

## **Appendix I.1 – NMU Context Report**



Llywodraeth Cymru  
Welsh Government

# A487 CAERNARFON TO BONTNEWYDD BYPASS NON-MOTORISED USER CONTEXT REPORT

*Welsh Government*

3513874-PB-XX-XX-RP-TR-00006

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## **NON-MOTORISED USER CONTEXT REPORT**

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Annex A – Preliminary Scheme Design

## **1 INTRODUCTION**

### **1.1 Background**

- 1.1.1 The A487 trunk road is an important part of the Welsh Government's strategic road network and it serves as the major north/south route along the west Wales coast linking Fishguard, Cardigan, Aberystwyth, Machynlleth, Dolgellau, Porthmadog, Caernarfon and Bangor.
- 1.1.2 In 2009 the Welsh Government commissioned a study to address transport problems on the A487 Fishguard to Bangor Trunk Road through Caernarfon and Bontnewydd. This study utilised the earlier work undertaken separately. The more recent WelTAG Stage 2 study included an initial public consultation that took place between March and May 2010 and a supplementary public consultation that took place between November 2010 and January 2011.
- 1.1.3 The Key Stage 2 consultancy commission for the scheme was carried out by Parsons Brinckerhoff (PB). Following the investigation of route options and two public consultations, a Preferred Route (Purple Route) was recommended. This Preferred Route was announced by the Minister for Local Government and Communities in July 2012. As a result of budgetary pressures the Minister for Economy, Science and Transport decided to review the options and in May 2013 adopted the Yellow Option as the preferred route.
- 1.1.4 In 2014 Welsh Government appointed Employer's Agent EC Harris and design consultant Ramboll to prepare the A487 Caernarfon to Bontnewydd Bypass scheme for ECI procurement and in December 2014 a Balfour Beatty/Jones Brother Joint Venture (JV) won the commission with Designers Parsons Brinckerhoff (PB) and TACP.
- 1.1.5 The A487 Caernarfon to Bontnewydd Bypass (the proposed bypass) will connect from a new arm on the A499/A487 Goat Roundabout to a new arm on the A487 Plas Menai Roundabout junction.
- 1.1.6 The aims of the proposed bypass are to:
- Improve journey times and reliability between Llanwnda, Caernarfon and Plas Menai; and
  - Reduce the number of vehicles passing through the residential communities (Llanwnda, Bontnewydd and Caernarfon), improving network resilience and road safety.

### **1.2 Non- Motorised User (NMU) Audit**

- 1.2.1 The Design Manual for Roads and Bridges (DMRB) sets out mandatory requirements for conducting NMU audits for all schemes affecting trunk road and motorways. The A487 Caernarfon to Bontnewydd Bypass will affect the A487 trunk road, adding a fourth arm from the A499/A487 Goat Roundabout, joining back on to the existing A487 Plas Menai Roundabout. Upon operation of the scheme, the proposed bypass will form a new section of trunk road (A487 T), with the existing A487 will be detrunked, becoming the responsibility of the local highway authority.

- 1.2.2 NMUs are considered to be pedestrians, cyclists and equestrians, with particular consideration to be given to the needs of disabled people. The audit process documents the design scheme affecting NMUs to improve the service offered to them and prevents conditions for NMUs being worsened by the introduction of Highway Schemes. The audit should consider the implications of schemes for NMU accessibility, safety, comfort and convenience.
- 1.2.3 Highway schemes are defined in DMRB (Volume 5, Section 2, Part 5, HD 42/05, CI 1.15) as:
- “All works that involve construction of new highway or permanent change to the existing highway layout or features. This includes changes to road layout, kerbs, signs and markings, lighting, signalling, drainage, landscaping and installation of roadside equipment. Maintenance works that solely involve a like-for-like replacement or refurbishment of existing highway features are excluded from NMU Audit. However, this Standard does apply to Highway Schemes that are constructed as part of the same procurement package as maintenance works.”
- 1.3 NMU Requirements**
- 1.3.1 The NMU audit consists of two elements at different stages of the development of a highway scheme:
- NMU Context Report – Produced at the earliest possible stage in a scheme, prior to completion of the scheme design. Background information of relevance to NMUs is collated to ensure that the design team have sufficient information to allow them to fully consider the needs and interests of NMUs.
  - NMU Audit Report – Produced at each design stage, with the aim of documenting the objectives of the scheme for NMUs and the decisions taken in relation to providing for NMU needs.
- 1.3.2 Both the Context and Audit Reports produced must be signed by the NMU Audit Leader and the Design Team Leader (see NMU Audit/ Design Team Statement at the end of this report).
- 1.4 Report Purpose**
- 1.4.1 This NMU Context Report has been prepared in accordance with DMRB requirements set out in Volume 5, Section 2, Part 5 HD 42/05 (entitled Non-Motorised User Audits). It precedes the Audit Report, establishing the context for consideration in design by illustrating relevant background information about the scheme and local context.
- 1.4.2 The NMU Context Report aims to:
- Map the existing situation;
  - Consider likely changes to be imposed on NMUs by the highway scheme;
  - Consider the strategic context of the scheme;
  - Identify key locations and movement conflicts;
  - Identify any gaps in data that may be significant to the project; and to
  - Propose overall objectives for NMUs within the scheme as a whole.

## **2 SCHEME DESCRIPTION**

### **2.1 Introduction**

2.1.1 This section provides an overview of the scheme and its design features in the wider context of its Transport Planning Objectives. The Preliminary Scheme Design is provided in Annex A.

### **2.2 A487 Caernarfon to Bontnewydd Bypass**

2.2.1 The proposed scheme consists of a new 9.8km highway commencing at the Goat Roundabout (A499/A487 junction) and terminating at the Plas Menai Roundabout. It forms a western bypass to Llanwnda, Dinas and Bontnewydd before forming a new junction with the existing A487 north of Bontnewydd and proceeding to pass south of Caernarfon Quarry. It then crosses over the River Seiont and the A4085 with no junction, and passes south of the Cibyn Industrial Estate to a junction with the A4086. After crossing below the B4366 with no junction, the route drops steeply to connect with the A487 at the Plas Menai Roundabout.

2.2.2 A WS2+1 standard has been adopted consisting of 2 lanes of travel in one direction and a single lane in the opposite direction providing overtaking opportunities in the two lane direction while overtaking in the single lane direction is prohibited.

2.2.3 There are nineteen structures comprising seven bridges (including a crossing over the Welsh Highland Railway, a 280m bridge over the River Gwyrfaï and a 300m bridge over the River Seiont) and twelve culverts.

2.2.4 In addition to the proposed bypass construction a number of on-line improvements to the existing trunk road have been identified. These improvements are not currently developed at a level to substantiate an NMU Audit, and may not be subject to these requirements given the proposed de-trunking of the road.

2.2.5 The scheme includes new arms on two existing roundabout junctions where it connects with the existing A487, and two new junctions:

- New roundabout with the A487 north of Bontnewydd (Meifod Roundabout); and
- New roundabout with the A4086 (Cibyn Roundabout).

The entire scheme will be subject to the national speed limit and no new lighting is currently proposed.

2.2.6 The schemes Transport Planning Objectives (TPO) are as below:

TPO1	Reduce journey time (between Llanwnda and Plas Menai) and improve journey time reliability to within +/- 3 minutes of the average journey time throughout the day.
TPO2	Reduce journey time (between Llanwnda and Caernarfon) and improve journey time reliability to within +/- 3 minutes of the average journey time throughout the day.
TPO3	Reduce the number of vehicles passing through residential communities; including Llanwnda, Dinas, Bontnewydd and Caernarfon.
TPO4	Scheme to contribute to the Welsh Government casualty reduction targets: 40% reduction in the total number of people killed and seriously injured on Welsh roads by 2020; 25% reduction in the number of motorcyclists killed or seriously injured on Welsh roads by 2020; and 40% reduction in the number of young people (aged 16-24) killed or seriously injured on Welsh roads by 2020.
TPO5	Improve network resilience – Increase the amount and/or capacity of alternative routes to improve the resilience of the network.

### **3 POLICY AND PLAN CONTEXT**

#### **3.1 Introduction**

3.1.1 This section sets out the policy and plan context for the scheme and NMUs at both national and local level, including relevant legislation and scheme priorities.

#### **3.2 National Transport Plan 2015 - Draft December 2014**

3.2.1 The National Transport Plan (NTP)<sup>1</sup>, alongside Local Transport Plans, is the Welsh Government's mechanism for delivering the social, economic and environmental Long Term Outcomes set out in the Wales Transport Strategy. The NTP sets and applies the evidence base to identify appropriate transport interventions by place, confirms priorities for future investment in the form of the short term (next 5 years), medium term (up to next 10 years) and longer term (next 20 to 30 years).

3.2.2 The NTP outlines the critical role of the trunk road network in providing connectivity for many communities, including in rural areas and deprived communities. It also explains that the role of the network will change over time and that the Welsh Government are investigating a programme of trunking and de-trunking to ensure the network reflects its strategic role.

3.2.3 The A487 Caernarfon to Bontnewydd bypass is identified in the NTP as a short term priority to address congestion, road safety and journey time reliability in North Wales.

3.2.4 Specifically in relation to the A487 the NTP:

- Identifies the A487 as part of the Strategic Road Network, connecting the A55 to the north and the A470 to the south;
- States that the 2011-2013 collision rate for the A487 is below the National Centre for Research Method's calculated average for single carriageway;
- Notes that the A487 is identified as a Noise Action Planning Priority Area in the vicinity of Caernarfon.

3.2.5 In relation to walking and cycling the NTP

- Expresses concerns that the baseline for walking and cycling reveals that just 6 per cent of those aged 16 or over travel by bicycle for active trips at least once a week, and just 46% typically walk several times per week;
- Considers a greater potential role for walking and cycling as key local transport options;
- Acknowledges that walking and cycling routes are an increasingly important part of Wales's transport network - The National Cycle Network, in the form of a series of traffic free lanes and quiet on-road routes, covering 12,000 miles in Wales;
- Commits to the inclusion of safe provision for walkers and cyclists, where appropriate and practical, in the plans for new roads or improvements to existing roads;
- Recognises the need to tackle both actual and perceived safety of cycling.

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<sup>1</sup> The Draft NTP is currently being updated following consultation. The information in this section is therefore only applicable to the Draft and may not reflect the content of the new NTP due to be published in Spring 2015 but not published at the time of this report production.

3.2.6 Welsh Government priorities for investing in Active Travel are:

- Supporting the implementation of the Active Travel (Wales) Act 2013 and improving connectivity to key sites such as workplaces, hospitals, schools, shopping and recreation areas;
- Improving safety and accessibility for all;
- Encouraging uptake of active travel for shorter journeys.

### **3.3 Active Travel (Wales) Act 2013**

3.3.1 The Active Travel (Wales) Act 2013 introduced new duties and requirements in relation to active travel and will support the provision of high quality, integrated active travel networks which people can use to access jobs and services.

3.3.2 The Act creates new duties for highways authorities to consider the needs of walkers and cyclists and make better provision for them. It is supported by published statutory guidance:

- Active Travel (Wales) Delivery Guidance;
- Active Travel (Wales) Design Guidance.

3.3.3 The Act requires Highway authorities to *have regard to the needs of walkers and cyclists in exercising their functions under parts 3, 4, 5, 9, and 12 of the Highways Act 1980<sup>2</sup>*.

3.3.4 The presumption is that enhancements for active travel will be made in new schemes or during maintenance when it is practicable to do so.

