Organise ‘come and try it’ opportunities and loan schemes for different types of micro mobility vehicles	Added complimentary Measure	Complimentary measure added from Decarbonisation Report.
Public Transport Strategy	1A	Remove westbound general traffic from Main Street	Removed	Removed given public consultation feedback of Doctors Lane supporting arrangement

Public Transport Strategy	1B	Accommodate westbound general traffic from Main Street on Doctors Lane	Removed	Removed given public consultation feed back
Public Transport Strategy	2	Conversion of part of Maynooth Square to two way bus lane and interchange	Removed	Removed given public consultation feed back
Public Transport Strategy	3A	Right turn ban on Straffan Road to Main Street – dependent on supporting orbital roads to provide alternative routing for general traffic	Removed	Making options dependent on orbital roads meant that there was no need to retain turn bans as could implement a more effective bus-only Main Street
Public Transport Strategy	3B	General traffic turn ban from Main Street to Mill Street with conversion of turning lane to bus only – dependent on supporting orbital roads to provide alternative routing for general traffic	Removed	Making options dependent on orbital roads meant that there was no need to retain turn bans as could implement a more effective bus-only Main Street
Public Transport Strategy	3C	General traffic turn ban from Mill Street to Main Street with conversion of turning lane to bus only – dependent on supporting orbital roads to provide alternative routing for general traffic	Removed	Making options dependent on orbital roads meant that there was no need to retain turn bans as could implement a more effective bus-only Main Street
Public Transport Strategy	7	Installation of bus lanes on Moyglare Road and priority junction arrangement at pinch point to allow bus gain jump over general traffic	Removed	Alternative option selected
Public Transport Strategy	9	New bus priority route on Moyglare Road from junction of Lyreen Avenue to Mill Street with installation of priority junction arrangement at pinch point	Modified	Language Change from bus lanes to bus priority route
Public Transport Strategy	10	Installation of bus lanes on Kilcock Road to junction with Moyglare Road	Removed	Alternative option selected
Public Transport Strategy	10A	New bus priority route through new western residential development area	Modified	Language Change from bus lanes to bus priority route. 10A, 10B and 10D merged into one western measure.
Public Transport Strategy	10B	New bus priority route through Maynooth Campus to connect back onto Kilcock Road	Modified	Language Change from bus lanes to bus priority route. 10A, 10B and 10D merged into one western measure.
Public Transport Strategy	10C	Bus priority route on Kilcock Road from junction with Maynooth University Moyglare Road	Modified	This option has been curtailed originally it was intended to run the entire length of the Kilcock Road. It will now connect with Option 10A and 10B to create a western priority route connecting buses operating through the new

				development area from Maynooth University to Junction with Moyglare Road. Language Change from bus lanes to bus priority route
Public Transport Strategy	10D	Portion of western orbital with bus priority route	Modified	Language Change from bus lanes to bus priority route. 10A, 10B and 10D merged into one western measure.
Public Transport Strategy	11	Bus priority route on Leixlip Road	Modified	Language Change from bus lanes to bus priority route
Public Transport Strategy	13A	Installation of bus lanes on Straffan Road	Removed	Alternative options selected
Public Transport Strategy	13B	Installation of bus lanes on all slips of M4 Junction with new bus only link on southern exit arm to allow buses skip Straffan Rd Roundabout	Removed	
Public Transport Strategy	13B	Straffan Road bus priority route	Modified	Language Change from bus lanes to bus priority route
Public Transport Strategy	17	Installation of bus lanes on Newtown Road and proposed new M4 Junction slips	Removed	Second junction removed from roads strategy recommendations, this option has been removed as a result, with buses likely to be diverted via different priority route
Public Transport Strategy	19A	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Edenderry	Modified	Language Change
Public Transport Strategy	19B	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Newbridge	Modified	Language Change
Public Transport Strategy	19C	Co-running of new services from New Service from Edenderry and Newbridge with existing 139 service to provide higher frequency between Maynooth and Clane	Removed	Removed – covered by other increased frequency measure. This measure was too specific and restrictive.

Public Transport Strategy	19D	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Dunboyne	Modified	Language Change
Public Transport Strategy	19E	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Adamstown – possibility to extend service south to Grange Castle Business Park	Modified	Language Change
Public Transport Strategy	19F	Work with the NTA to examine the possibility of providing a new Maynooth Town loop bus service	Modified	Language Change
Public Transport Strategy	Longer Term 1	Facilitate the future use of buses via the north-eastern Maynooth University entrance when it is closed to general traffic. For future use by college services and TFI services if required by the NTA.	Added	Linked to the road strategy change

4.2.2 Further Detail on Changes to Active Mode Measures

Since the publication of the draft walking strategy and draft cycling strategy as part of the Phase 2 consultation in November 2022, a number of additional measures have been added to each strategy and some changes have been made to measures which were previously included in the draft.

Four greenway measures and a connecting bridge in the Moygaddy area were added as walking strategy measures and are carried over into the cycling strategy map. These measures were informed by a review of the Moygaddy Masterplan developed by Sky Castle Limited as well as by comments received from internal stakeholders within KCC and from Cairn Homes. The Lyreen River & Rye River Greenway on the north side of the Lyreen River and the south side of the Rye River (Walking 140) replaces the 'path on new road' measure previously proposed in the draft strategy, as the proposed radial road link between Lyreen neighbourhood and Moygaddy has been removed in the final roads strategy. Walking measure 140 also provides a connection to the Maynooth Education Campus and an amenity which facilitates recreational use of active modes as well as travel between destinations. A proposed active modes bridge over the Rye River to Moygaddy (Walking 141) has been added which connects the previously mentioned Greenway to Moygaddy. Another greenway link has been added on the north side of the Rye River, to reflect an area of 'high amenity use' shown in the Moygaddy Masterplan and to provide a connection between the south and west parts of Moygaddy to the Maynooth Education Campus. Similarly, a greenway connection along the Blackhall Little Stream has been added to the strategy, as this link is shown in the Moygaddy Masterplan and it connects to and complements the other greenway links in the area. More recently, an additional greenway connection on the north side of the Rye River between Moygaddy and the Dunboyne Road was also added to the strategy at a late stage (Walking 144). However, as this connection was added at a later date than the previously mentioned measures, it did not form part of the future network GIS assessment.

A number of other changes have also been made to both the walking and cycling strategies in the Moygaddy area. Walking measure 92 and cycling measure 56 propose the delivery of footpaths and cycling tracks on the proposed new road (section of the MOOR) linking Moyglare Hall and Moygaddy. This link was previously shown as an 'active modes link' on the draft strategy maps and the categories for walking and cycling measures have now been updated to make these measures consistent with the roads strategy. The previously shown 'active modes bridge' which formed part of this link has been removed, as the river crossing for all modes will be provided as part of the overall road project. Cycling measure 48 proposes a cycle track along the north-eastern MOOR at Moygaddy and has been changed from 'TBC' to cycle track. Cycling measure 55 proposes the delivery of cycle tracks along the main existing local roads to/through Moygaddy. This reflects a commitment in the Moygaddy Masterplan to promote active travel modes on secondary roads in the Masterplan area.

Walking measure 94 and cycling measure 57 propose the delivery of footpaths and cycle tracks on the proposed new road link between Lyreen Avenue and Moyglare Hall. These measures are consistent with the proposed PT strategy measure which proposes the delivery of a bus priority route in this location.

Walking measure 145, a connection between Dublin Road and the Royal Canal Greenway through a future development site east of Carton Retail Park was added at strategy finalisation stage. A short additional connection from Straffan Road to a future housing development at Greenfields (146) was also added at strategy finalisation stage. Neither of these links have been incorporated into the GIS analysis.

An amenity walk and a path on new road which formed part of the Lyreen Lodge residential development were included in the draft strategy as measures but are now delivered. The benefits of these links, as well as other links delivered or identified as delivered since the completion of the baseline assessment are still incorporated into the GIS analysis, as they were not included in the baseline network.

A number of consultation respondents raised concerns regarding potential conflicts between pedestrians and cyclists on Carton Avenue and the impact this could have on the amenity value of Carton Avenue as a place to walk. Therefore, cycling measure 20 proposes a ‘cycle way’ on Carton Avenue. This is a change in category from ‘Greenway’ to emphasise that a dedicated cycle facility separate from the existing walking facility should ideally be provided. The feasibility of providing a separate cycle facility is expected to be investigated in more detail by KCC Parks Department as part of the Carton Avenue Masterplan. Any proposals for Carton Avenue will need to be sensitive to the fact that Carton Avenue is part of the Maynooth Architectural Conservation Area.

The category for cycling measure 29 located on the south campus has been changed from ‘shared street’ to the category of ‘university main active mode link’. This change was made in recognition of the fact that the importance of this link as a through route to the north campus for active modes will increase when the proposed permeability measure to provide an additional active mode entrance from Parson Street at the south-eastern end of the south campus is implemented. This change was also requested by St. Patrick’s College.

A general overarching complementary walking and cycling measure to provide new and upgraded active mode crossing facilities throughout Maynooth, at locations including (but not limited to) the junction of Carton Avenue and the R157 and the junction of Newtown Road with Meadowbrook Road / Parson Street has been added to the strategy. Public consultation highlighted need for a crossing facility between Carton Avenue and Carton Demesne and improved signal priority for pedestrians at various locations. Improved signal priority for sustainable modes is already a measure in the roads strategy. It is anticipated that new or upgraded active mode crossing facilities will be required at numerous different locations throughout Maynooth, but in most cases requirements will be best determined through the design process for the cycling and walking measures already in the strategy (e.g. cycle track measures and ‘path on new road’ measures). For example, the consultation process highlighted issues with existing crossing facilities close to the Maynooth Education Campus on Moyglare Road, but these issues can be considered in more detail as part of the design process for the walking and cycling strategy measures at Moyglare Road and/or Moyglare Hall.

A number of other complementary active mode measures were added to strategy following publication of the draft strategy. All of these relate to cycling and/or e-scooters and were developed as part of the Decarbonisation report. These are listed below.

- Work with NTA to achieve a coordinated approach to the provision of shared bikes and/or e-scooters in Maynooth and the surrounding region to ensure effective regulation, avoid a proliferation of different unconnected schemes and ensure that potential negative safety and accessibility impacts are minimised.
- Consider the quality of cycling infrastructure in Maynooth and anticipated timelines for improvement on each corridor when planning the introduction and expansion of shared bike or e-scooter scheme(s) and identifying hubs/station locations.
- If supporting a one-way bike share / e-scooter share scheme to operate in the area, consider potential redistribution challenges associated with each station and how these will be addressed.
- If allowing an e-scooter share scheme to operate in the area, consider introduction of a fleet ratio target to incentivise the operator to offer bikes in addition to e-scooters.
- Work with NTA, operators and developers to seek introduction of an on-demand 'back to base' share scheme offering e-cargo-bikes.
- Seek to introduce or support small scale bike loan schemes for individuals/households and small businesses with a particular focus on e-bikes and e-cargo bikes to enable participants to 'trial' these options for an agreed period of time.
- Work with Irish Rail and NTA to significantly enhance cycle parking options at Maynooth Train Station and provide a higher security option, in addition to sheltered standard cycle parking.
- Upgrade Main Street cycle parking as part of future redesign of the street and consider potential to provide a small secure hub at a nearby off-street location to improve the cycle parking options available for people working in the Main Street area.
- Work with landowners to seek provision of a secure cycle parking option within Carton Retail Park lands which could be used by people accessing bus services on Dublin Road.
- Work with businesses, sports clubs, schools and other relevant destinations to secure delivery of high-quality cycle parking facilities and ensure cycle parking is prominent and visible. Consider part funding new infrastructure to incentivise private sector stakeholders to invest in upgrades in a timely manner.
- Assess interest in the Bike Bunker concept among residents of areas where there are clusters of dwellings without access to suitable cycle storage solutions and seek to provide the facility where interest exists.
- Support residents to install secure front garden cycle storage solutions in suitable areas.
- Following legalisation of e-scooters, seek to provide dedicated e-scooter parking solutions on Main Street and work with stakeholders to encourage provision of suitable facilities at other destinations, particularly the train station and Maynooth University.