3.3.5 Highway authorities may determine that it would be unreasonable or impracticable to enhance provision for walkers and cyclists in highway construction, improvement or maintenance in the following exceptional circumstances:

- Where the distance that would need to be covered by a new route to connect settlements/ services/facilities makes it inappropriate;
- Where it is not possible to provide safe provision for walkers or cyclists as part of the construction or improvements; and
- Where it is not possible to provide an appropriate link to existing provision, and the result would be an isolated piece of infrastructure that could not be accessed safely.

3.3.6 The Welsh Government requires that all works on projects on the trunk road network must consider the advice contained within the design and delivery guidance including:

*Designers of rural road schemes should always identify where walking and cycling routes could be severed by the scheme, and include appropriate mitigation measures so that pedestrians and cyclists benefit, or as a minimum, are left no worse.*

3.3.7 Designers of new highways should consider the five attributes of good walking and cycling routes - Coherence, Directness, Safety, Attractiveness and Comfort – and find ways to meet them as part of the scheme.

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<sup>2</sup> Parts 3, 4 and 5 of the Highways Act 1980 concern the creation, maintenance, and improvement of highways respectively.



<b>Pedestrians</b>	
The role of pedestrian network planning for utility trips in built-up areas is generally not to provide new walking routes per se, but to improve the existing network in order to encourage people to make short trips on foot	
<b>COHERENCE</b>	<p>Routes should connect with one another seamlessly to form a comprehensive, permeable and logical network.</p> <p>Routes must be clearly defined and identifiable by all. Layouts of walking routes should be simple, logical and consistent.</p> <p>Any severance of key routes by busy roads must be reduced or overcome through appropriate and sympathetic schemes.</p> <p>Diverting pedestrians through subways and across footbridges should be avoided where possible due to the potential accessibility problems for older people and those with disabilities.</p>
<b>DIRECTNESS</b>	Routes should be direct and follow natural desire lines, and should be as straight as possible through road junctions.
<b>SAFETY</b>	<p>Good road safety is achieved by separating pedestrian routes from fast vehicle routes in space and/or time; and/or by reducing vehicle speeds and flows to a level such that risks are brought to an acceptable level.</p> <p>Subways can also deter walking through perceptions (real or perceived) of crime and personal safety and add to the time and distance of a journey.</p>
<b>ATTRACTIVENESS</b>	Well maintained and well lit footways with no evidence of vandalism encourage pedestrians to use routes.
<b>COMFORT</b>	A suitable footway width and levelling is important to allow pedestrians to travel comfortably at their chosen speed and in groups, such as when walking with younger children.

<b>Cyclists</b>	
<b>COHERENCE</b>	<p>The network must be coherent; it must link all the places cyclists want to start and finish their journeys with a route quality that is consistent and easy to navigate.</p> <p>Abrupt changes in the level of provision for cyclists (such as busy high speed roundabout) will mean that an otherwise serviceable route becomes disjointed and unusable by the majority of potential users.</p> <p>Designers should avoid making cyclists stop, slow down, or deviate unnecessarily from their route. The effective width available for cycling and the choice of junction type are important factors in allowing for maintenance of speed.</p>
<b>DIRECTNESS</b>	Routes for cyclists must provide the most direct and fastest route from origin to destination, preferably more direct than that available for private motor vehicles. An indirect designated route for cyclists may result in some of them choosing the more direct, faster route, even if it is not properly planned for cycling and

	therefore unsafe.
<b>SAFETY</b>	The need for cyclists to come into close proximity and conflict with motor traffic must be removed, particularly at junctions, where the majority of crashes occur.
<b>ATTRACTIVENESS</b>	Cycling is a pleasurable activity, in part because it involves such close contact with the surroundings. The attractiveness of the route itself will therefore affect whether users choose cycling.
<b>COMFORT</b>	Smooth surfaced routes without the need to ascend or descend steep gradients and which present few conflicts with other users, create comfortable conditions that are more conducive to cycling. The presence of high speed, high volume traffic affects both safety (as above) but also the comfort to the user. Non-local cyclists should also be able to navigate the routes without the need to refer to maps.

### **3.4 Draft North Wales Joint Local Transport Plan 2015 – 2020**

- 3.4.1 The Draft North Wales Joint Local Transport Plan (LTP) for Anglesey and Gwynedd<sup>3</sup> sets out a delivery programme for 2015-2020, and a framework for schemes until 2030. It seeks to remove barriers to economic growth by improving connections to employment. There is a focus on the most deprived communities, such as rural communities, seeking to address the issues faced with improvements to the walking and cycling connections.
- 3.4.2 Outcome 4 of the LTP is 'Increased Levels of Walking and Cycling for both necessary travel and recreation, by residents and visitors.'
- 3.4.3 Objective 9 entitled 'Encouraging Sustainable Travel' is concerned with infrastructure improvements to increase levels of walking and cycling both for travel and for leisure. This may include cycle routes, footway/ footpath provision, and safe routes to school.
- 3.4.4 High Level Intervention 5 – Access to Services, commits to improving connectivity along the A4086 between Llanrug and Caernarfon.
- 3.4.5 The LTP proposes the Caernarfon to Lon Ogwen Multi-User-Path (MUP). This MUP will run alongside the B4366 and A4244 between Caernarfon and the Lon Ogwen Cycle route at Felin Hen. The path would be constructed within the existing highway boundary, with short sections requiring land where existing road widths are not sufficient. The scheme could be incorporated into the B4366 road widening scheme at Pengelli.

### **3.5 Joint Local Development Plan (LDP) for Anglesey and Gwynedd – Draft**

- 3.5.1 The Joint Local Development Plan (LDP), scheduled to be adopted by April 2016, comprises a deployment strategy of sustainable development over the next 15 years.

<sup>3</sup> The Draft North Wales Joint Local Transport Plan is currently being updated following consultation. The information in this section is therefore only applicable to the Draft and may not reflect the content of the published Plan.

3.5.2 The LDP promotes walking and cycling opportunities, on a local level, as more work is needed to improve healthier lifestyles amongst the residents of the area by ensuring that existing and new communities have an opportunity to participate in physical activity, including opportunities for cycling and walking.

3.5.3 The LDP states that all development proposals are required to progress towards achieving the relevant objectives and policies:

- **Objective 8:** Reducing the need to travel and encourage alternative modes of transport, placing particular emphasis on walking, cycling and using public transport.
- **Strategic Objective 21:** Improve and maintain safe, efficient, high quality, modern and integrated transport networks to employment, services and education/ training facilities particularly by foot, bicycle and public transport, thus reducing where possible the number of journeys in private cars.
- **Strategic Policy PS2:** Alleviating the effects of climate change: add to opportunities for walking or cycling in preparation for a time when fuel will become scarcer or more expensive.
- **Strategic Policy PS22:** Support transport improvements that maximise accessibility for all modes of transport, but particularly by foot, cycle and public transport. This is set out to be achieved by improving and enhancing the public footpath and cycleway network to improve the accessibility by these modes of travel to encourage people to live healthier lifestyles.
- **Sustainability Appraisal (SA) Deposit Plan, Feb 2015**
  - **SA Objective 10:** Promote and enhance good transport links, including the proposed increase in the percentage of cycle network and access to services and facilities by public transport, walking and cycling.

### **3.6 Gwynedd Rights of Way Improvement Plan 2007 - 2017**

3.6.1 The Rights of Way Improvement Plan provides a ten year challenge and opportunity for the council to adapt and review the network to meet modern day needs and so to help deliver wider benefits for both Gwynedd's residents and its visitors. The following all have relevance to NMUs:

- Development proposals will be refused if they create an unacceptable increase in traffic on Rural Lanes where walkers, cyclists or horse riders are expected to be the main users.
- One of the main responsibilities of the Rights of Way Section is to advise in the planning process on the effect of proposed development on Public Rights of Way and assist in the processing of applications to create, divert or extinguish Public Rights of Way to suit the needs of developers, including through public inquiry and beyond if necessary.
- Cyclists want the existing rights of way networks to be better integrated with planned cycle routes and those currently found on the highway network, in addition to linking towns and villages with the countryside.

## **4 LAND USES AND TRIP GENERATION**

### **4.1 Introduction**

- 4.1.1 This section outlines the existing land-uses and trip generators within the study area. It also considers future developments that will need to be considered by the scheme.

### **4.2 Existing Land uses**

- 4.2.1 The study area is majority rural and agricultural land, with Caernarfon being the main hub for employment, retail and community services, and consequently the key destination for local trips. A number of small settlements are located mostly to the east of the proposed bypass scheme alignment. These comprise Llanwnda, Rhostryfan, Dinas, Waunfawr, Groeslon, Bontnewydd, Caeathro, and Pont-rug. These are largely trip originators rather than destinations. Situated a short distance east of Caernarfon along the A4086, and connected to a residential suburb by footpath only, is an industrial/ employment area called Cibyn Industrial Estate.

### **4.3 Key Trip Generators**

- 4.3.1 Figure 1 shows the key trip generators in the study area, classified as schools, services, leisure, health and retail. The key employment sites in the area are also highlighted in Figure 1. In terms of trip generators the most significant are considered to be Gwynedd Council, Caernarfon Castle, Caernarfon Leisure Centre, Bryn Seiont Hospital, Caernarfon County Courts and the three supermarkets. It is clear that Caernarfon town centre holds the majority of the key destinations, although the seven schools and five surgeries serving the communities within the study area will also generate a significant number of trips at a local level, where walking and cycling is likely to make a greater contribution to overall travel.

### **4.4 Development Proposals**

- 4.4.1 The proposed developments within the study area can be seen in Figure 1. This data has been received from Gwynedd Council. The proposed developments are well dispersed around the study area, and none are significant in scale of trip generation. There are two planning applications that are in close proximity to the proposed bypass:
- A 29.8ha solar park, currently in construction on agricultural fields belonging to Parciau Farm in Caernarfon, near Griffiths Crossing. Access to this site is off the current A487.
  - An extension of Seiont Riverside Campsite, to the east of Cibyn Industrial Estate. An application was made for the lawful use for 40 tents, 4 seasonal touring caravans and 20 touring caravans to be used between the 14th March and 31<sup>st</sup> of October.

## **5 NON-MOTORISED USER NETWORKS**

### **5.1 Introduction**

5.1.1 This section outlines the extent and characteristics of the existing NMU networks and public transport routes within the study area.

### **5.2 Highway Network**

5.2.1 The existing highway network comprises the A487 (T) running north- south through Caernarfon, Bontnewydd and Llanwnda, connecting at Caernarfon with the following:

- The B4366 (Bethel Road) joined by the A4086 (Llanberis Road) extending east and then southeast to Snowdonia via Pont – rug and Llanrug
- The A4085 Constantine Road extending southeast to Snowdonia via Waunfawr
- A network of unclassified roads forming a roughly parallel route to the A487 (T)/ Caernarfon between Bontnewydd and Plas Menai

5.2.2 Provision for cyclists is limited on the existing highway network outlined above. Additionally, provision for pedestrians outside of built-up areas is also limited.

### **5.3 Cycle Routes**

5.3.1 The existing and proposed cycle network within the study area is shown in Figure 1. There are two National Cycle Network (NCN) routes within our study area; NCN 8 and NCN 61.

5.3.2 NCN 8, also known as the Lon Las Cymru (North), is a 257 mile signed route from Cardiff to Holyhead. The Caernarfon to Y Felinheli stretch of NCN 8 is also known as Lon Las Menai; an off-road route along the former railway running parallel to the Menai Strait. NCN 8 becomes fragmented as it enters Caernarfon town centre. The route enters the town and follows the east side of the castle walls, leading onto Balaclava Road, and finally routing back onto the off-road Lon Las Cymru (North). There is an alternative non-NCN shared use route through the town centre which branches off west of Caernarfon Castle, running parallel to the Menai Strait waterfront. This alternative and potentially more legible shared use path stops at the harbour, and cyclists have to re-join NCN 8 on Balaclava Road.

5.3.3 NCN 61, also known as Lon Las Gwyrfa, follows quiet country lanes and tracks leading out of Caernarfon towards the village of Waunfawr.

5.3.4 NCN Route 8 provides a far better option for walking and cycling than could be provided by any on-line provision between settlements to the north of the proposed bypass (Plas Menai) and the settlements to the south (Llanwnda and Bontnewydd). Not only does it penetrate the heart of Caernarfon Town Centre, but it is flat, traffic free and generally of a high standard in design and legibility. It is also an attractive and varied route, providing open views across the Menai Strait to the north of Caernarfon, and rural tranquillity to the south of the town. However the utility of NCN 8 is limited to these communities, providing little or no benefits beyond recreational use to the extensive suburbs extending east of Caernarfon, or to outlying settlements such as Caeathro, Llanrug and Bethel, or to access employment at Cibyn Industrial Estate.

- 5.3.5 There is another cycle-route connecting Caeathro to Bontnewydd in the form of a shared-use footway/cycleway to the north-west side of Caeathro Road from Bontnewydd, and proceeding on-road in a north easterly direction to Caeathro along a quiet lane.
- 5.3.6 The cycle network in the study area is scarce, with cyclists having little route choice. Cyclists have to travel on high speed arterial roads (A487(T), A4086, A4085 and B4366) in and out of Caernarfon, or on high speed rural roads. The A487 is a highly congested route, with very narrow sections of road, resulting in an unpleasant cycling experience. There is a proposed multi-user path set out in the LDP on the Bethel Road.
- 5.3.7 Sustrans are currently in the process of auditing routes for the identification of baseline active travel map of the Caernarfon area, in accordance with the Wales Active Travel Delivery Guidance. Phase 1 of this work (auditing and statement preparation) is due to be completed 12<sup>th</sup> June.
- 5.4 Public Rights of Way (PROW)**
- 5.4.1 Several public footpaths in the area are crossed by the proposed A487 Caernarfon to Bontnewydd Bypass. These can be seen on Figure 1, detailed south to north:
- GY 16584 / Llanwnda 19<sup>4</sup> – running from Llanwnda NW towards a minor road
  - GY 16585 / Llanwnda 10– running west from the west of Dinas for approximately 1k
  - GY 14404 / Bontnewydd 26 – footpath running south east from A4085, branching off towards Penrhôs.
  - GY 14404 / Waunfawr 31 - footpath running south east from A4085, parallel to GY 14404 / Bontnewydd 26 path.
  - GY 16504 / Llanrug 36 – footpath runs between B4366 and A4086
- 5.4.2 There are a few bridleways in the area but none will be disrupted by the proposed bypass.
- 5.5 Public Transport**
- 5.5.1 The routes of public transport services and location of interchanges are important in moving towards a more integrated and sustainable transport system. The activities of walking and cycling are generally limited to local trips by themselves. However in providing access to and from public transport services, these NMU activities also have a more strategic function.
- 5.5.2 There are no mainline railway stations within the study area. The closest stations are Bangor to the north, and Pwllheli and Porthmadog to the south, providing services to the rest of Wales and England.
- 5.5.3 The Welsh Highland Railway begins at Caernarfon, by the castle, and travels south to Porthmadog, and onto Blaenau Ffestiniog. It passes through Dinas and Tryfan stations, both of which are request stops, before heading to Waunfawr, which falls just outside the study area to the south-east.

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<sup>4</sup> Footpath references and names from rowmaps.com

5.5.4 The Welsh Highland Railway serves as a tourist function only, with its operational and pricing structure prohibitive to local use for utility purposes.

5.5.5 There are a number of bus services that operate both within Caernarfon and between the town and surrounding settlements. Most routes have an hourly or twice hourly service frequency, but a few are more frequent. The services typically operate from around 07:00 until 23:30, although each route varies. Table 1 below shows some of the routes from Caernarfon for Monday-Friday services. The bus station is situated in the town centre, close to the castle. Coaches also stop in Caernarfon town centre, providing one daily service in each direction to and from London.

Destination	First Service	Last Service	Frequency (approximately)	Journey Time
<i>Inside study area</i>				
Bethel	08:42	18:25	Every hour	8 mins
Bontnewydd	07:10	23:15	Four per hour	5 mins
Caeathro	07:20	18:35	Every hour	5 mins
Dinas	07:10	23:15	Four per hour	7 mins
Llanfaglan	07:45	17:20	Every two hours	7 mins
Llanwnda	07:30	22:00	Every hour	8 mins
Pont-rug	06:40	16:10	Every two hours	8 mins
Rhostryfan	09:00	21:25	Every hour	10 mins
Rhos Isaf	15:30	17:00	Three per day	13 mins
Waunfawr	07:20	18:35	Every hour	10 mins
<i>Outside study area</i>				
Bangor	06:00	23:15	Every 15 mins	30 mins
Llanberis	07:05	18:10	Four per hour	25 mins
Llanrug	06:40	18:25	Every hour	15 mins
Nantlle	08:40	19:15	Every two hours	25 mins
Penygroes	08:40	23:15	Two per hour	15 mins
Porthmadog	07:10	21:45	Every hour	45 mins
Pwllheli	07:30	22:00	Every hour	45 mins

**Table 1 - Bus and coach services from Caernarfon**



## **6 NON MOTORISED USER DEMAND**

### **6.1 Introduction**

- 6.1.1 This section summarises the available data to illustrate the context in terms of existing levels of walking and cycling in the study area. The available data from national and local sources is limited and the NMU Audit will be better informed by further data collection to be undertaken in May 2015 alongside the collection of traffic data to update the traffic model. It is anticipated this data will be available from late June/early July. This data may also assist in informing the Active Travel (Wales) baseline for the Caernarfon area.

### **6.2 Pedestrian and Cyclist Flows**

- 6.2.1 Cycle counts have been retrieved from the Department of Transport (DfT) Annual Average Daily Flow (AADF) data, where each unit is cycles per day, averaged over a time period ranging from 5 to 14 years. Figure 2 shows the cycle count data available.
- 6.2.2 It is clear from the AADF data that the minor roads in the study area have a greater number of cyclists on average, however daily cycle counts are still low compared to the Wales average of 21.
- 6.2.3 Anecdotally we have been advised by Gwynedd Council that the usage numbers of the main cycle routes around Caernarfon vary from 523 to 2801 cyclists per month at peak season (usually July). This equates to between 17 and 93 cyclists per average day.
- 6.2.4 We have also been advised by Gwynedd Council that usage numbers for pedestrians are up 8743 per month at peak season, equating to 291 pedestrian movements per average day.

### **6.3 NCN Routes 8 and 61**

- 6.3.1 It is understood there are counters on the NCN network and that these are maintained by Gwynedd Council. This data has been requested but not made available to us for analysis. We understand there may have been some problems with the counters affecting the validity of data.
- 6.3.2 Gwynedd Council has estimated, by comparing NCN Route 8 (Lon Eifion and Lon Las Menai) to similar locations where data is available, that there are approximately 1000 cyclist and 2000 pedestrian movements in a peak month. This equates to around 33 cyclists and 66 pedestrian movements respectively.

### **6.4 NMU Trip Analysis**

- 6.4.1 Further census based analysis of NMU trips has been undertaken to better understand pedestrian and cycle movements, and at a high level, desire lines, given limited available count data.
- 6.4.2 Figure 3 shows the non-motorised trip flows within and between the Middle Layer Super Output Areas (MSOAs). The MSOAs cover large areas, extending beyond the study area. However populations outside the study area are generally small, such that the data can still be considered indicative of origin and destination of trips, within and between MSOA areas.



- 6.4.3 From the 2011 Census data, the only internal cycling trips were within Gwynedd 006 MSOA (0-10% of total trips). As Caernarfon is the main development within this MSOA, it can be implied that people cycle around the town as a mode of transport. Gwynedd 006 is also the only MSOA with people travelling by bicycle to another output area, Gwynedd 007 (0-10% of total trips). This could likely be to places such as Bontnewydd or Waunfawr, given alternatives are further afield.
- 6.4.4 Compared to cycling, there is a higher proportion of MSOA walking trips, both within and between MSOA areas. Gwynedd 006 (Caernarfon) contains the highest proportion of internal trips by foot, at 30-40% of total. Distances to alternative settlements suggest that internal trip flows in MSOA 007 and MSOA 004 are just in the local towns and villages.
- 6.4.5 In terms of trips by foot between MSOAs, these form 10%-30% of total trips between Gwynedd 006 and Gwynedd 007, 10%-20% of total trips between Gwynedd 006 and Gwynedd 004, and 0%-10% of trips between Gwynedd 004 and Gwynedd 007.
- 6.4.6 In MSOA Gwynedd 007, the only settlements of any significant population are Bontnewydd, Waunfawr and Caeathro. It can be suggested that walking trips (10-20% of total trips) within Gwynedd 007 are within or between these settlements. Bontnewydd is approximately 2.5km from the centre of Caernarfon and may be a viable option for walking given links to NCN Route 8. Caeathro is 2km from the town centre. This is within walking distance for some; however there is no obvious route apart from along the A4085 where there is no footway provision outside the built-up area and/or using Footpath no. 32.
- 6.4.7 It is noted that statistical disclosure<sup>5</sup> may have been applied to the datasets being used to compare the walking and cycling trip flows within and between MSOA Gwynedd 004, 006 and 007.

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<sup>5</sup> Statistical disclosure is applied to the 2011 census data to protect the attributes of an individual. Individual records with unusual characteristics, in this case unusual transport habits, are slightly modified by random record swapping; samples of records are 'swapped' with similar records in other geographical areas. This technique of record swapping may reduce the reliability and validity of the data.

## 7 TRAFFIC CONDITIONS

### 7.1 General Overview

7.1.1 Existing traffic data for the network is patchy and it was considered that modelled network data for an assumed opening year<sup>6</sup> would be more useful in providing a context of traffic with and without the proposed bypass.

7.1.2 12 hour (0700 - 1900) weekday traffic flows (all vehicles) known as Annual Average Weekday Flows (AAWF) have been extracted from a total of 120 sites within the study area. These sites relate to the major artery roads into Caernarfon and those which directly affect NMUs (for example through the town centre). The model was run in Saturn for Do Minimum (DM) 2016 - without the proposed bypass and Do Something (DS) 2016 - with the proposed bypass.

### 7.2 Modelled Impact of the Scheme

7.2.1 The new A487 Caernarfon to Bontnewydd Bypass is designed to divert a significant proportion of strategic through traffic away from Llanwnda, Bontnewydd and Caernarfon.

7.2.2 Indicative traffic flows for the 2016 opening year have been forecast and modelled for DM and DS and scenarios. These are shown in Table 2.

ID	Link Name	DM 2016	DS 2016	Abs. Change	Relative Change	HGV DM	HGV DS
1	NE Link from A487 towards Caeathro up until NCN 61	752	175	-577	-77%	16%	0%
2	NE Link from NCN 61 to Y junction	738	147	-591	-80%	16%	0%
3	Penybryn Road/A487 junction to A487/Pant Road junction	2420	1116	-1306	-54%	35%	10%
4	A487/Pant Road junction, north to St Helens Road/ Seiont Mill Road/A487 roundabout	2920	1070	-1850	-63%	31%	3%
5	Northbound St Helens Road	425	341	-84	-20%	0%	0%
6	A487 Llanwnda Roundabout through Dinas to Dwyntfa	2179	553	-1626	-74%	31%	1%
7	NCN 8 – St Helens Road to Castle Hill.	261	134	-127	-49%	0	0

<sup>6</sup> It is recognised that the scheme will likely not be open in 2016. However this is the year modelled for Key Stage 2, and is only indicative for the purpose of this report.