- Work with Irish Rail and NTA, Maynooth University and businesses to secure delivery of bike repair and/or cleaning facilities in prominent locations throughout Maynooth.

A few of the measures above which were developed as part of the decarbonisation report also seek to address issues raised by respondents as part of the Phase 2 public consultation. A number of comments highlighting the potential benefits of a bike share scheme were received from the public as part of the Phase 2 public consultation survey. Maynooth University and internal stakeholders within KCC also expressed support for a bike share scheme and emphasised the need for a coordinated approach. With regard to the measure highlighting the need to consider the quality of cycling infrastructure when planning the introduction of shared bike and/or e-scooter schemes, this was not specifically raised as part of consultation, but issues with the quality of active travel infrastructure generally were raised, including issues of crowding and conflicts on Moyglare Road and Main Street as well as fears of conflicts between pedestrians and cyclists on Carton Avenue.

There were also number of comments regarding the need for more sheltered secure cycle parking in Maynooth by respondents to the Phase 2 consultation, but most of these comments did not refer to specific locations.

4.3 Modal Split Targets

The Climate Action Plan and the Low Carbon Development (Amendment) Act 2021 require public bodies to take steps to reduce greenhouse gas emissions in order to contribute to achieving the national target of a 51% reduction in greenhouse gas emissions by 2030. Transport is a major source of Irish greenhouse gas emissions, and the MEABTA will play an important local role in providing an investment plan which will promote sustainable travel and modal shift away from higher polluting vehicles. In order to assess the success of the MEABTA in achieving this goal, it is important to set measurable modal split targets which can be evaluated in the future when the ABTA is reviewed.

At present 65.5% of Maynooth residents drive to work in Census 2016. In order to achieve modal shift, fundamental changes are required to the transport network to promote the use of sustainable modes of travel and the MEABTA proposes numerous improvements which will help to encourage a shift to more sustainable travel behaviour. The walking and cycling networks proposed in the MEABTA have the greatest potential for promoting modal shift over short-medium distance trips within the town, while the public transport improvements will provide better alternatives for longer distance trips.

The Greater Dublin Area Transport Strategy 2022-2042 expects to achieve a reduction in car mode share from 58% in 2016 to 49% in 2042. This would represent a reduction in car modal share of 9%, which would result in thousands fewer car trips each day. It is important to note that the GDA strategy area covers many urban areas, with extensive sustainable travel alternatives, and this means car dependency levels are lower in the GDA than in Maynooth.

In light of the current levels of car dependency in Maynooth and the level of intervention proposed, it would be appropriate to set a challenging modal split target of a -10% reduction in private motor vehicle modal split for work trips by Census 2040 to align with the future 2038 growth scenario. The MEABTA sets out measures

to be implemented over a 10-year timeframe with the Irish Census taking place in the following years; 2027, 2032, 2037 and 2041. If the MEABTA is implemented as planned, then most measures will be in place by the 2040 Census and this is the best opportunity to assess modal split for Maynooth and determine if the modal split targets have been achieved. Furthermore, monitoring of modal split statistics and progress can take place at each Census period in the lead up to 2036. The achievement of the modal split targets will rely on the majority of the MEABTA measures being adopted by the Local Area Plan and implemented prior to 2040. If the modal split targets are achieved, then car dependency for work trips would reduce to 55.5%. A more detailed discussion of the rationale behind the modal split targets, and the challenges involved in modal shift, is provided in the Land Use Assessment Report located in Appendix B, Volume 2 of the MEABTA.

4.4 Relationship with Joint-LAP Process

The land-use growth plans for the Kildare areas of Maynooth were developed by the Planning Department and assessed as part of the land-use-transport analysis process at the start of the MEABTA, documented in the report located in Appendix B of Volume 2. This integrated approach with the planning department ensures that the MEABTA measures will facilitate future development plans in the LAP, while the location of future growth in the LAP zoning has been influenced by the MEABTA land-use assessment which identified the areas most appropriate to promote sustainable travel.

The transport measures and future land-use development scenario developed in the MEABTA will be integrated into the Maynooth Joint LAP being prepared by Kildare and Meath County Council. While most measures from the MEABTA will be retained, not all measures from the strategies will be kept in the LAP as the development of the plan will involve further consultation with stakeholders and Meath. As part of the LAP consultation process, transport measures may be removed or added based on feedback.

Following the conclusion of the MEABTA, the draft LAP will be developed with the MEABTA evidence contributing to the development of the land-use and transport sections. It is expected that the joint LAP will operate from 2024-2030.

Part 5
Finalisation of the ABTA

5. Part 5 – Finalisation of the ABTA

5.1 Final Strategies for Each Transport Mode

This section presents the transport strategies for each mode of transport, providing a table of measures with their phasing and a strategy map. Larger A3 maps of each modal strategy are available in Appendix G.

5.1.1 Strategy Measure's Phasing and Funding

In the strategy measure tables, the phasing of measures is indicated in respect to whether they are intended as short, medium or long term strategy measures. The following time periods are involved for each phasing type:

- Short Term – 1 to 2 years
- Medium Term – 3 to 5 years
- Long Term – 6 to 10 years

In respect to the funding of measures, the following high-level assumptions are used:

- **Active Travel Measure Funding** – Assumed that smaller walking (e.g. footpath widening) or cycling (e.g. cycle parking) measures will be funded by KCC, but that larger schemes such as developing the proposed walking or cycle network will require collaboration and funding from the National Transport Authority to implement.
- **Roads Measure Funding** – Assumed that smaller road changes (e.g. new junctions) will be funded and implemented by KCC, or other state agencies, while larger projects which have implications for the National Road Network will involve central exchequer funding. Dependant on location and type, larger interventions will require consultation and collaboration with Transport Infrastructure Ireland, the National Transport Authority, Department of Housing and the Department of Transport.
- **Parking Measure Funding** – Assumed measures will be primarily funded by KCC, unless where they involve sustainable travel elements (e.g. mobility hubs) where collaboration with the NTA will be necessary to secure funding.
- **Public Transport Measure Funding** – KCC has no direct authority over public transport services, so the public transport measures will be recommendations to the NTA for consideration. If funded, the changes proposed as part of the MEABTA would be implemented by the NTA in collaboration with KCC.

5.1.2 Active Travel Measures

5.1.2.1 Permeability Strategy Measures

The permeability measures and phasing are listed in Table 5.1. Figure 5-1 shows all measures. Figure 5-2 shows the measures proposed for implementation in the short term (including one measure allocated a phase of 'short-medium', while Figure 5-3 shows the measures proposed for implementation in the medium term. A number of measures have been allocated a phasing of 'medium – long', these are included on

the medium term map. There is no measure numbered 56 or 58 in the table as the status of two links proposed in the draft strategy was changed to 'link delivered since baseline assessment' when the MEABTA was being finalised.

Table 5.1 Permeability Measures and Phasing

No.	Description	Phase
1	New path on Kilcock Road near Laraghbryan Cemetery	Medium
2	New path on Celbridge Road (east of Ballygoran overbridge)	Medium
3	Active modes bridge over M4 between Straffan Link Road (Griffin Rath Road) and Maynooth Business Campus	Medium
4	Royal Canal Greenway - Leinster Park	Short
5	Royal Canal Greenway - Carton Retail Park	Short
6	Lidl - Carton Court	Short
7	Brookfield Park - Newtown Court	Short
8	College Green - Cluain Aoibhinn	Short
9	Hayfield - Straffan Place/Court	Short
10	Silken Vale - Train Station	Medium
11	The Arches - Meadowbrook Road	Short
12	Royal Canal Greenway - Laraghbryan (Kilcock Road)	Long
13	Active modes bridge over rail line and canal between Newtown Hall and Collegelands / The Royal Canal Greenway	Medium
14	Link between Newtown Hall and proposed active modes bridge (13)	Medium
15	Carton Avenue - Pebble Hill	Short
16	Carton Avenue - Lyreen Park	Short
17	Pebble Hill - Lyreen Park	Short
18	Carton Square - Pebble Hill	Short
19	Castle Park - Linden Demesne	Medium
20	Southern new entrance from Parson Street to Maynooth University South Campus (near Department of Music)	Short - medium
21	Northern new entrance from Parson Street to Maynooth University South Campus	Medium
22	Active modes bridge over River Lyreen at Laraghbryan	Medium
23	The Rise - Moyglare Grove	Short
24	River Apartments - Moyglare Village	Short
25	New path on Moyglare Road north of Moyglare Hall	Medium
26	Royal Canal Greenway - Parson Lodge	Medium
27	New path on Dublin Road east of R157 junction[9]	Medium
28	Parson's Hall - The Lane (Newtown Hall area)	Medium

[9] It should be noted that west of the Dublin Road junction for a distance of approximately 160m there is currently a path on the north side of the road only. A footpath will also be needed on the south side of the road if the lands to the south are developed.

No.	Description	Phase
29	Mullen Park perimeter route to facilitate connections to neighbouring estates	Short
30	Mullen Park - Carton Court (south)	Short
31	Mullen Park - Carton Court (middle)	Short
32	Mullen Park - Carton Court (north)	Short
33	Mullen Park - Greenfield Drive	Short
34	Old Greenfield - Fitzgerald Close	Medium
35	Meadowbrook Link Road – Kingsbry	Short
36	Path on new section of Straffan Link Road	Short
37	New path on section of Dunboyne Road linking existing footpaths to new path being provided as part of Linden Demesne development (measure 78)	Short
38	Moyglare Road - The Park (via GAA grounds)	Short
39	Moyglare Road - Proposed active modes bridge (53)	Medium
40	Brookfield Park - College Green	Short
41	Link between Carton Avenue and lane north of Carton Grove, through planned development east of Limetree Hall	Medium
42	Carton Avenue - Carton Grove	Medium
43	New path on Kilcock Road between Kilcock and the L5041 junction (near Jackson's Bridge)	Long
44	Moyglare Abbey - Moyglare Village	Short
45	Royal Canal Greenway - MERR	Medium
46	Rockfield Park - new development	Medium
47	Fitzgerald Close - new development	Medium
48	Newtown Hall cul de sacs connections to link to Greenway	Medium
49	Griffin Rath Manor - proposed active modes bridge (3)	Medium
50	Maynooth Business Park - proposed active modes bridge (3)	Medium
51	Lyreen Avenue – measure 39 and proposed active modes bridge (53)	Medium
52	Moyglare Village - The Steeple	Short
53	Active modes bridge over Lyreen River at Pound Park	Medium
54	Moyglare Green – measure 94 (proposed multi-modal link between Lyreen Avenue and Moyglare Hall)	Medium
55	Amenity walk / linear park along Lyreen River between Maynooth University South Campus and Manor Mills	Medium
57	New path on Celbridge Road between eastern end of existing footpath and Ballygoran overbridge	Medium
59	Amenity walk/linear park along Lyreen River at Mariavilla	Short
60	Active modes spine through Railpark development area (indicative location)	Medium
61	Parklands Lawns - Railpark development area	Medium
62	Celbridge Road - Connolly's Folly	Long

No.	Description	Phase
63	Path on new road ('The Drive') in Mullen Park development	Short
64	Mullen Park - Gaelscoil Uí Fhiaich	Short
65	Parklands - planned new development[10]	Medium
66	Replace active modes bridge over Royal Canal at train station to improve accessibility	Short
67	Amenity walk / linear park on north bank of River Lyreen through South Campus	Medium
68	Upgrade of Royal Canal Greenway between Bond Bridge in Maynooth and Kilcock	Medium
69	Royal Canal Greenway between Maynooth and Leixlip	Short
70	Path on new road in planned residential development west of Dunboyne Road (Lyreen neighbourhood)	Short
71	Link through future development area between the Royal Canal Greenway and Dublin Road (indicative location)	Medium
72	Path on MERR	Medium (as per road measure phasing)
73	East / west link through future development area of Railpark (indicative) between measure 60 and measure 72 (indicative location)	Medium
74	Active modes bridge over rail line and canal between eastern side of future development area of Railpark and north side of Royal Canal Greenway	Medium
75	New path on existing road to connect planned new development to Parklands neighbourhood	Medium
76	East / west link through future development area of Railpark between measure 60 and measure 72 (indicative location)	Medium
77	Path on new road ('The Avenue') in Mullen Park residential development	Short
78	Carton Avenue - Linden Demesne (parallel to L1013 and R157)	Short
79	Carton Avenue - Linden Demesne (direct)	Short
80	Path on new road in Linden Demesne development	Short
81	Harbour Field (planned new paths)	Short
82	East / west link through future development area of Railpark between measure 60 and measure 72 (indicative location)	Medium
83	Link betwen MERR and measure 119 through eastern part of future development area of Railpark (indicative location)	Medium
84	East / west link through northern part of future development area of Railpark between measure 60 and measure 72 (indicative location)	Medium
85	Link from Dublin Road to future development site between Carton Wood and R157 (indicative location)	Medium

[10] A temporary vehicular connection will be opened in the short to medium term at this location for the purpose of facilitating new residential development. However, following the completion of the MERR, this connection will be active modes only and the new residential development will be accessed from the MERR. Hence, this link is categorised as an active modes link in the strategy as this is the intended long-term situation.

No.	Description	Phase
86	Link from Carton Avenue to future development site between Carton Wood and R157 (indicative location)	Medium
87	Path on new road in planned residential development at Lyreen	Short
88	Active modes connection to planned residential development at Lyreen	Short
89	New path on existing local road	Medium
90	New path on section of R157 between Dunboyne Road junction, junction with L22143 local road and the MOOR.	Medium
91	Path on northeastern section of the MOOR	Medium – long (as per road measure 5)
92	Path on section of MOOR between Moyglare Hall and Maynooth Environs (Moygaddy lands)	Medium – long (as per road measure 5)
93	Link from Mariavilla Chase to future development site north of Mariavilla (indicative location)	Medium
94	Path on proposed PT/active modes link through site north of Mariavilla to Moyglare Hall	Medium
95	Path on MOOR (west side of Maynooth)	Long (as per road measure 1)
96	Path on road/PT road through new western development area	Long
97	Link to MOOR from Brookfield Avenue through future development area (indicative location)	Long
98	Link to future development area from Brookfield Park (indicative location)	Long
99	Link between Newtown Road and measure 125 (to/from Newtown Court) through future development area (indicative location)	Long
100	North/south link in southwest of study area between MOOR and measure 117 (indicative location)	Medium
101	East/west link in south of study area between MOOR and Newtown Hall Glen (indicative location)	Medium
102	Link to future development area on South Campus from Parson Street and from existing campus paths (indicative location)	Medium
103	Path on proposed southern access to Leinster Street from Parson Street	Medium (as per road measure 7)
104	Link to/through future development site north of train station (indicative location)	Short
105	East/west link in western development area south of Kilcock Road (indicative location)	Medium - long
106	North/south link in western development area west of MOOR (indicative location)	Long
107	East/west link in western development area (indicative location)	Long
108	North/south link in western development area west of MOOR (indicative location)	Long
109	North/south link in eastern part of western development area linking The Paddock to measure 96 (indicative location	Long
110	North/south link in eastern part of western development area linking The Paddock to measure 96 (indicative location)	Long

No.	Description	Phase
111	East/west link in western development area (indicative location)	Long
112	North/south link in eastern part of western development area (indicative location)	Long
113	North/south link in northern part of western development area linking The Paddock to the MOOR (indicative location)	Long
114	East/west link in western development area between North Campus and the MOOR (indicative location)	Long
115	Active modes bridge over rail line and canal in western development area between measure 117 and measure 68 (to be located at proposed western train station)	Medium - long
116	Link between Dublin Road and proposed active modes bridge (indicative location)	Medium - long
117	North/south link in western development area east of MOOR (indicative location)	Medium - long
118	Path on new road in planned development in future development area near Parklands Grove	Medium
119	North/south link in eastern part of Railpark future development area (indicative location)	Medium
120	Link between R157 and future development site between Carton Wood and R157 (indicative location)	Medium
121	North/south link in northwestern part of Railpark future development area (indicative location)	Medium
122	East/west link in northeastern part of Railpark future development area (indicative location)	Medium
123	East/west link in northeastern part of Railpark future development area (indicative location)	Medium
124	East/west link in northeastern part of Railpark future development area (indicative location)	Medium
125	Link between Newtown Court and measure 99	Long
126	East/west link in western development area (indicative location)	Long
127	North/south link in western development area (indicative location)	Long
128	Link between The Paddock and measure 113	Long
129	Planned walking and cycling link through Harbour Field connecting to Royal Canal Greenway	Short
130	New active modes bridge between platforms at existing train station with ramps and/or lift to improve accessibility	Medium
131	Link between The Gardens (in Newtown Hall area) and measure 14/48	Medium
132	Link between measure 117 (link to proposed western train station) and measures 14/48/131 (indicative location)	Medium - long
133	Link in northeast part of Carton Retail Park (north of Tesco)	Short
134	Castle Park - measure 16 (link to Carton Avenue)	Short
135	Formalise connection/improve crossing between Glenroyal Shopping Centre and Glenroyal Hotel (added as a new link in network for purpose of GIS permeability analysis)	Short

No.	Description	Phase
136	Glenroyal Shopping Centre (via carpark slightly to the north) - future development site	Long
137	Glenroyal Shopping Centre - Leinster Park	Short
138	East/west link in northern part of Railpark future development area (indicative location)	Medium
139	MOOR - Newtown Court	Long
140	Lyreen River & Rye River Greenway (County Kildare)	Medium - long
141	Active modes bridge over Rye River to Maynooth Environs (Moygaddy lands)	Medium - long
142	Rye River Greenway (north bank, Maynooth Environs (Moygaddy lands)	Medium - long
143	Blackhall Little Greenway, Maynooth Environs (Moygaddy lands)	Medium - long
144	Rye River Greenway connection to Dunboyne Road (north bank, Maynooth Environs (Moygaddy lands))	Medium - long
145	Connection between Dublin Road and Royal Canal Greenway through future development site east of Carton Retail Park	Medium
146	Connection between future Greenfields housing development and Straffan Road	Medium

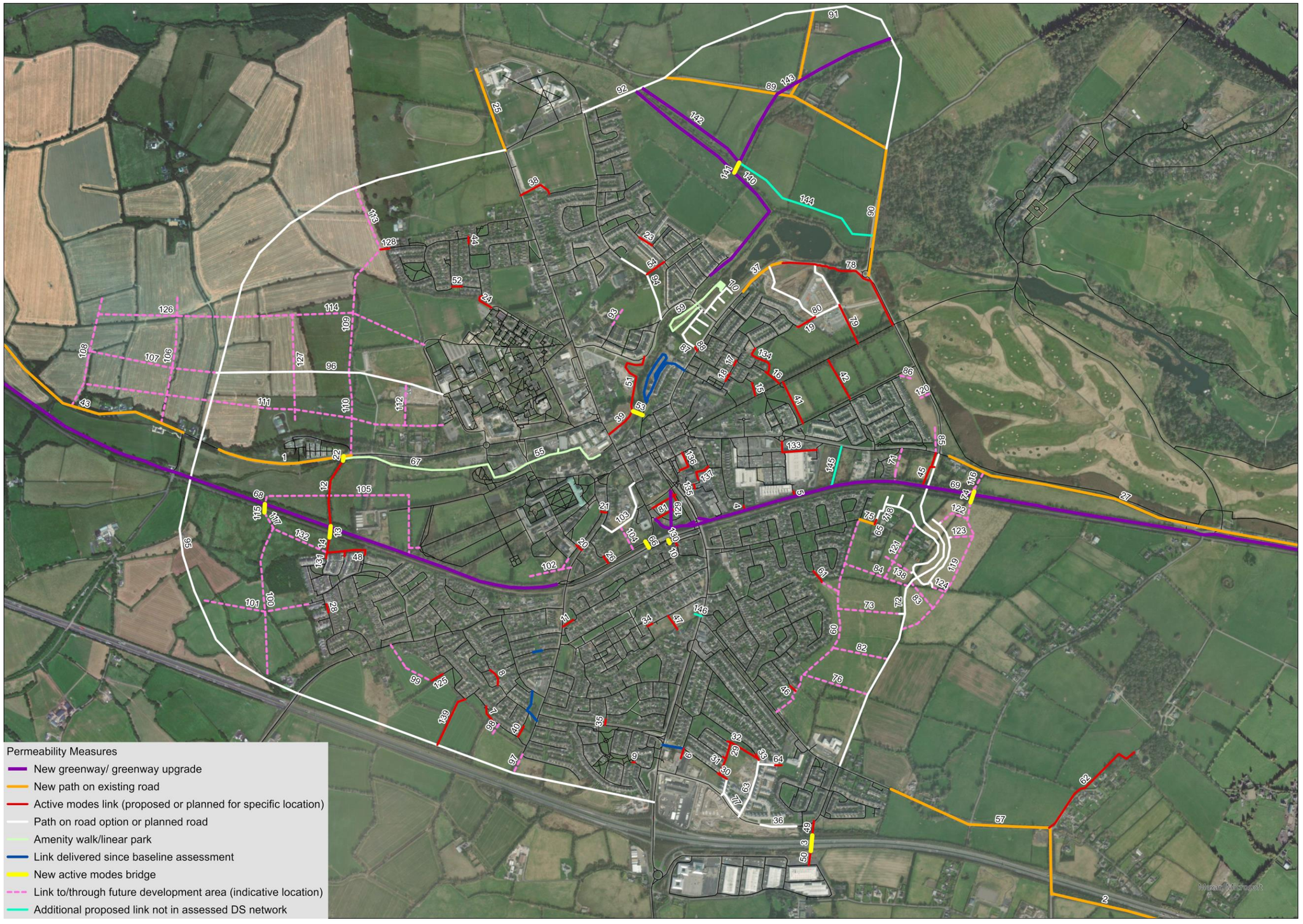

Figure 5-1 Walking/Permeability Strategy Measures (Short, Medium and Long Term)

Figure 5-2 Walking/Permeability Strategy Measures (Short term)