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ID	Link Name	DM 2016	DS 2016	Abs. Change	Relative Change	HGV DM	HGV DS
8	NCN 8 – Northbound, Castle Hill to roundabout	352	315	-37	-10%	0	0
9	NCN 8 – Greengate Street to Y junction	152	194	+42	+28%	8%	7%
10	NCN 8 – Greengate Street to Cei Banc crossroads	30	45	+15	+51%	0%	2%
11	NCN 8 – Balaclava road to mini-roundabout	407	446	+39	+10%	2%	2%
12	NCN 8 – Balaclava road to Priory Terrace	541	551	+10	+2%	1%	1%
13	NCN 8 – Balaclava Road to Premier Inn Private Road	612	649	+37	+6%	1%	1%
14	NCN 8 – North from Balaclava Road to Maes Parcio Doc Fictoria Car Park	683	728	+45	+7%	1%	1%
15	NCN 8 - Maes Parcio Doc Fictoria Car Park back onto offroad NCN 8	107	111	+4	+3%	0%	0%
16	A487 North of Bontnewydd to underneath bypass	2435	401	-2034	-87%	30%	12%
17	A487, Tesco	2971	1189	-1783	-60%	31%	4%
18	A487 flyover in centre of Caernarfon	2230	1212	-1118	-48%	31%	2%
19	A487, Morrisons	2506	1279	-1227	-49%	30%	3%
20	A487 North, near Parciau Farm (south of Plas Menai RBT)	2229	911	-1318	-59%	35%	5%
21	B4366 north of proposed bypass	509	483	-25	-5%	20%	17%
22	B4366 South of bypass	561	414	-148	-26%	14%	12%
23	Llanberis road/ Tanrallt / B4366 roundabout	1567	1333	-234	-15%	5%	4%
24	Start of Llanberis Road (A4086)	1719	1215	-504	-29%	14%	6%
25	A4086, Approach to Cibyn industrial estate	1135	1283	+148	+13%	34%	20%
26	A4086 after proposed bypass	1098	1266	+168	+15%	35%	29%

ID	Link Name	DM 2016	DS 2016	Abs. Change	Relative Change	HGV DM	HGV DS
27	A4085 - Segontium Rd SE to Segontium Roman Fort	959	925	-34	-4%	3%	3%
28	A4085, Caeathro	379	360	-19	-5%	1%	1%
29	A4085, Waunfawr	415	371	-44	-11%	5%	0%
30	A4085 between Caeathro and Waunfawr	430	421	-9	-2%	5%	6%
31	A4086, Pont-rug	1463	1073	-391	-27%	26%	24%

**Table 2 - Indicative Average Annual Weekday Flows (AAWF) for the 2016 opening year**

- 7.2.3 Figure 4 and Figure 5 visually show the links, coloured to highlight an increase or decrease in traffic.
- 7.2.4 The modelled data shows significant reductions in traffic flows (both in absolute flow and percentage change) on the following road links with the proposed bypass:
- All of the links on the A487
  - All of the links on the B4366
  - All of the links on the A4085
  - Links connecting Bontnewydd and Caeathro
- 7.2.5 On all of these links, there are substantial reductions in HGV traffic, with reductions by almost a third on links 4, 6, 17, 18, 19, and 20. All of these links are on the A487, confirming that the proposed bypass will significantly reduce HGV traffic through the main town centres in the study area. The reduction in both normal traffic and HGV traffic on roads shown in Figure 4 will create a more attractive cycling environment for cyclists.
- 7.2.6 The modelled data shows increased traffic flows on the A4086, on the links around Cibyn Industrial Estate. Indicative traffic flows on NCN 8 through the town centre (links 9, 10, 11, 12, 13, 14, and 15) also show an increase, although the absolute volume is small.

## 8 COLLISION DATA

### 8.1 Introduction

8.1.1 Personal Injury Collision Data (PIC) has been provided by Gwynedd Council over the five-year period (01/01/2009 to 31/12/2014) to identify any spatial or causation trends that may be relevant to the development of the A487 Caernarfon to Bontnewydd Bypass. The study area and summary of all the recorded collisions in this time frame are shown in Figure 6.

### 8.2 Total Collisions

8.2.1 Table 3 below summarises the total collisions for non-motorised users over the five year period within the study area. There were no collisions involving equestrians.

	Pedestrians	Cyclists	Total	Percentage of Total
Fatal	0	1	1	2%
Serious	11	3	14	29%
Slight	24	9	33	69%
<b>Total</b>	<b>35</b>	<b>13</b>	<b>48</b>	<b>100%</b>

**Table 3 – Total Collisions**

8.2.2 The single fatal collision involved a cyclist colliding with a chain suspended between two bollards, falling and suffering fatal injuries. No other persons or vehicles were involved.

### 8.3 Spatial Analysis

8.3.1 Figure 6 shows that the vast majority of collisions involving NMU casualties took place within the town centre and built-up area of Caernarfon. 80% of pedestrian collisions and 54% of cyclist collisions occurred on urban roads, defined by a speed limit of 30mph or less. The remaining 20% of pedestrian collisions and 46% of cyclist collisions occurred on rural roads.

8.3.2 Table 4 shows casualties categorised by road number within the study area. It shows that 38% of total NMU collisions occurred on the A487, the existing main road through Caernarfon.

	Pedestrian		Cyclists		Total	
A487	3	13%	6	6%	9	38%
A4085	2	8%	2	2%	4	17%
A4086	4	17%	2	2%	6	25%
B4366	5	21%	0	0%	5	21%
<b>Total</b>	<b>14</b>	<b>58%</b>	<b>10</b>	<b>42%</b>	<b>24</b>	<b>100%</b>

**Table 4 – Casualties by road**

## 8.4 Historical Analysis

Table 5 shows an increasing trend in the number of NMU casualties over the five year assessment period, with a particular peak for pedestrians in 2013. The number of cyclist casualties peaked at four in 2011 and 2012, and has steadily fallen since.

	Pedestrians	Cyclists	Total
2009	5	0	5
2010	4	0	4
2011	7	4	11
2012	5	4	9
2013	10	3	13
2014	4	2	6
<b>Total</b>	<b>35</b>	<b>13</b>	<b>48</b>

**Table 5 – Casualties by Year**

## 8.5 Contributory Factors

- 8.5.1 All but two of the collisions involving cyclist casualties were caused by human error of either the driver or rider failing to look properly, or as a result of the driver haven driven too aggressively or passing too close to the cyclist. The two incidents that were not caused by human error were down to slippery road conditions and illness.
- 8.5.2 Pedestrian casualties had a wider range of contributory factors; however 30% of pedestrian collisions did not have any contributory factors recorded. Of the recorded incidents, 50% were because the pedestrian failed to look properly, and due to a misjudgement of vehicles path and speed. The other half of collisions were caused by driver error, most commonly careless or reckless driving.

## 8.6 Previous NMU Road Safety Assessment

- 8.6.1 Following a fatal incident involving a cyclist, TMS conducted a road safety assessment for pedestrians and cyclists at Victoria Dock, Caernarfon, on behalf of Gwynedd Council. The assessment was carried out on 14<sup>th</sup> October 2014 between 1400 and 1800. Pedestrian flows were very light and less than 10 cyclists were observed cycling on the Victoria Dock Route. The site was also visited during darkness at 1900. Pedestrian flows were very light and no cyclists were observed to be using the Victoria Dock route.
- 8.6.2 The assessment highlights a series of hazards in the Victoria Dock area which have the potential to injure pedestrians and cyclists. Cyclists on a journey through Victoria Dock could be misled at each end into thinking they are on NCN 8 when they are not. Where cyclists are to embark on such a journey, they could encounter hazards that they may not anticipate on a 'normal' NCN route.
- 8.6.3 The assessment highlighted suggested route signing improvements made to NCN 8 route through Victoria Dock to help cyclists stay on NCN 8, and to clarify the shared use through Victoria Dock as a slower environment for cyclists.

- 8.6.4 The Victoria Dock issues in respect of legibility and standards are relevant in identifying that there is scope to improve existing routes through off-line measures associated with the bypass proposal.

## **8.7 Conclusions**

- 8.7.1 The number and location of collisions involving pedestrians and cyclists largely reflects the relative level of usage/ utility of the routes concerned. There is no cluster or commonality based evidence that the existing NMU network is unsafe. However the proposed bypass provides an opportunity to improve safety for NMUs on the routes that it will divert traffic away from; in particular the section of the A487 to be de-trunked between Llanwnda and Plas Menai.

## **9 NMU ISSUES AND OPPORTUNITIES**

### **9.1 Introduction**

9.1.1 This section precedes and informs the NMU Scheme Objectives set out in section 10. It brings together observations from site visits and anecdotal evidence from engagement with the public and key stakeholders to present a number of issues and opportunities for NMUs in the study area. There is no requirement that all the issues and objectives identified in this Context Report be addressed by the scheme. However they form a baseline for consideration at least and help ensure that any new or improved provision for NMUs that forms part of the scheme is objective and based on evidence of need or rationale.

### **9.2 Site Visit**

9.2.1 The NMU Audit team undertook a site visit in February 2015. The purpose of this was to:

- Ensure correct baseline of existing highway infrastructure and land-use
- Observe conditions for NMU users on the existing transport network
- Understand how the scheme will connect with the existing transport network and land-uses
- Appreciate how and where the scheme will change existing conditions for NMUs

### **9.3 Engagement**

9.3.1 The following engagement has been undertaken to ascertain the views of interested parties and in particular at this stage to inform the NMU Audit Team's understanding of available information, issues and opportunities in the study area:

- Gwynedd Council including a meeting on 10<sup>th</sup> February 2015 and further correspondence by e-mail and telephone;
- Sustrans Area Officer including a conference call on 13<sup>th</sup> February 2015 and e-mail correspondence; and
- Public Information Exhibition in March 2015 at three local venues.

9.3.2 The meeting with Gwynedd Council included was attended by Dylan Wynn Jones (Traffic, Development Control and Projects Team Manager), Robin Perkins (Recreational Routes Officer) and Mark Roberts (Rights of Way Officer). Discussions covered available information on NMU networks including PROWs potentially affected by the scheme, existing issues for walking and cycling, opportunities to improve the NMU network, progress and timescales on the baseline map work in accordance with the Active Travel (Wales) Delivery Guidance, available walking and cycle count data within the study area, and future schemes and development.

9.3.2.1 The Council identified that there is currently no cycle network connecting the small village of Caeathro with Caernarfon or Cibyn Industrial Estate. Communities such as Bethel, Llanrug and Waunfawr were also seen as being isolated from Caernarfon in terms of safe cycle routes. Safety and legibility concerns with the NCN route through Caernarfon Town Centre were discussed as were links to the Lon Eifion (NCN Route 8) from Bontnewydd.