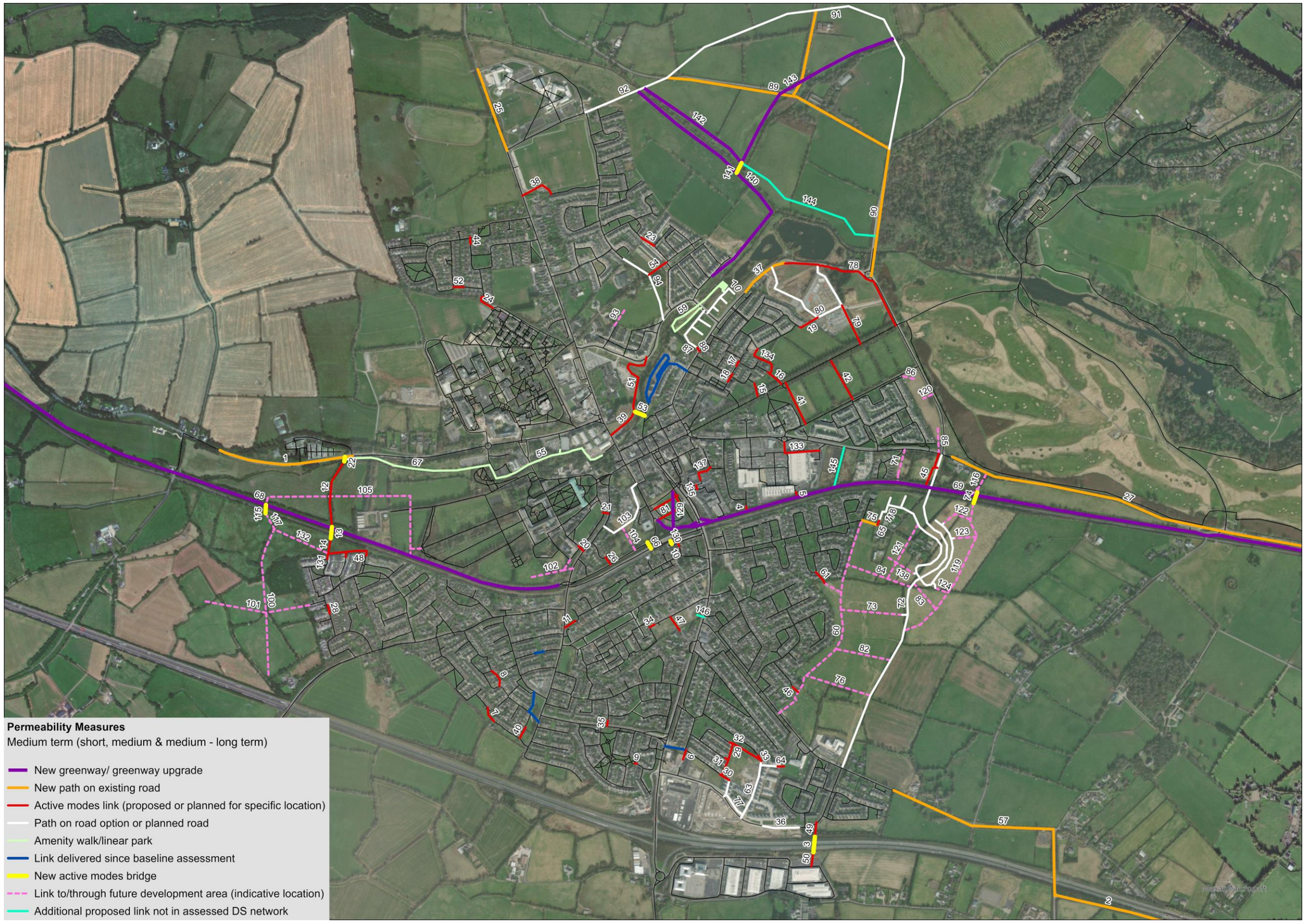

Figure 5-3 Walking/Permeability Strategy Measures (Medium term)

5.1.2.2 Cycle Network Measures

Proposed cycle network measures and phasing are listed in Table 5.2 and shown in Figure 5-4. There are twelve different categories of measures for links in the cycle network. These link type categories are all described in Section 2.2.3.1. The provisional indicative 'link type' category for each cycling strategy measure is shown in Table 5.2 and on the maps.

As noted previously, the cycle network measures map also shows a small number of links which are not strategy measures (as infrastructure on these links is already provided to a reasonably high standard). These are shown (without an accompanying strategy ID number) so that the full future cycle network is visible and include a section of the Royal Canal Greenway between Bond Bridge and Leinster Street, a shared path within Harbour Field, Lyreen Avenue (a recently developed road with cycle tracks) and a section of Straffan Road between the Glenroyal Hotel and Old Greenfield (which has cycle tracks which were upgraded in recent times).

Figure 5-4 shows the long term cycle network. Figure 5-5 shows the short term network while Figure 5-6 shows the measures proposed to be implemented in the short and medium term. A number of measures have been allocated a phasing of 'medium – long', these are also shown on the medium term map.

Table 5.2 Cycle Network Strategy Measures and Proposed Phasing

No.	Description	Proposed Link Type	Proposed Phase
1	Parson Street (Bond Bridge - Main Street)	TBC	Long
2	Kilcock Road (University roundabout - Moyglare Road)	Cycle track	Short
3	Mill Street	Cycle track	Short
4	Meadowbrook Road (Meadowbrook Link Road - Newtown Road junction/Bond Bridge)	Cycle track	Short
5	Beaufield Close	Cycle track	Short
6	Dublin Road (R157 Junction - Intel)	Cycle track	Medium
7	Celbridge Road (Straffan Road - MERR)	Cycle track	Short
8	Celbridge Road (MERR - Celbridge outskirts)	Cycle track	Medium
9	Kilcock Road (University - L5041)	Cycle track	Medium
10	Access to/from Royal Canal Greenway at Jackson's Bridge	Shared street	Long
11	Meadowbrook Link Road[11]	Cycle track	Medium
12	Kilcock Road (L5041 junction - Kilcock)	Cycle track	Long
13	Moyglare Road north of Kilcock Road junction	Cycle track	Medium
14	Moyglare Hall at Maynooth Education Campus[12]	Cycle track	Medium
15	Moyglare Hall estate northern section (junction with 'The Park' - MEC)	Cycle track	Short

[11] There is an existing cycle facility on Meadowbrook Link Road but this is an old facility which does not confirm to current standards and requires significant upgrades/redesign, particularly at junctions

[12] There are existing cycle facilities on Moyglare Hall road but these are low quality. There is an old narrow single direction cycle track on the south side of the road which is interrupted by parking at the eastern end and a shared two way pedestrian/cycle facility on the north side of the road which is too narrow for the number of current users. It is recommended that separate walking and cycling facilities should be provided.

No.	Description	Proposed Link Type	Proposed Phase
16	Leinster Street	Shared street	Medium (as per road measure 7)
17	Straffan Road southern section (Mullen Park Road - Maynooth Business Campus)	Cycle track	Medium – long
18	Dublin Road (Main Street junction - R157 junction)	Cycle track	Medium - long
19	Mullen Park, 'The Drive'	Shared street	Short
20	Carton Avenue[13]	Cycle Way (segregated from walking path)	Medium
21	MERR	Cycle track	Medium (as per road measure 3)
22	Straffan Link Road	Cycle track	Medium
23	R157 (Dublin Road junction - L2214-3 local road junction)	Cycle track	Medium
24	Dunboyne Road (Nagle Court - Linden Demesne)	Cycle track	Medium
25	Dunboyne Road (Main Street junction - Nagle Court)	Cycle track	Long
26	Newtown Road, east (Beaufield Close – Maynooth Lodge nursing home)	Cycle track	Long
27	Straffan Road northern end (Glenroyal entrance - Main Street junction)	Cycle track	Medium
28	Straffan Road (Old Greenfield - Mullen Park Road)	Cycle track	Medium - long
29	South Campus north/south link	University main active mode links (future)	Short - medium
30	South Campus east/west link (Main entrance - Aula Maxima)	Shared street	Short
31	North Campus perimeter road	Cycle track	Medium
32	North Campus east entrance	TBC	Long

[13] Carton Avenue is part of the Maynooth Architectural Conservation Area (ACA) and it will be important to consider the heritage impacts of any improvements to active travel facilities in this area. A cycle facility separate from the existing pedestrian path is recommended based on the number of existing and potential users who use or will use this link for recreation or transport and the need to minimise conflicts between people walking and cycling. The feasibility of delivering a cycling facility should be considered in more detail as part of the upcoming development of the Carton Avenue Masterplan.

No.	Description	Proposed Link Type	Proposed Phase
33	R157 Inter-urban link towards Dunboyne (L2214-3 local road junction - Dunboyne)	Inter-urban cycle route	Long
34	R406 Inter-urban link towards Straffan	Inter-urban cycle route	Medium
35	R408 Inter-urban link towards Rathcoffey	Inter-urban cycle route	Long
36	Moyglare Hall estate southern section (junction with 'The Park' - south end of the 'The Avenue' to connect with link 57)	Shared street	Short - medium
37	Moyglare Hall estate east/west link ('The Drive')	Shared street	Short - medium
38	Link through Carton Retail Park to connection to Royal Canal Greenway	Cycle track (route indicative, actual route TBC)	Short
39	Parson Street (Newtown Road junction/Bond Bridge - Parson Lodge entrance)[14]	Cycle track	Short
40	Main Street	Cycle track	Medium-Long
41	Moyglare Road north of Moyglare Hall junction	Cycle track	Medium
42	MOOR	Cycle track	Long
43	Cycle track on road/PT road through new western development area	Cycle track	Long
44	MERR access roads for future development areas	TBC	Medium
45	New development near Parklands Grove	Shared street	Medium
46	Linden Demesne (new development)	Shared street	Short
47	Short section of Lyreen Close residential road	Shared street	Medium
48	North-eastern MOOR at Maynooth Environs (Moygaddy lands)	Cycle track	Medium – long (as per road measure 5)
49	North Campus internal links	University main active mode links (future)	Medium - long
50	Southern access to Leinster Street from Parson Street	TBC	Medium (as per road measure 7)

[14] There is an existing cycle facility on this section of road but it is an older facility which requires significant upgrade, there is currently no grade separate from the adjacent footpath and the facility starts and ends abruptly

No.	Description	Proposed Link Type	Proposed Phase
51	Southern section of Meadowbrook Road and part of Brookfield Avenue	Cycle track	Medium
52	Castlebridge/Parklands Crescent/ Parklands Grove	Cycle track	Medium
53	Newtown Road eastern section (Beaufield Close - Meadowbrook Road)	TBC	Long
54	Mullen Park, 'The Green'	Shared street	Short
55	Maynooth Environs (Moygaddy lands) existing local road upgrades (L22143 & L2214)	Cycle track	Medium - long
56	Moyglare Hall link to Maynooth Environs (Moygaddy lands)	Cycle track	Medium – long (as per road measure 5)
57	Connection between Lyreen Avenue and Moyglare Hall	Cycle track	Medium (as per PT measure 2)

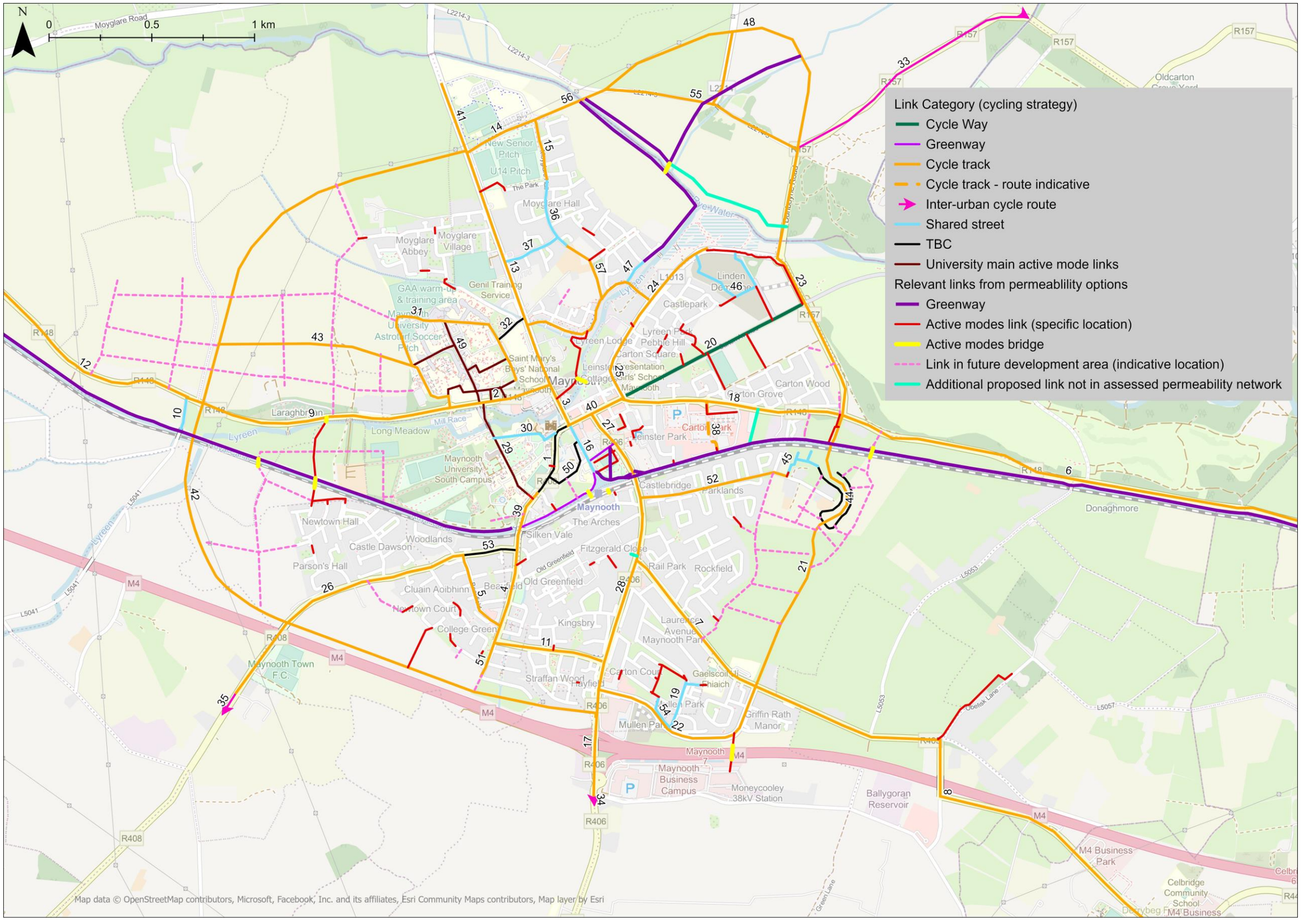

Figure 5-4 Cycling Strategy (Short, Medium and Long term network)

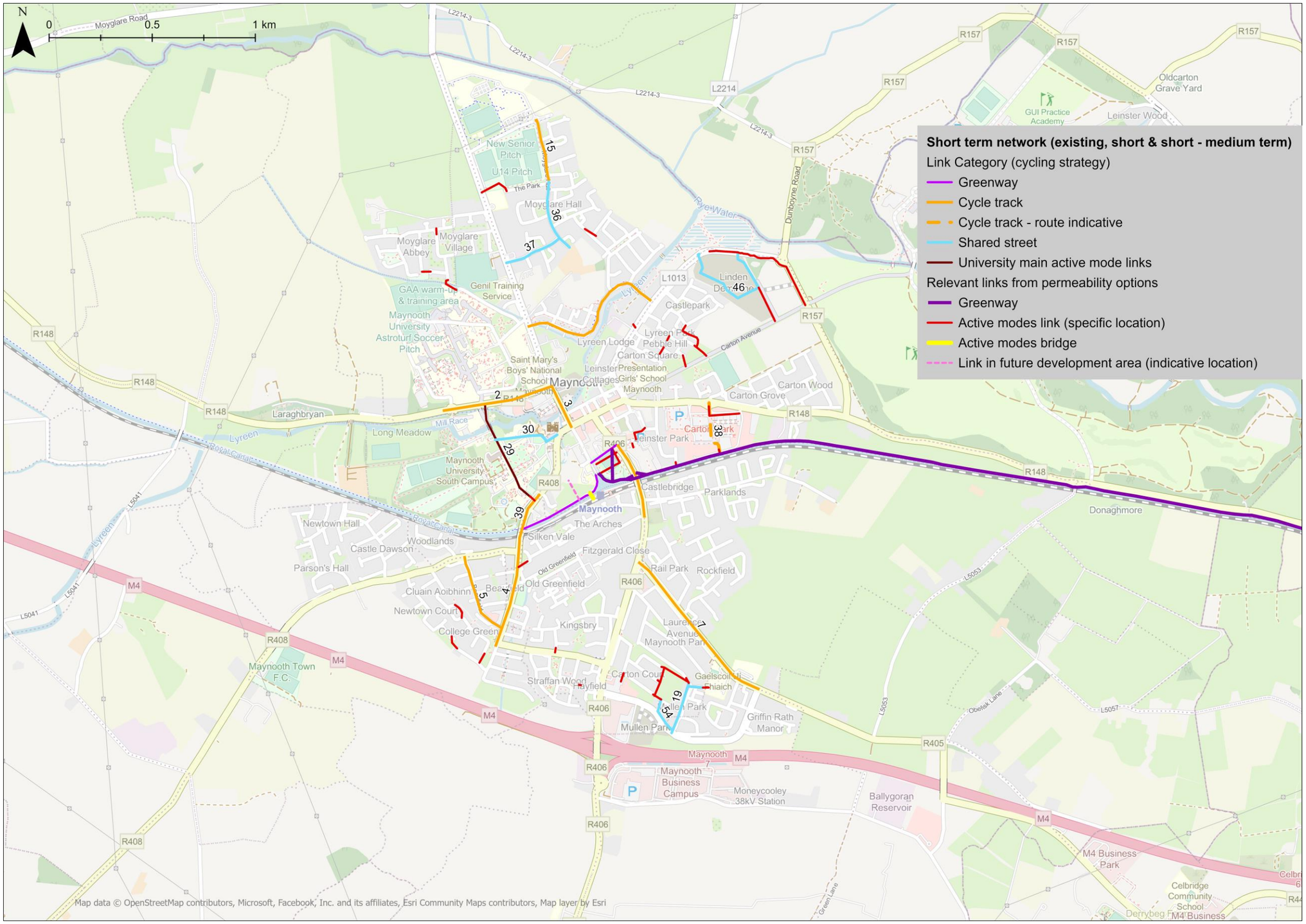

Figure 5-5 Cycling Strategy (Short term network)

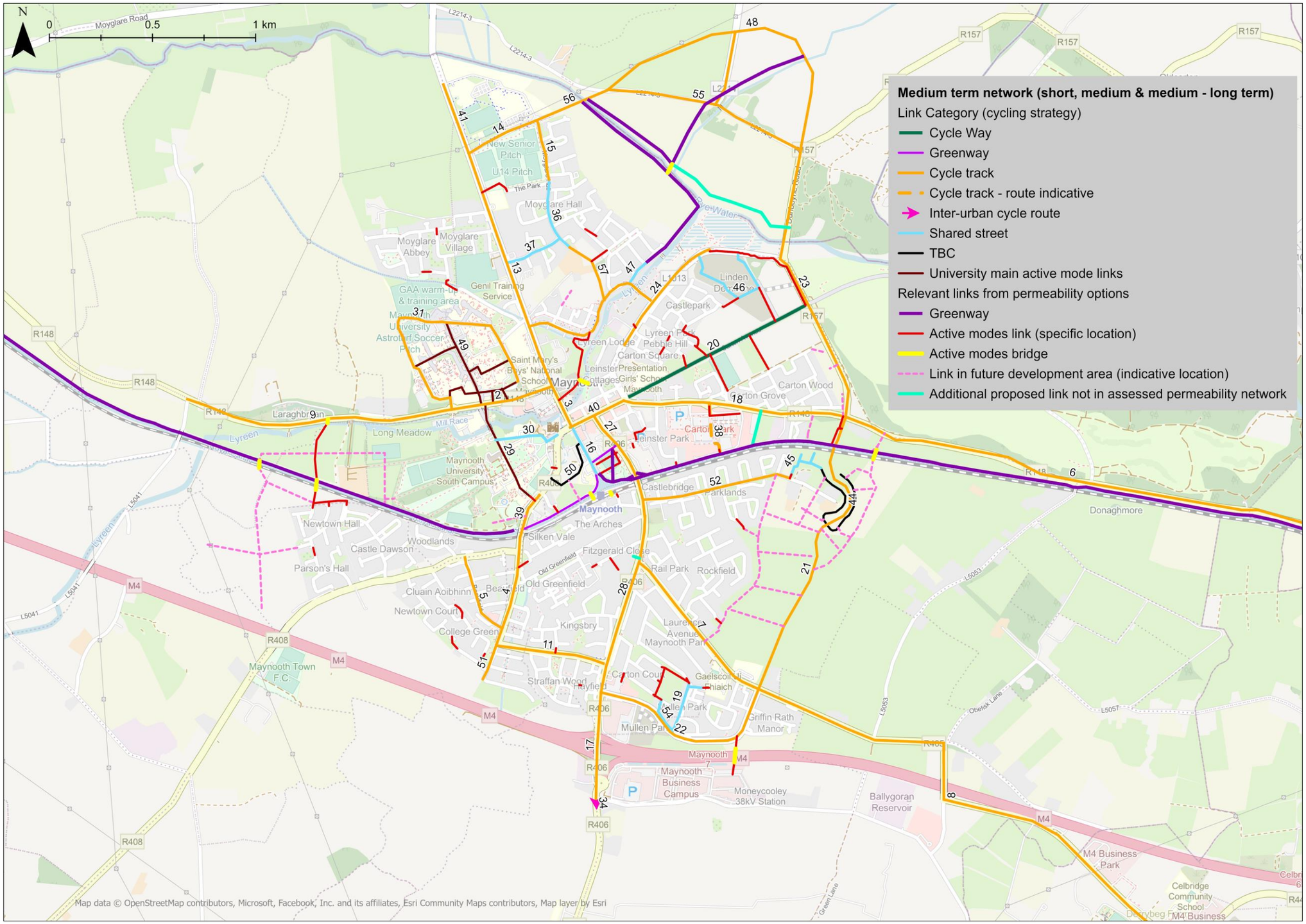

Figure 5-6 Cycling Strategy (Medium term network)

5.1.2.3 Complementary Active Mode Measures

In addition to the main MEABTA measures, there are several complimentary active mode measures, which are shown in Table 5.3.

Table 5.3 Complementary Active Mode Measures

Proposed Measure / Recommendation	Phasing (Short/ Medium/ Long term)
Consider requirement for and optimal design of new and upgraded active mode crossing facilities throughout Maynooth as part of design process for cycling and walking measures in the strategy (e.g., cycle track measures and 'path on new road' measures). Locations where it is suggested new crossing facilities should be provided include, but are not limited to, the junction of Carton Avenue and the R157 and the junction of Newtown Road with Meadowbrook Road.	Ongoing throughout all phases
Work with NTA to achieve a coordinated approach to the provision of shared bikes and/or e-scooters in Maynooth and the surrounding region to ensure effective regulation, avoid a proliferation of different unconnected schemes and ensure that potential negative safety and accessibility impacts are minimised.	Medium term
Consider the quality of cycling infrastructure in Maynooth and anticipated timelines for improvement on each corridor when planning the introduction and expansion of shared bike or e-scooter scheme(s) and identifying hubs/station locations	Medium term
If supporting a one-way bike share / e-scooter share scheme to operate in the area, consider potential redistribution challenges associated with each station and how these will be addressed.	Medium term
If allowing an e-scooter share scheme to operate in the area, consider introduction of a fleet ratio target to incentivise the operator to offer bikes in addition to e-scooters.	Medium term
Work with NTA, operators and developers to seek introduction of an on-demand 'back to base' share scheme offering e-cargo-bikes	Medium-long term
Seek to introduce or support small scale bike loan schemes for individuals/households and small businesses with a particular focus on e-bikes and e-cargo bikes to enable participants to 'trial' these options for an agreed period of time	Short term
Organise 'come and try it' opportunities and loan schemes for different types of micro mobility vehicles.	Short term
Work with Irish Rail and NTA to significantly enhance cycle parking options at Maynooth Train Station and provide a higher security option, in addition to sheltered standard cycle parking.	Short term
Upgrade Main Street cycle parking as part of future redesign of the street and consider potential to provide a small secure hub at a nearby off-street location to improve the cycle parking options available for people working in the Main Street area.	Medium term
Work with landowners to seek provision of a secure cycle parking option within Carton Retail Park lands which could be used by people accessing bus services on Dublin Road.	Short-medium term
Work with businesses, sports clubs, schools and other relevant destinations to secure delivery of high-quality cycle parking facilities and ensure cycle parking is prominent and visible. Consider part funding new infrastructure to incentivise private sector stakeholders to invest in upgrades in a timely manner.	Short term

Proposed Measure / Recommendation	Phasing (Short/ Medium/ Long term)
Assess interest in the Bike Bunker concept among residents of areas where there are clusters of dwellings without access to suitable cycle storage solutions and seek to provide the facility where interest exists.	Short term
Support residents to install secure front garden cycle storage solutions in suitable areas.	Short term
Following legalisation of e-scooters, seek to provide dedicated e-scooter parking solutions on Main Street and work with stakeholders to encourage provision of suitable facilities at other destinations, particularly the train station and Maynooth University.	Short term
Work with Irish Rail and NTA, Maynooth University and businesses to secure delivery of bike repair and/or cleaning facilities in prominent locations throughout Maynooth.	Short term

5.1.3 Road Strategy Measures

The road strategy measures are listed in Table 5.4 and shown in Figure 5.7.