- 9.3.2.2 The council also identified six PROWs which will be affected by the proposed bypass; however no agricultural crossings will be affected.
- 9.3.3 Correspondence with Sustrans focused on available usage data for the National Cycle Network, the requirements of the Active Travel (Wales) Act, and the identification of network-wide issues and opportunities to address these. In particular Sustrans were keen for opportunities for the scheme to open up new walking and cycling routes between communities and employment sites, and for off-line improvements to the existing strategic and local walking and cycling network.
- 9.3.4 A Public Information Exhibition was held between 17<sup>th</sup> and 19<sup>th</sup> March 2015 in Caernarfon, Bontnewydd and Caeathro. The purpose of this was to brief interested parties on progress to date and the programme of activities going forward in developing and securing planning for the scheme. The opportunity was taken to share NMU context information with interested parties in relation to the network, its usage, barriers and opportunities. The information from this Public Information Exhibition has been analysed and presented in the A487 Caernarfon to Bontnewydd Bypass Public Information Exhibition Report.
- 9.3.5 A number of people expressed concerns with the safety of cyclists and pedestrians on existing B roads where they cross over or pass under the road. There were also queries concerning the provision of safe crossing points for NMUs at the Goat Roundabout and Plas Menai Roundabout, where the proposed bypass connects in the vicinity of NCN Route 8.

#### **9.4 Issues and Opportunities Identified**

Table 6 below summarises the NMU issues and opportunities identified at the context stage of the NMU audit. These are mapped on Figure 7.

ID	Location	Issue/ Opportunity	Impact on NMUs
1	A487 (existing)/ A499/ A487 (new road) roundabout at Llanwnda (known as Goat Roundabout)	Bypass route crosses path of Lon Eifion (NCN Route 8)	User safety and route continuity – there is already a need for users of NCN Route 8 to cross the A499
2	Enhancements to existing A487 from Llanwnda to Bontnewydd	Opportunity to improve environment for NMUs on this corridor, within and between communities	Positive – reduced traffic speeds, traffic levels, improved air quality and reduced community severance
3	A4085 Caeathro to Caernarfon	No existing NMU route between Caeathro and Caernarfon – no footway or lighting and high traffic speeds	All but confident cyclists likely to be deterred from active travel on this corridor
4	A4085 Caeathro to proposed A4086 junction immediately east of Cibyn Industrial Estate	No existing link on potential desire line between the community of Caeathro and employment at Cibyn Industrial Estate	Active travel not currently an attractive option for travel between these locations

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5	Caernarfon Town Centre – Lon Eifion (St Helens Rd) to Lon Las Menai	Legibility and safety issues for cyclists on the section of NCN Route 8 through the town centre	Inconvenience, uncertainty and potential conflicts for cyclists in particular on a short section of NCN Route 8 that is otherwise legible and of high standard
6	Bethel – Cibyn Industrial Estate	No existing link on potential desire line between the community of Bethel and employment at Cibyn Industrial Estate	Active travel not currently an attractive option for travel between these locations
7	Bontnewydd School - Caeathro Road	Existing shared use route on Caeathro Road doesn't connect across the A487 and on to Bontnewydd School for safe access by cycle	Cycling to school from Caeathro less attractive/ convenient than it would be given more inclusive/ upgraded crossing provision of the A487 and associated localised signing/ infrastructure improvements.
8	Localised sections of NCN Route 8 – Exact locations to be identified/ investigated further	Lower standard (width) compared to Design Guidance and general standard of Lon Las Menai and Lon Eifion	Comfort and safety of both cyclists and pedestrians making active travel a less attractive option for some
9	A487 existing/ A487 (new road) roundabout at Plas Menai (known as Plas Menai Roundabout)	Modified junction will impact on cyclists – understood that the existing unofficial bypass is well used by more experienced cyclists for both recreational and utility purposes	Depends on the scheme option and associated measures. Options that maintain cycle access but restrict motor vehicles will have the most positive impact.

**Table 6 – NMU Issues and Opportunities**

## **10 SCHEME NMU OBJECTIVES**

### **10.1 Overview**

10.1.1 The output of the NMU Context Report is an objective framework within which the scheme design can be assessed. This final section sets out the overall objectives for NMUs within the scheme based on the following activities presented in this report:

- Site visits and engagement with interested parties
- Review of relevant guidance and policy
- Review of networks, usage and collision data
- Review of the scheme designs

### **10.2 Scheme Objectives for NMUs**

10.2.1 The proposed overall scheme objectives for NMUs are as follows:

1. Significantly improve conditions for pedestrians and cyclists on and across the de-trunked A487 between Llanwnda and Plas Menai in terms of environmental, safety and reduced severance.
2. Maintain or improve the function and quality of the six PROWs that are crossed by the A487 Caernarfon to Bontnewydd Bypass.
3. Improve conditions on the parallel unclassified roads for cyclists by diverting traffic away from these routes.
4. Ensure the safety of pedestrians, cyclists and equestrian users by minimising at grade crossings of the new road, and positioning these where vehicle speeds are at their lowest.
5. Identify and where feasible and within the remit of the proposed bypass, address gaps in the cycle and pedestrian networks to support local trips by active travel, particularly to and within Caernarfon Town centre, between communities, and to key trip attractors associated with health, education, leisure and employment facilities/ areas.
6. Minimise severance impacts of the new road on the NMU network, particularly the Lon Las and Lon Menai strategic recreational routes that form part of the national Cycle Network Route 8.
7. Encourage the uptake of active travel for local journeys and thereby contribute to reducing the volume of traffic within the local communities of Llanwnda, Dinas, Bontnewydd and Caernarfon, and in doing so improve journey time and reduce collisions.
8. Ensure any changes to infrastructure for walking and cycling associated with the proposed bypass are designed in accordance with the guidance and standards set out in Active Travel (Wales) Design Guidance - Coherent, Direct, Safe, Comfortable and Attractive.
9. Where feasible and within the remit of the proposed bypass, support the Local Development Plan and Joint Local Transport Plan schemes relating to improving connectivity along the A4086 between Llanrug and Caernarfon, and the Caernarfon to Lon Ogwen Multi-User-Path (MUP).

- 10.2.2      The above will be reviewed as part of the NMU Audit Report, taking into account that the scheme is evolving in terms of design options and features within, and as such the objectives may need to be revised to undertake an appropriate assessment framework.

**11 NMU AUDIT/ DESIGN TEAM STATEMENT**

11.1.1 I certify that this audit (Phase 1) has been carried out in accordance with HD 42/05.

**AUDIT TEAM LEADER:**

Rob Jones  
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Date: 30th June 2015

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Date: 30<sup>th</sup> June 2015

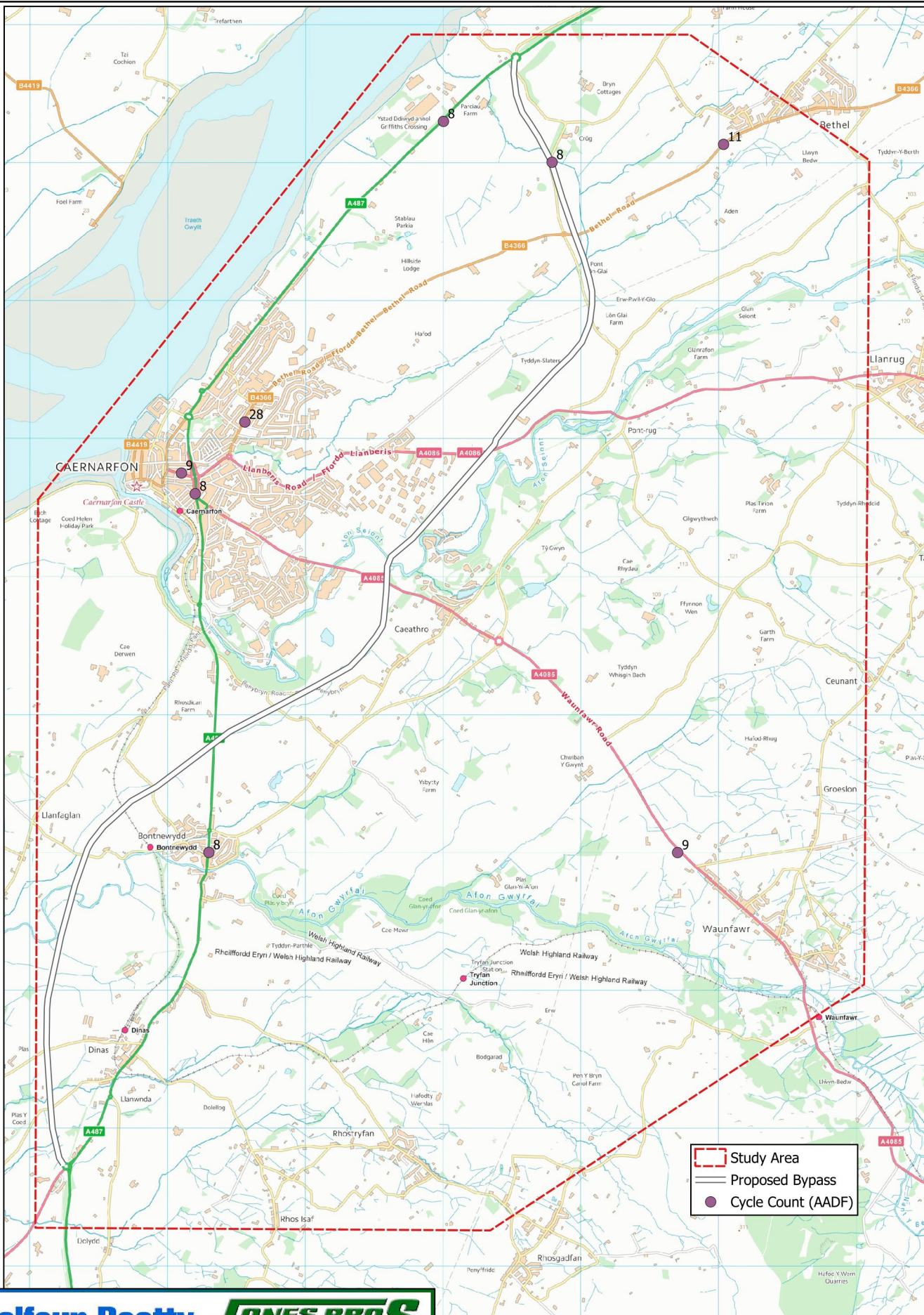
## **Figure 1 – NMU Networks and Trip Attractors**





## Figure 2 – Existing Cycle Count Data





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Client/Project:

**A487 CAERNARFON TO BONTNEWYDD BYPASS**

Title:

**FIGURE 2 - EXISTING CYCLE COUNT DATA**

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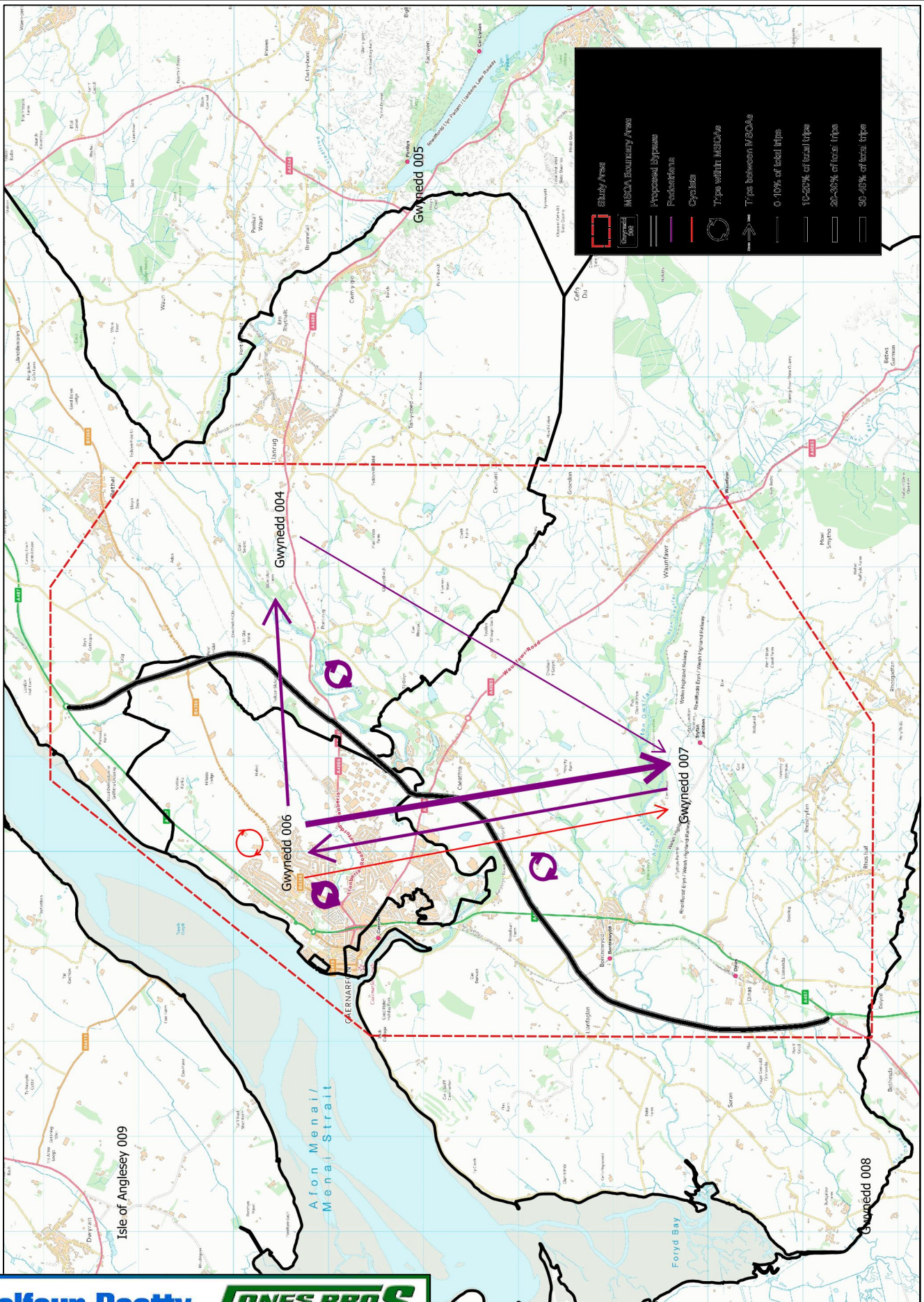
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### **Figure 3 – NMU Trip Analysis**





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**FIGURE 3 - NMU  
TRIP ANALYSIS**

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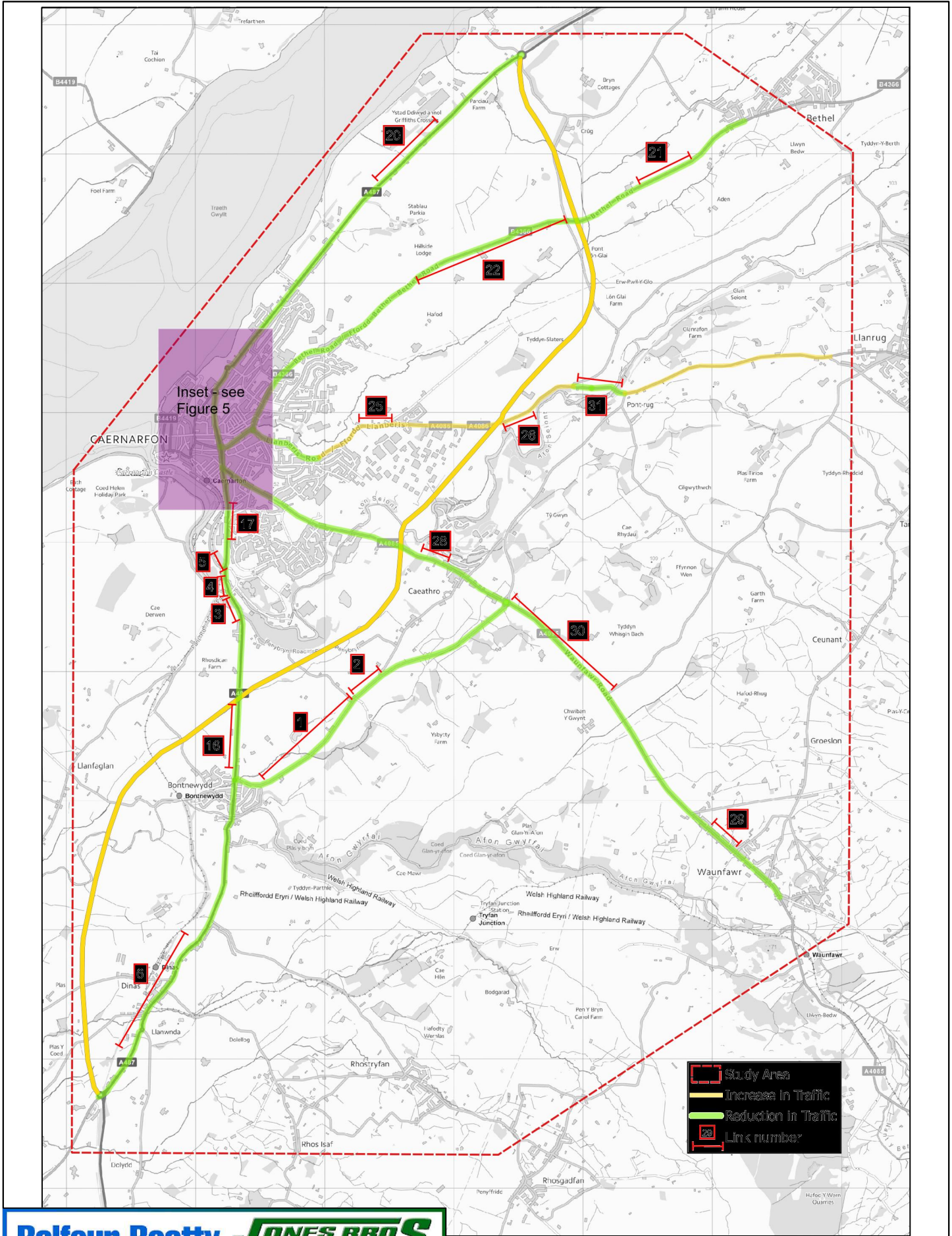
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## **Figure 4 – Scheme Impact on Traffic Flows**





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Title: **FIGURE 4 - SCHEME IMPACT ON TRAFFIC FLOWS**

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## **Figure 5 – Scheme Impact on Traffic Flows in Caernarfon Town Centre**





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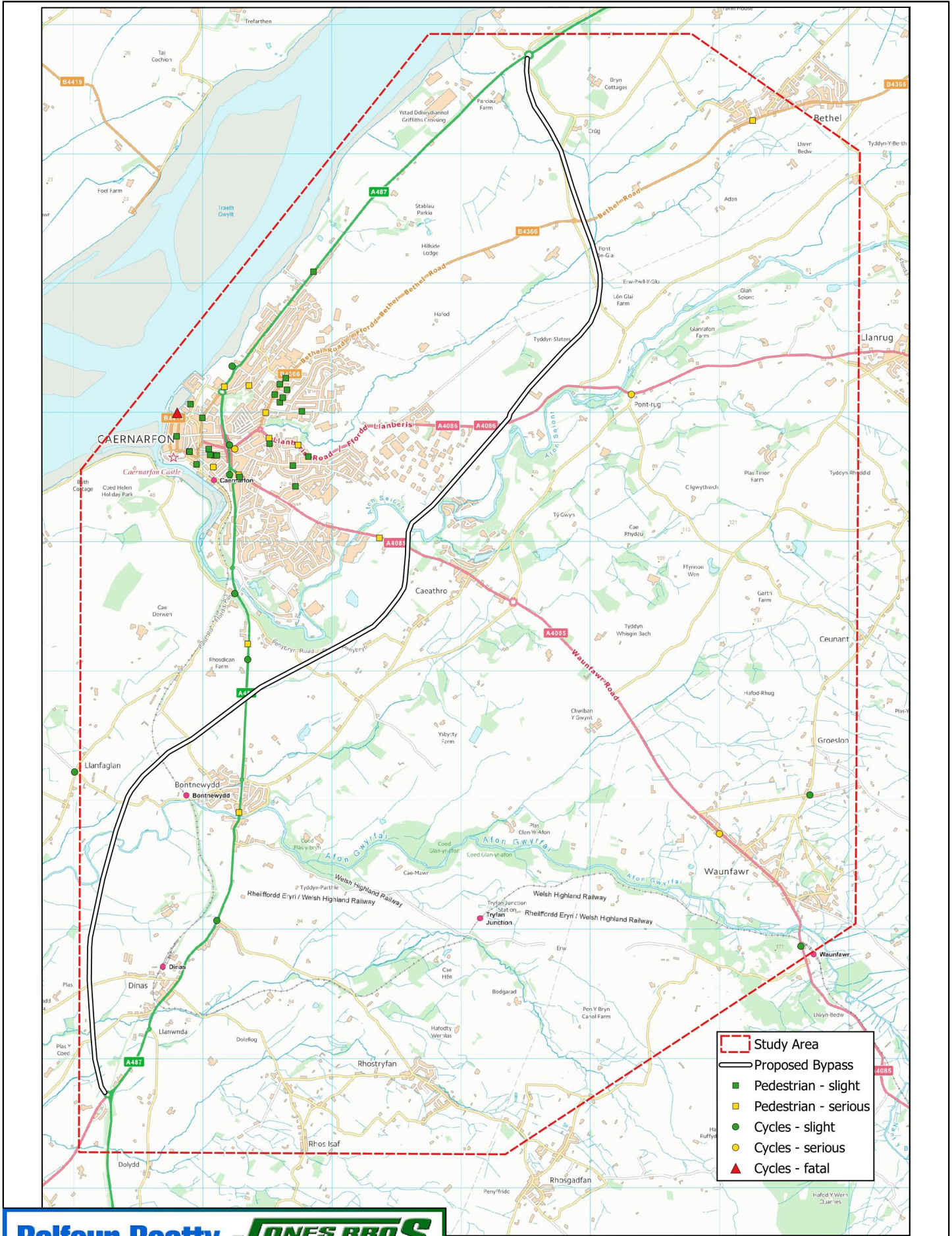
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## Figure 6 – NMU Road Traffic Casualties 2009-2014