Table 5.4 Road Measures and Phasing

No.	Short Description	Phasing	Dependency on Other Measures or Projects
1	Full MOOR route consisting of 1A, 1B and 1C	Long Term	N/A
2A	Upgrade Existing M4 Junction	Medium-Long Term	M4 Junction changes implemented will be determined by a separate study
2B	New M4 Junction and Close Existing M4 Junction	Medium-Long Term	M4 Junction changes implemented will be determined by a separate study
3	Maynooth Eastern Ring Road (MERR)	Medium Term	N/A
4	Reduced speed limits across Maynooth (Not shown on map)	Medium/ Long Term	Reduced speeds can begin to be introduced with the construction of the MERR, with further changes brought in as the MOOR is constructed
5	North-Eastern orbital MOOR to Moygaddy and filtered permeability in Moyglare Hall	Medium/ Long Term	Linked to the development of the Moygaddy site in Meath
6	Additional green time at junctions for sustainable modes (Not shown on map)	Short Term	N/A
7	New Southern Access to Leinster Street from Parsons Street and close Main Street Access from Leinster Street	Medium Term	N/A
8	HGV ban in central Maynooth (Not shown on map)	Medium/ Long Term	Partial HGV ban can be introduced with the construction of the MERR, with all central areas covered by the ban once the MOOR is available to provide a full bypass of central areas
9	Close Eastern Maynooth University Entrance to Motor Vehicle Traffic	Long Term	Linked to the provision of the MOOR to provide alternative access route from the west
10	New signalised junctions	Medium Term	N/A

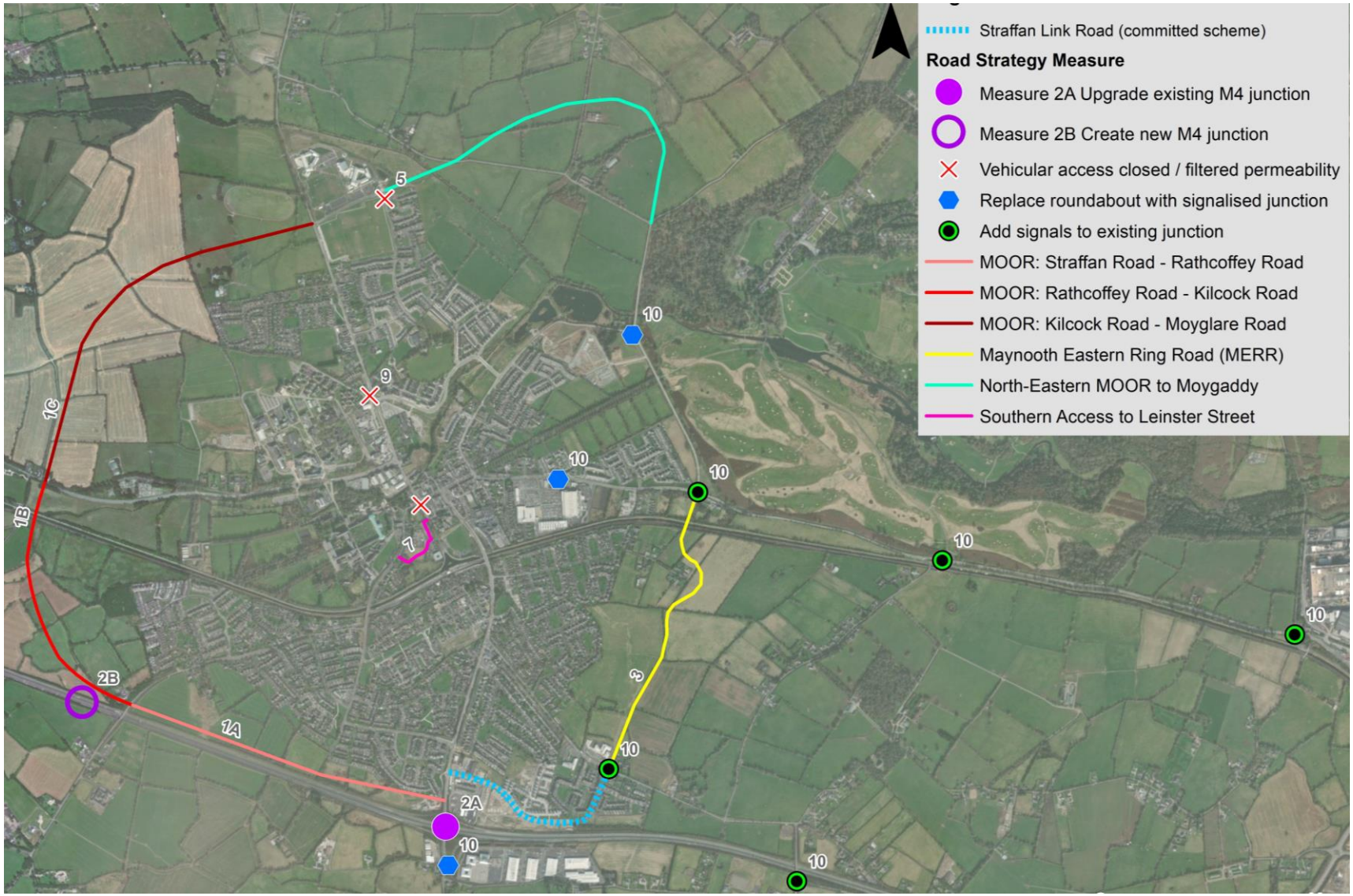

Figure 5.7 Road Transport Measures

5.1.4 Public Transport Measures

The public transport measures and phasing are listed in Table 5.5 and shown in two maps; Figure 5.8 which shows bus priority measures and Figure 5.9 which shows general public transport measures.

Table 5.5 – Public Transport Measures

No.	Description	Proposed Phasing
1	Main Street, Straffan Road and Mill Street to bus, pedestrian and cycle only. This is linked to the delivery of the MOOR and MERR.	Long Term
2	Bus only Junction arrangement (bus gate) at Moyglare Hall Estate at School Road, new bus, cycle and pedestrian link connecting Moyglare Hall Estate to Lyreen Avenue	Medium Term
3	Junction priority at the junctions of Lyreen Avenue - Moyglare Road and Lyreen Avenue – Dunboyne Road and installation of one direction bus priority route along Lyreen Avenue	Medium Term
4	New bus priority route on Moyglare Road from junction of Lyreen Avenue to Mill Street with installation of priority junction arrangement at pinch point	Medium Term
5	Installation of bus lanes on a portion of the Western Orbital from Junction with Kilcock road to junction of new development lands continuing through the new residential development area and through Maynooth Campus to connect back onto Kilcock Road. This would create a bus only link through the new development lands.	Medium Term
6	Bus priority route on Kilcock Road from Maynooth University to Junction with Moyglare Road	Medium Term
7	Bus priority route on Leixlip Road	Medium Term
8	Straffan Road bus priority route	Medium Term
9	Bus priority measures on slips of M4 Junction with new bus only link on southern exit arm to allow buses skip Straffan Rd Roundabout	Medium Term
10	Celbridge Road bus priority route	Medium Term
11	Installation of bus priority route on Section 1B of outer orbital	Medium Term
12	KCC will work collaboratively with the NTA to agree the upgrade of key bus stops within Maynooth	Short Term
13	KCC will work collaboratively with the NTA and Irish Rail Upgrade of Maynooth Train Station with a focus on making it more accessible for all (e.g. provision of lifts)	Short Term
14	KCC will work collaboratively with the NTA to agree the installation of new bus stops for new and proposed bus services	Short Term
15	New bus rail interchange at Maynooth Train Station – involves the removal of general car parking	Medium Term
16	Upgrade of Ballygoran to cater for bus services	Medium Term
17	New bus, cycle and pedestrian link on southside of Leixlip M4 Junction	Medium Term
18	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Edenderry	Short-Medium

No.	Description	Proposed Phasing
19	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Newbridge	Short-Medium
20	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Dunboyne	Short-Medium
21	Work with the NTA to examine the possibility of providing a new public transport connection from Maynooth to Adamstown - possibility to extend service south to Grange Castle Business Park	Short-Medium
22	Work with the NTA to examine the possibility of providing a new Maynooth Town loop bus service	Long Term
23	KCC will work collaboratively with the NTA to improve the frequency on key bus service serving Maynooth	Short-Medium

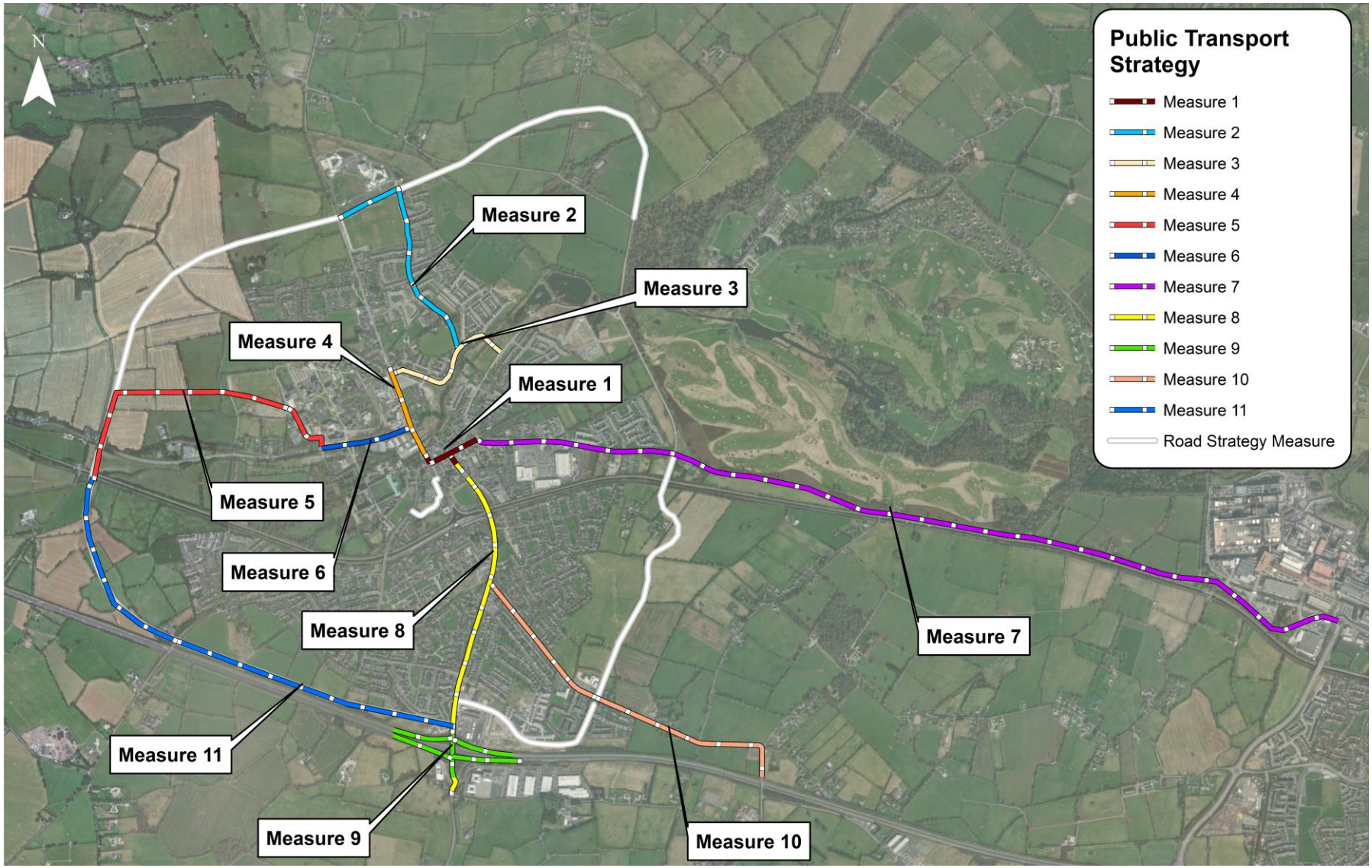

Figure 5.8 – Priority Measures from Public Transport Strategy

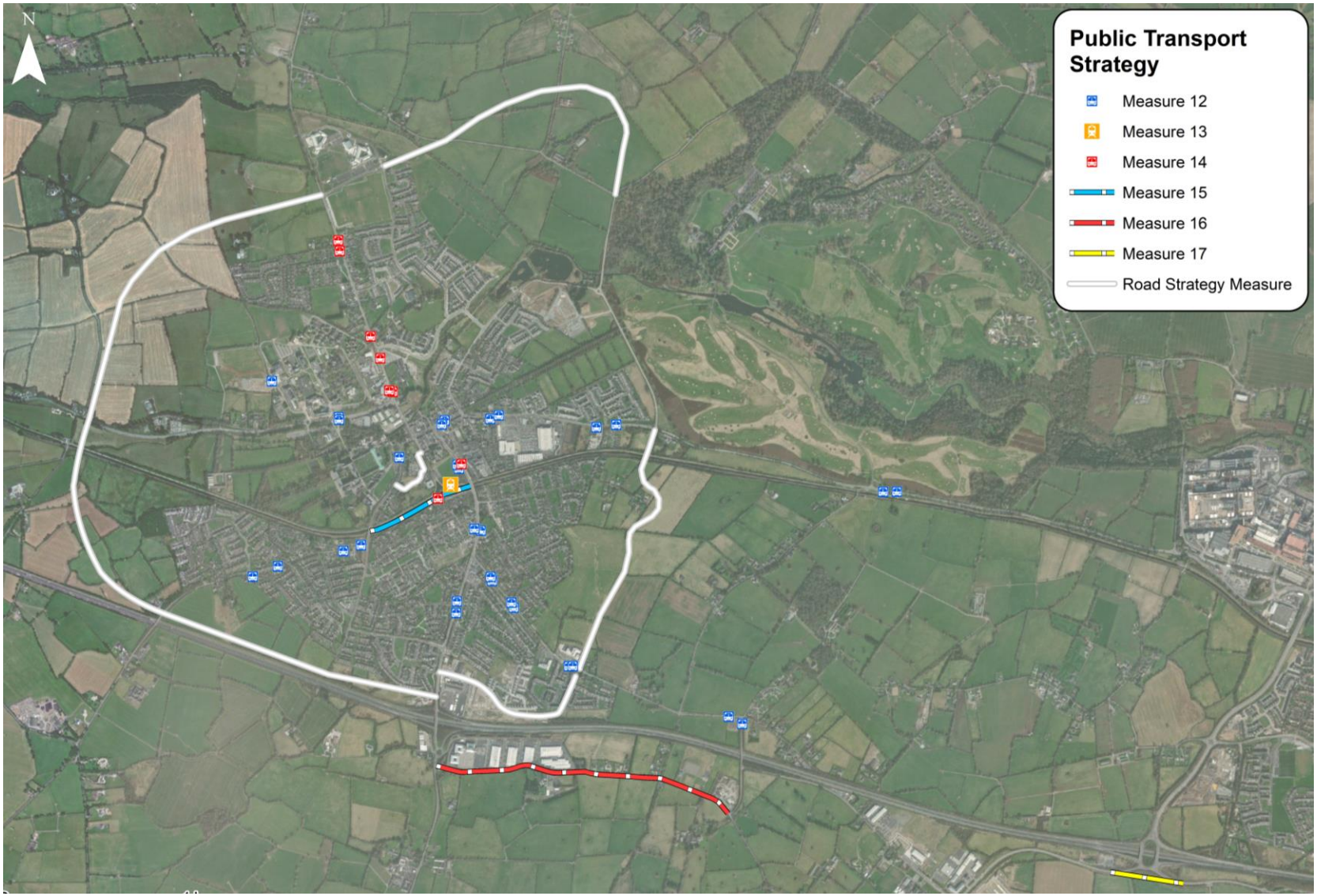

Figure 5.9 – Other Public Transport Improvements

5.1.5 Parking Measures

The parking measures and phasing are listed in Table 5.6 and shown in Figure 5.10.

Table 5.6 Parking Measures and Phasing

No.	Description	Proposed Phasing
1	Relocate Parking from Main Street to Facilitate Active Modes	Medium Term
2	Enforce Kildare County Development Plan Parking Provisions at New Development Sites (Not Shown on Map)	Short term
3	Introduce Car-Free or Low Car Developments at Public Transport Accessible Sites (Not Shown on Map)	Medium-Long Term
4	Expand Proportion of Pay and Display Parking at the University	Short-Medium Term
5	Restrict Future Maynooth University Parking Capacity to Reduce Car Demand as University Expands	Short Term
6	Upgrade Leinster Street Car Park with New Southern Access Route	Medium Term
7	Increase Parking Charges at Existing Maynooth Train Station to Encourage Park/Ride at New Maynooth West Train Station	Long Term - linked to new station
8	Improve and Reorganise Drop-Off Facilities at the MEC School Campus	Medium Term
9	Introduce Presentation Girls School Park and Stride Facility in Carton Retail Park	Short Term
10	Provide Public Parking at Carton Retail Park	Short Term
11	Introduce Mobility Management Plans for Major Employers (Not shown on map)	Short Term
12	Installation of Variable Message (VMS) Parking Signs on Key Roads	Medium-Long Term
13	Increase Parking Enforcement to Eliminate Illegal Parking in Road Space Designated for Sustainable Travel Modes (Not shown on map)	Short Term
14	New Park and Ride Facility at Maynooth West Train Station	Long Term - linked to new station
15	Create a Local Mobility Hub at Existing Maynooth Train Station and Reduce Car Park Capacity	Medium Term
16	Implement Smart Parking Measures and Provide a Town Parking App (Not shown on map)	Medium Term
17	Provide Hidden Disability/Age Friendly Designated Parking Spaces (Not shown on map)	Short Term
18	Offer free parking in KCC owned car parking spaces for branded car sharing vehicles (with capped time duration). (Not shown on map)	Short term

Figure 5.10 Parking Measures

5.2 Importance of Infrastructure to Support Growth

The preferred land-use scenario focuses population and employment growth into areas of Maynooth which are most likely to promote sustainable travel and modal shift. This focuses on the close co-location of new homes, jobs, schools and services to encourage walking/cycling as well as proximity to public transport services. This land-use approach aims to reduce the amount of car trips generated by new sites as walking, cycling and public transport are viable alternatives. While the spatial location of growth is important, future development areas will need supporting transport infrastructure to facilitate access, connect them to the rest of Maynooth and promote modal shift. Integrated land-use-transport planning is particularly important given the level of growth proposed for Maynooth in future years, with the town expected to roughly double in size over the next 15 years.

There are two future years considered as part of the MEABTA land-use assumptions: 2028 and 2038, with each having their own transport infrastructure requirements. In order for the 2028 growth (3,645 additional homes) to be delivered, the Maynooth Eastern Ring Road will need to be completed in tandem / prior to development. The MERR will facilitate access to the development site, provide an eastern bypass and support sustainable travel improvements in the town centre. The proposed walking and cycling network to the site will also need to be in place before residents and employers move into the eastern growth areas. The modal split assumptions for Maynooth require at least half of future journeys by new residents to take place by sustainable travel modes. This requires the residential and employment growth to occur in an infrastructure-led approach, where sustainable travel infrastructure is in place prior to residences, schools, employment and services being open.

The infrastructure-led approach is even more important for the 2038 target, where 6,900 additional homes will be constructed. The 2038 growth is focused in western Maynooth, which is a location reliant on the DART+ project being implemented and the construction of a new Maynooth West train station in order to successfully promote sustainable travel. The Maynooth Outer Orbital Road will provide access to the western development areas for cars, buses and active travel, with the intention that the majority of people will travel via public transport and active travel modes where possible to this location. This requires the DART+ and Maynooth West train station be in place prior to / in tandem with the development of new residential neighbourhoods. The provision of rail access should be a condition for development to occur at this location. This transport infrastructure-led principal should be integrated into the Local Area Plan, ensuring that the transport infrastructure recommended in the MEABTA should be in place prior, or in parallel to, the construction of future residential and employment growth areas.

While the MEABTA proposes new orbital road infrastructure, most notably the MERR and MOOR, this is in line with the NTA GDA Transport Strategy 2022-2042 road measure ROAD9 which states that '*Where part of a sustainable mobility plan, to develop orbital roads around towns, accompanied by, and facilitating, enhanced public transport, cycling and pedestrian facilities in the relevant centre'*. Section 2.2.3.3.2 describes how the overall concept for the roads strategy in the MEABTA is to bypass the town centre to facilitate the reallocation of road space to active modes and public transport in central areas. The MOOR and MERR will allow for this objective to be realised in the town centre, in line with GDA Transport Strategy measure ROAD9. The case for the MOOR and the overall development approach

outlined in the MEABTA is further strengthened by RSES Regional Strategic Outcome 4.33, which states; '*Support the continued development of Maynooth, coordinated with the delivery of strategic infrastructure including pedestrian and cycle linkages within the town and to the Royal Canal Greenway, DART expansion and road linkages forming part of the Maynooth Outer Orbital Route in a manner which supports future development and population growth*…'.

5.3 Future Planning Principles

If the MEABTA is to be successful, then an integrated approach with significant liaison between the transportation and planning departments of Kildare County Council will be required to ensure that car-centric development does not occur. In general, it is more economical, easier and less controversial with the public to implement sustainable travel concepts at the initial design and planning stage rather than attempting to retrofit established areas afterwards. This section describes key planning principles for each mode of transport which should be considered for future development to ensure the prioritisation of sustainable modes of travel. Further planning principles are also provided regarding the importance of biodiversity and inclusive design.

5.3.1 Permeability and Cycling Planning Principles

5.3.1.1 Active Mode Planning Principles

The active mode interventions proposed in this strategy seek to remedy permeability and access issues that have emerged through the poor design of residential and commercial areas. In many cases, housing and commercial estates have been constructed with a single entrance and surrounding walls to stop walking and cycling to surrounding areas. While the proposed strategy will solve many of the existing problems, it is vital that the planning system encourages the use of active travel modes in future development to ensure these issues are not repeated.