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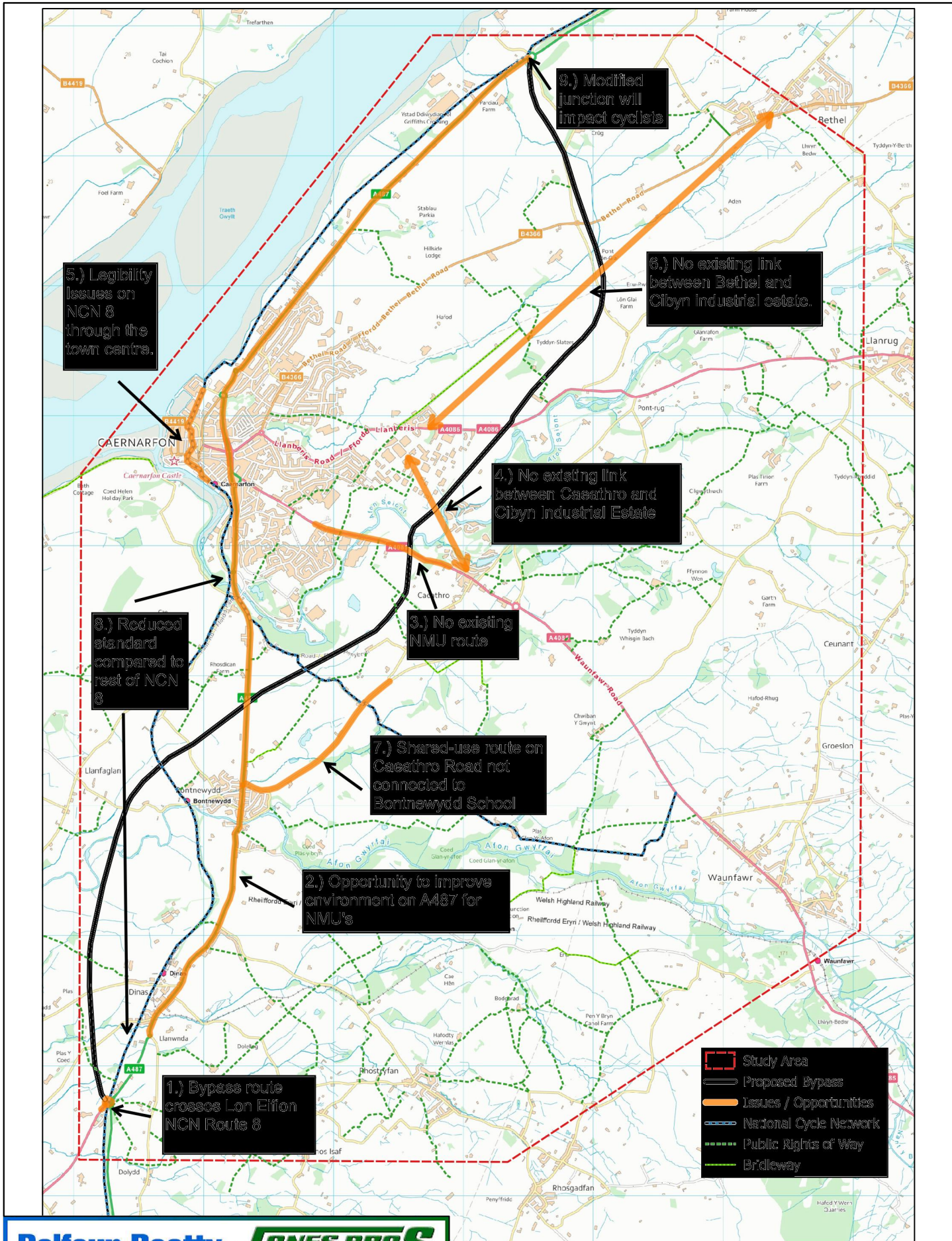
Client/Project: **A487 CAERNARFON TO BONTNEWYDD BYPASS**

Title: **FIGURE 6 - NMU ROAD TRAFFIC CASUALTIES 2009-2014**

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## **Figure 7 – NMU Issues and Opportunities**





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Title:

**FIGURE 7 - SUMMARY OF NMU ISSUES & OPPURTUNITIES**

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## **Annex A – Preliminary Scheme Design**





NOTES

A1

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KEY

- FOOTPATH
- RECREATIONAL ROUTE
- PRIVATE STREET ACCESS

HEALTH AND SAFETY INFORMATION

SIGNIFICANT OR EXCEPTIONAL RISKS ARE IDENTIFIED BELOW

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I. NOTHING SIGNIFICANT OR UNUSUAL.
4. THE CONTRACTOR SHALL REFER TO STATUTORY UNDERTAKERS LAYOUT DRAWINGS AND IDENTIFY LOCATIONS OF EXISTING UNDERGROUND SERVICES PRIOR TO CARRYING OUT EXCAVATION WORKS.

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Site/Project:  
**A487 CAERNARFON TO BONTNEWYDD BYPASS**

Title:  
**PRELIMINARY SCHEME DESIGN**

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## Appendix I.2 – NMU Audit Report





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# A487 CAERNARFON AND BONTNEWYDD BYPASS NMU AUDIT REPORT

3513874-PB-XX-XX-RP-TR-00011

*Final*





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Welsh Government

<b>Report Title</b>	:	<b>A487 Caernarfon and Bontnewydd Bypass NMU Audit Report</b>
<b>Doc Number</b>	:	<b>3513874-PB-XX-XX-RP-TR-00011</b>
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<b>Approved by</b>	Russell Bennett	<b>Checked by</b> <i>(quality assurance)</i>	Kate Attwood
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## **1 INTRODUCTION**

1.1.1 This report documents the results of the NMU Audit carried out on the Preliminary Design Stage of the A487 Caernarfon to Bontnewydd Bypass.

1.1.2 The Audit was carried out by the NMU Audit Team between January 2015 and September 2015 in accordance with HD 42/05 'NMU Audits'.

1.1.3 The report follows the HD 42 NMU Context Report issued in June 2015.

1.1.4 The Audit consisted of:

- A review of the NMU Context Report of June 2015. It was considered that the Report remains valid and that no material changes have taken place since its compilation. New NMU data has been collected that is summarised and where relevant used as evidence in this Audit Report
- A continuous assessment of the developing scheme design against the needs of NMUs
- Public Information Exhibitions held in March and June 2015
- Comments received from the 'Have Your Say' application of the scheme website <http://www.cbypass.co.uk/index>
- Design and NMU specific meetings and/ or correspondence with Gwynedd Council, Sustrans and CTC
- Site visits by the NMU Audit Team, Transport Team and Design Team between January 2015 and September 2015
- Design and Technical Working Group (TWG) meetings and workshops focusing on NMU issues and solutions

1.1.5 The purpose of this NMU Audit Report is as follows and as set out in HD 42:

- To note any material changes to the information in the NMU Context Report since its publication
- To confirm the objectives for NMUs set out in the Context Report and design objectives specific to the stage being audited
- Provide a statement of how design objectives have been achieved or where not; the reasons why they cannot be delivered
- To list the NMU issues identified and actions taken to resolve them
- To note any objectives that could not be met and/ or address remaining issues, and propose considerations for subsequent design stages

## **2 ADDITIONAL DATA AND ENGAGEMENT**

### **2.1 Additional Data Collected**

2.1.1 New pedestrian and cycle data has been obtained since the Context Report was produced. This data was obtained at a number of sites as listed below with locations shown in figures 1-3. The additional data has been used to supplement that contained in the Context Report and to inform this Audit.

- Automatic Traffic Counts at 22 locations
- Manual Classified Counts (MCC) at 30 locations
- Pedestrian crossing surveys of pedestrian movements at 5 locations on the existing A487

2.1.2 The Walking and Cycling Usage Figure contained in the NMU Context Report has been updated with this new data and is shown in Figure 4 of this report.<sup>1</sup>

### **2.2 Additional Stakeholder Engagement**

2.2.1 Further NMU specific stakeholder engagement has taken place to gain views and issues in relation to NMU scheme objectives and design features. The results of this consultation are recorded and discussed in detail in Chapter 4 along with the actions to be taken.

2.2.2 Public Information Exhibitions (PIE) covering all aspects of the scheme were held during the periods 17-19 March 2015 and 25-27 June 2015 at the following locations:

- Celtic Royal Hotel, Caernarfon
- Y Canolfan, BontnewyddY Capel, Caeathro

2.2.3 The objectives of the exhibitions were to:

- Keep the public informed on the proposed programme for the works
- Inform the public on the Statutory Process
- Appraise the public and stakeholders of the current scheme design
- Provide access to the Team, specifically the Public Liaison Offer
- Establish communications and processes to allow the public to raise their issues and their concerns

2.2.4 Table 1 below details the number of categorised responses relating to NMU issues raised over both exhibition periods.

---

<sup>1</sup> The ATC data includes both pedal cycles and motorcycles (the two can't be separated).

Concern	Number
Safety of Non-Motorised Users at crossing points either over/under new bypass	5
Safety of implementing a W2+1 carriageway design	3
Loss of existing routes in the Pen Y Bryn area	4
Loss of public rights of way	3
The design or route of footpath diversions	5
'Public Right of Way' for temporary crossing provisions along the diversion road during construction.	3
'Active Travel Act 2013' legislates for the provision of routes designed for cycling and walking - concerns arise that there is not sufficient provisions for cycling and walking along the new road.	2

**Table 1: NMU Issues Raised in Public Information Exhibitions**

## 2.2.5

Other key information taken into consideration:

- Minutes of meetings with Gwynedd Council and Sustrans on 27 August 2015 to discuss a range of issues including options for NMU provision at Goat Roundabout, Meifod Roundabout and Cibyn Roundabout, and the potential for the scheme to provide NMU links between Bontnewydd, Caeathro and Cibyn
- Notes of meeting and subsequent correspondence with Gwynedd Council in June 2015 to discuss the design details of a number of proposed structures associated with highway and footpath crossings of the new road
- Letter from CTC Eryri cycling group dated 14 August 2015 expressing concerns about the NMU provision currently proposed (at time of June PIE) at Goat Roundabout and advocating an NMU bridge or tunnel to ensure the safety of Lon Eifion users
- Letter from Caernarfon and Dwyfor Ramblers dated 8 September 2015 concerning the lack of provision for the users of the Lon Eifion across the new road in the vicinity of Goat Roundabout including pedestrians, cyclists, people with disabilities and families with young children
- Letter to British Horse Society of 18 August 2015 to ensure awareness of the scheme and identify any potential impacts in respect of equestrian users
- Several Customer Inquiry Workflow queries via the project website from members of the local communities concerned with the design of Goat Roundabout and the impact on Lon Eifion

### **3 NMU SCHEME OBJECTIVES AND DESIGN FEATURES**

#### **3.1 Introduction**

3.1.1 This section confirms the scheme objectives for NMUs and provides details of how the design has been developed to achieve these where possible and in line with the Guidance set out in HD 42.

#### **3.2 Confirmation of NMU Scheme Objectives**

3.2.1 The scheme objectives for NMUs remain as set out in the NMU Context Report.

#### **3.3 Design Features that Contribute to Achieving NMU Scheme Objectives**

3.3.1 [Table 2](#) below provides an account of the design features that contribute to achieving the scheme objectives for NMUs

NMU Objective	Design Feature(s)
1. Significantly improve conditions for pedestrians and cyclists on and across the de-trunked A487 between Llanwnda and Plas Menai in terms of environment, safety and reduced severance.	<p>Strategic and local access for vehicles is provided to the scheme at Goat Roundabout, Meifod Roundabout, Bethel Roundabout and Plas Menai Roundabout</p> <p>Traffic and proportion of HGVs across the de-trunked A487 upon scheme opening reduced as follows:</p> <ul style="list-style-type: none"> <li>Existing A487 in vicinity of Bontnewydd: 71% all vehicles and 94% HGVs</li> <li>Existing A487 south of Caernarfon TC: 46% of all vehicles and 83% HGVs</li> <li>Existing A487 north of Caernarfon TC: 43% and 67%</li> </ul> <p>The scheme will allow opportunity for future improvements to the de-trunked A487 such as speed reduction measures, improved NMU crossing provisions and re-allocation of road space.</p>
2. Improve conditions on the parallel unclassified roads for cyclists by diverting traffic away from these routes.	<p>The existing unclassified road between Bontnewydd and Llanfaglan is to be stopped up at the point of intersection with the bypass. A new NMU only footbridge will be provided over the bypass restricting through travel on this side road to pedestrians and cyclists only.</p> <p>Strategic and local access to the scheme at Meifod Roundabout and Cibyn Roundabout.</p> <p>Traffic and proportion of HGVs across the unclassified road between Bontnewydd and Roundabout with the A4085 to east of Caeathro upon scheme opening reduced by 79% (all vehicles) and 50% (HGVs):</p>