In future, it is advisable that the following planning concepts are used to improve permeability and conditions for active modes:

- Residential or commercial estates should have multiple entrances to facilitate permeability for walking and cycling to public transport, jobs and services;
- New housing estates should leave sufficient space for future permeability connections with adjacent zoned development. At present, cul-de-sac designs and the lack of free corridors mean that some existing neighbourhoods can never be retrofitted to be more permeable;
- The use of high perimeter walls around residential and employment areas should be eliminated as they cause indirect travel paths which favour car use;
- Mixed-use development should be encouraged to reduce the length of journeys and to encourage the use of active modes;
- Local jobs, retail and services should be located centrally in the town whenever feasible, to encourage the use of walking and cycling. Retail and services should generally be located in, or adjoining, central areas and should be prohibited from suburban locations, unless part of planned neighbourhood centres and at an appropriate scale. It should be noted that all retail

development should be in line with the principles of the Retail Planning Guidelines (2012). Generally, high intensity employment uses should be located in, or adjoining, central areas while low intensity employment uses (such as logistics and warehousing) should be located in edge of centre or peripheral locations of the town;

- Schools should be located near residential areas and within the existing urban footprint. Locating schools in out-of-town locations will promote car use and reduce pupil safety when walking or cycling to school;

- Land segregation caused by long tracts of railway line or motorway should be mitigated with regular crossing points for walking or cycling; and

- Formal crossing points, such as signalised junctions or zebra crossings, should be provided to enable safe pedestrian travel for all ages and means.

Further detail on these issues and preferred design can be found in 'Guidelines for Planning Authorities on Sustainable Residential Development in Urban Areas (Cities, Towns and Villages)' (Department of Housing, Local Government and Heritage, 2009) and the National Transport Authority's 'Permeability: Best Practice Guide' (2015).

5.3.1.2 Cycle Design and Planning Principles

In addition to the permeability principles, it is advisable that the following planning concepts are integrated into design to improve the safety and convenience of cycling trips:

- Provision of effective, segregated cycling facilities will require reallocation of road space from cars to cyclists to create continuous corridors which eliminate conflict between modes;

- New roundabouts should be designed in accordance with the National Cycle Manual (NCM) and existing roundabouts should be retrofitted or converted to signalised junctions;

- New roads with segregated cycling facilities should be designed in accordance with the National Cycle Manual;

- Greenways and off-road cycleways should be sufficiently lit to provide for commuting travel;

- Obstacles (e.g. bollards, gates) should be removed from cycling routes to allow uninterrupted journeys and to facilitate non-standard cycles (e.g. cargo cycles, disability adapted cycles and other types of bikes.);

- New residential and employment areas require sufficient sheltered, secure and accessible cycle parking, including suitable spaces to accommodate larger / non-standard cycles;

- Major public transport stops should have sufficient, sheltered and secure cycle parking.

Further elaboration of these concepts and design standards can be found in the National Cycle Manual (2011) and the Design Manual for Urban Roads and Streets (2019).

5.3.2 Public Transport Planning Principles

The Strategy proposes a number of public transport improvements and future development practices will determine if the growth of Maynooth will support these measures or hinder their success. In this regard, the following principles will be important to follow in development control and urban design:

- New development should be encouraged to locate on public transport corridors. The Guidelines define a public transport corridor as a location less than 1km from a rail service or 500 metres from a bus stop when walking on the path network;
- Higher residential densities are required along public transport corridors to support patronage and higher frequencies. The Guidelines recommend that housing densities should be at least 35-50 Units Per Hectare (UPH) in outer suburban/greenfield locations, with densities below 30 UPH discouraged;
- Urban sprawl through the extension of the existing urban boundary with single-use, low density residential development should not occur as this encourages car dependency;
- Jobs located in central areas and along radial links are the easiest to service with bus routes and future high intensity employment uses (e.g. offices, public/commercial services, hotels and other uses.) should be focused in these areas. Peripheral employment centres will guarantee a high mode share for cars as they are serviced by few bus routes and are less convenient for active modes – peripheral locations should be reserved for employment types that are land extensive with relatively low employment generation such as warehousing; and
- Sufficient, secure and sheltered cycle parking should be provided at public transport stops.

5.3.3 Road Planning Principles

In order to maintain the efficient operation of the road network in Kildare, the following principles should be applied in the planning process:

- The strategic function and safety of the National Roads Network (mainline and junctions) shall be protected in accordance with the Spatial Planning and National Roads Guidelines for Planning Authorities (2012).
- The strategic role and safety of the M4 Junction 13 should be protected by appropriate demand management of access to the junction for private motor vehicles.
- Peripheral development should be discouraged as this will increase the modal split for car traffic and negatively affect the efficient operation of the local and strategic road network

- Future roads development and intervention measures should design pedestrian, bus and cyclist infrastructure in accordance with TII Publications, DMURS and the NCM.

5.3.4 Biodiversity and Climate Change Planning Principles

In order to meet the requirements of environmental and climate change legislation, it is important that regard is given to the following principles in the planning process:

- The implementation of measures in the MEABTA and other developments in Maynooth should be sensitive to biodiversity issues and seek to mitigate any negative impacts on the environment and minimise biodiversity loss.

- The design of new infrastructure should take into consideration environmental solutions which can reduce greenhouse gas emissions such as planting vegetation and incorporating sustainable urban drainage schemes.

- The measures proposed in the MEABTA will improve conditions for active modes and public transport. The planning process should seek to build on these benefits in order to encourage modal shift away from the private car and reduce transport emissions.

5.3.5 Inclusive Design and Universal Access Planning Principles

The following planning principles should be applied when the measures from the MEABTA are implemented:

- Pavements and footpaths should utilise ‘dishing’ to ensure that there are accessible slopes for wheelchair users to access pedestrian routes or use level access where possible.

- Future bus stops and bus stop upgrades should be wheelchair accessible.

- Public spaces created by pedestrianisation of roads should be wheelchair accessible.

- Reduced use of barriers (e.g. kissing gates) as these can be impassable for wheelchairs

Part 6
Monitoring and Review

6. Part 6 - Monitoring and Review

6.1 Monitoring ABTA Progress

Regular monitoring of the ABTA will be required over the lifetime of the ABTA in order to establish:

- Progress on implementation of selected measures for each mode of transport (e.g., changes to transport infrastructure and services); and
- Observed travel patterns and associated transport impacts and how these compare with the ABTA's transport principles, development assumptions and intended outcomes.

Monitoring of the ABTA implementation and impacts should also inform any review processes related to the Joint LAP as well as the development of future LAPs.

It is recommended that a progress report should be compiled annually summarising progress with regard to the implementation of ABTA measures and documenting any other relevant changes to transport infrastructure or services which may impact travel behaviour. This reporting should encompass measures delivered or overseen by KCC, (independently or in cooperation with other public or private entities) as well as measures which are not within the remit of KCC to deliver but which will nevertheless impact future travel behaviour within the study area. In addition to details regarding the implementation of specific infrastructural measures contained within the ABTA for each mode, such as permeability improvements, new cycle facilities, new roads and other infrastructure. The progress report could also include items such as:

- Details of improvements to public transport frequencies, operating hours and/or geographic coverage.
- Details of significant changes to the number of car parking spaces provided at locations throughout the town (either public or privately managed) and any relevant changes to parking charges or permit regimes.
- Details of organisations who have submitted up to date Mobility Management Plans to Kildare County Council (voluntarily or in connection with a planning application) and details of any associated review/monitoring/enforcement activities undertaken by KCC.
- Details of any changes to the number, type and distribution of bikes, e-bikes or e-scooters provided as part of any future share/short term hire schemes.
- Number of school pupils completing 'Cycle Right' training.
- Number of workplaces which hold Cycle Friendly Employer Certification.

The impacts of the ABTA measures implemented, any other relevant measures/changes implemented within the study area and growth within the study area should also be monitored on a regular basis to support an understanding of how actual outcomes compare with intended outcomes and assess the extent to

which the ABTA's transport principles are being met. Some of the key performance indicators which should be monitored are discussed below:

- The primary source of data on mode share (usual mode of travel) for commuting to work and education is the Census. The results of Census 2022 will emerge during 2023 and will provide a more up to date baseline than the 2016 results which are contained in the Baseline Assessment for the ABTA. Future Censuses will take place in 2027, 2032 and 2037.

- In 2022, a new question was introduced in the Census to collect data on the usual number of days respondents work from home. This will be an important trend to monitor over time as remote working can have a significant impact on travel demand, particular at peak times.

- Changes in car ownership (e.g. cars per adult 18+ and car per household) should be monitored following each Census to assess the extent to which car dependency is reducing within the study area.

- Travel surveys conducted in workplaces and educational institutions can provide information on mode share for commuting purposes at more regular intervals than the Census and to each specific destination, as well as valuable information on the factors which influence travel choices. It is recommended that KCC encourage major employers, schools and Maynooth University to undertake travel surveys at least once every two years at the same time of year as part of regular updates to Mobility Management Plans/Travel Plans and that results should be shared with KCC.

- Residents and visitors to Maynooth could also be asked for feedback on travel within the study area through other means. For example, an online survey could be undertaken every few years to assess how attitudes to the use of different travel modes are changing and help to identify significant remaining barriers to modal shift.

- An annual traffic count, similar to the Canal Cordon Count undertaken by Dublin City Council could be undertaken at the same time of year each year to provide further information on mode shift and extent to which the use of sustainable modes of travel is increasing. This would be supplemented by information from the national rail census and a bespoke bus occupancy survey to enable the tracking of trends over time.

- Automatic pedestrian and cycle counters which can continuously monitor the use of specific links should be installed on key links throughout the study area, particularly on significant new/upgraded routes, in order to allow for analysis of trends in overall use as well as fluctuations by day, time of day and time of the year. Cycle counters are now available which can also count and classify e-scooters.

- Cycle parking occupancy surveys should be undertaken regularly (e.g. quarterly or biannually) at key destinations such as the train station, schools, the university campus, Main Street, supermarkets and leisure destinations. In addition to counting the total number of parked cycles, cycle parking surveys should also include some monitoring of the presence of non-standard cycles which can help provide an indication of the extent to which cycling in

Maynooth is becoming more inclusive and accessible to a more diverse group of people over time (e.g. cycles with child seats or trailers attached, cargo cycles, adult tricycles, children's bicycles and other bikes.)

- Data on the use of public transport for travel to and from the study area as well as within the study area should be requested from the NTA on an annual basis if possible, to monitor the increase in passenger numbers over time.

- The benefits of bus priority measures and/or requirement for further measures to be introduced should be monitored through regular analysis of changes to bus journey times and reliability (assuming this data can be obtained from the NTA).

- Car parking occupancy and duration data should be analysed to understand the impact of parking measures introduced and how the use of available space can be optimised. Initially data may be obtained from manual surveys but over time more data may be collected automatically as additional technologies are deployed to manage parking availability and information.

- In the event of a share/short term hire scheme being introduced for cycles and/or e-scooters, data on the use of the scheme should be analysed to understand overall use as well as the most common trip patterns, types of trips and if possible, the demographic groups which benefit most from the scheme. This could help inform future regulation of and/or investment in these schemes and identify gaps / unmet needs.

- Collision statistics should be monitored as they become available to identify road safety issues which could potentially be remedied through the delivery of measures in the ABTA or other measures not included in the ABTA and to assess whether there are any trends which can be observed from the data.

6.2 Review Process for the MEABTA

It is proposed that the MEABTA is reviewed every 5 years as part of the revision and update of the Maynooth Joint Local Area Plan. If the LAP is not renewed every five years, then the MEABTA can be reviewed independently, taking into account the progress reports mentioned in the previous section and the changing policy or infrastructure context. The review should amend and update the MEABTA as required to ensure it is still a relevant document which can inform KCC transport and development decisions in Maynooth.

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