NMU Objective	Design Feature(s)
<p>3. Ensure the safety of pedestrians, cyclists and equestrian users by minimising at grade crossings of the new road, and positioning these where vehicle speeds are at their lowest.</p>	<p>The scheme has no at grade crossings along the A487 (T) link sections, and existing NMU desire lines are provided for by a combination of over-bridges and under-bridges.</p> <p>However, at grade crossings are provided at the following junctions:</p> <ul style="list-style-type: none"> <li>• Goat Roundabout</li> <li>• Meifod Roundabout</li> <li>• Cibyn Roundabout</li> </ul> <p>Design features to ensure safety at the above are as follows:</p> <ul style="list-style-type: none"> <li>• Reduced speed limits</li> <li>• Lighting</li> <li>• Adequate signage warning motorists of pedestrians and cyclists crossing carriageway</li> <li>• Coloured surfacing</li> <li>• Tactile paving at crossing points</li> <li>• Refuge areas and protection for pedestrians and cyclists either side and in the centre of the carriageway.</li> </ul>
<p>4. Identify and where feasible within the remit of the proposed bypass, address gaps in the cycle and pedestrian networks to support local trips by active travel, particularly to and within Caernarfon Town centre, between communities, and to key trip attractors associated with health, education, leisure and employment facilities/ areas.</p>	<p>No design features of the scheme contribute to objective 5.</p> <p>This report makes a number of recommendations in respect of wider network improvements based on the data gathering activities informing the NMU Context Report and on contributions from stakeholders. These recommendations are detailed in Section 5</p>
<p>5. Minimise severance impacts of the new road on the NMU network, particularly the Lon Eifion and Lon Las Menai strategic recreational routes that form part of the national Cycle Network Route 8.</p>	<p>The scheme proposals divert Lon Eifion recreational route clockwise around Goat Roundabout to cross the less busy newly de-trunked A487 and A487(T) South rather than using the existing crossing of the A499 in addition to a new crossing of the A487 (T) North. S108 takes the bypass over Lon Eifion recreational route and the Welsh Highland Railway without impacting on the NMU network.</p> <p>The connection of the new road at the Plas Menai Roundabout has been designed to incur nil detriment to the Lon Las Menai recreational route. The scheme maintains the desire line of the existing Lon Las Menai, taking it across the same Plas Menai National Watersports Centre access road that now links directly to Felinheli Road, rather than to the Plas Menai Roundabout.</p>

NMU Objective	Design Feature(s)
6. Encourage the uptake of active travel for local journeys and thereby contribute to reducing the volume of traffic within the local communities of Llanwnda, Dinas, Bontnewydd and Caernarfon, and in doing so improve journey time and reduce collisions.	<p>The traffic reduction on the de-trunked sections will make conditions more attractive for active travel and could encourage greater use of these activities within and between the communities affected.</p> <p>The bypass scheme provides future opportunities for speed reduction measures, crossing provisions and the re-allocation of road space to further promote active travel.</p>
7. Ensure any changes to infrastructure for walking and cycling associated with the proposed bypass are designed in accordance with the guidance and standards set out in Active Travel (Wales) Design Guidance - Coherent, Direct, Safe, Comfortable and Attractive.	<p>The measures for pedestrians and cyclists at the following locations are being developed based on best practice and the latest design guidance given the rural context and estimated scheme traffic speed/ flow relationship:</p> <ul style="list-style-type: none"> <li>• Goat Roundabout</li> <li>• Meifod Roundabout</li> <li>• Cibyn Roundabout</li> </ul>
8. Where feasible and within the remit of the proposed bypass, support the Local Development Plan and Joint Local Transport Plan schemes relating to improving connectivity along the A4086 between Llanrug and Caernarfon, and the Caernarfon to Lon Ogwen Multi-User-Path (MUP).	<p>S115 Bethel Road bridge design will help facilitate Higher Level Intervention 6 in the North Wales Joint Local Transport Plan - Caernarfon to Lon Ogwen Multi User Path - Multi User Path alongside the B4366 and A4244 between Caernarfon and the Lon Ogwen Cycle route at Felin Hen.</p> <p>The design has been changed from 1m verge either side of Bethel Road to 0.6m and 1.4m. This maximises verge space for a useable footway on one side of Bethel Road, and with future reduction of the carriageway by the local highway authority from 7.3m to 6.5m, could permit a footway of 2m.</p>

**Table 2 – Design Contributions to Achieving Scheme Objectives for NMUs**



## **4 ISSUES AND ACTIONS**

### **4.1 Introduction**

4.1.1 The HD 42 Guidance requires that the issues identified during the design process are listed along with actions taken to resolve them.

4.1.2 This section provides a detailed and referenced summary of the issues identified alongside the response of the design and audit teams. Where relevant NMU counts and traffic data have been included to evidence the significance of an issue and, where appropriate, to justify the actions taken.

### **4.2 Categorisation of NMU Issues and Opportunities**

4.2.1 The NMU issues identified during the scheme design process have been categorised as follows:

- Core scheme issues
- Future-proofing issues
- Wider network improvements or opportunities

4.2.2 'Core scheme issues' are directly related to the scheme alignment. These may be on-line issues effecting NMUs or where the scheme directly impacts on existing routes used by NMUs. Examples of such issues could be scheme lighting, speed limits or crossing provision for NMUs.

4.2.3 'Future-proofing issues' are those where the design of the scheme potentially impacts on the enabling of or prohibits future NMU infrastructure proposals or aspirations. Examples of such issues could be the width of an over-bridge designed to take an existing side road or footpath over the new road.

4.2.4 'Wider network improvements or opportunities' are those located within the study area as set out in the NMU Context Report but beyond the scheme corridor as defined in the Works Information. Examples could include improvements to the existing A487 corridor for NMUs or improved NMU connections to and within Caernarfon Town Centre from outlying communities. These off-line improvements cannot be delivered as part of the scheme however the NMU Audit process is well placed to identify and advise upon these opportunities for the Local Authority or the Employer to consider investigating further.

4.2.5 The prioritisation of issues during scheme design follows the above order, with core scheme issues being considered most important to address whilst wider-network improvements outside the scheme's remit are to be advised upon only.

4.2.6 The issues and actions set out in the Tables 3-5 below can be located by reference to Figure 4.

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
C1	<p>No provision for NMUs along the bypass route means:</p> <p>(a) the scheme has no direct utility to pedestrians</p> <p>(b) the scheme does not meet Active Travel Wales Design Guidance criteria</p> <p>The Welsh Government requires that the advice in the Active Travel Wales Design Guidance must be considered when designing active travel routes on the trunk road.</p>	<p>NMU Audit Team</p> <p>Sustrans</p>	<p>The trunk road scheme is not designed for NMUs (i.e. it is not an active travel route). NMUs will instead benefit from reduced traffic/ speeds on the de-trunked existing A487 that connects a number of local communities with Caernarfon Town Centre.</p>	<p>There is no evidence that a parallel/ integrated Active Travel Route would provide significant utility - The communities potentially standing to benefit are few, small and far between.</p> <p>Indicative usage based on data for ATC Site 2 (Caeathro Road) – low cycle demand between Bontnewydd and Caeathro</p> <p>N/B 23 Mon-Fri and 40 Sat-Sun S/B 17 Mon-Fri and 38 Sat-Sun</p>
C2	<p>Concerns in respect of lighting at Meifod Roundabout and Cibyn Roundabout – safety implications for NMUs using and crossing the new road during hours of darkness.</p>	<p>NMU Audit/ Design Team</p>	<p>The existing lighting at Goat Roundabout and Plas Menai Roundabout will be retained.</p> <p>At Meifod Roundabout, a ring of light will be provided around the roundabout and on the approach arms for the existing A487. The bypass approaches will not be lit.</p> <p>At Cibyn Roundabout, a ring of light will be provided around the roundabout and on the approach arm for the A4086 towards Cibyn Industrial Estate. The A4086 arm to the east and the bypass</p>	<p>The safety of pedestrians and cyclists crossing or negotiating the scheme roundabouts will not be compromised by the lighting proposals.</p>

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
			<p>approaches will not have lighting.</p> <p>The new Bethel Road Roundabout will have lighting similar to that provided at the existing roundabout.</p>	
C3	<p>Meifod Roundabout - cyclists and pedestrians using the de-trunked A487 will need to cross the new road. It is not clear what provisions the scheme will include to ensure that this can be done without detriment to user safety and convenience.</p> <p>The proposed roundabout is not in accordance with designing for cyclists at roundabouts, encouraging vehicles to approach and enter the junction at speed puts cyclists negotiating the junction at risk of serious or fatal collisions.</p>	NMU Audit Team	The design team are reviewing the crossing options/ design based on traffic/ speed flow relationship and according to current Active Travel guidance.	<p>The Meifod roundabout should be designed in accordance with Active Travel Design Guidance given it severs what will become a de-trunked community route. It should be designed so that all arms can be safely crossed/ navigated by pedestrians/ cyclists.</p> <p>The NMU signing strategy from Caernarfon/ Bontnewydd should be reviewed to direct pedestrians and cyclists along NCN 8 between these communities (this is a longer route however some are still likely choose the de-trunked A487 route).</p> <p>An NMU Audit Update will be issued on completion of the design for NMU crossing provision at Meifod Roundabout.</p>
C4	The 2+1 carriageway	NMU Audit	A 2+1 carriageway alignment is	The new road is primarily

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
	alignment puts cyclists using the new road at greater risk than would a wider 1+1 carriageway, by facilitating lane weaving movements associated with overtaking, and in doing so presenting situations where cyclists may not be seen by motorists.	Team	required to achieve the Scheme TPOs.	<p>designed for use by motorised vehicles, for the purpose of bypassing Caernarfon, Bontnewydd and other communities. It is a rural trunk road and in no way promoted as an active or community travel route.</p> <p>Some cyclists will however legitimately use the bypass, including for training and possibly competitive time trialling. The latter will be subject to a Cycling Time Trial or British Cycling approved risk assessments which require approval of the trunk road authority.</p> <p>Training and competitive cycling of this nature will take place at times when traffic volumes are at their lowest, and participants will be confident cyclists aware of the risks involved.</p> <p>Indicative usage based on data for ATC Site 2 Mountain View (between Bontnewydd and Caeathro) - Low at 17-40 cyclists per day in each direction (the higher number being at weekends).</p>

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
C5	<p>The absence of provision for pedestrians and cyclists at Goat Roundabout where the new road crosses the existing Lon Eifion recreational route and part of the National Cycle Network (NCN Route 8).</p> <p>There is currently a need for users of the recreational route to cross the A499 (with no controlled or segregated provision) and the new road will additionally require the crossing of the A487(T) based on interpretation of current proposals. The plans show no segregated, controlled or even formal crossing provisions or signing.</p> <p>The issue is one of route safety and route amenity for all NMUs and particularly more vulnerable groups (children, the elderly and disabled persons).</p> <p>A number of stakeholders have cited obligations for ministers to provide for active travel users on new schemes</p>	<p>NMU Auditor CTC Cymru CTC Eryri Sustrans Cymru Caernarfon and Dwfor Ramblers Members of the public (various)</p>	<p>The design team are reviewing the crossing options/ design based on traffic/ speed flow relationship and according to current Active Travel guidance.</p>	<p>The design team will need to develop a solution at Goat Roundabout such that cyclists and pedestrians using the Lon Eifion “benefit, or as a minimum, are left no worse” in relation to the five attributes of good walking and cycling routes – coherence, directness, safety, attractiveness and comfort. If this cannot be evidenced then the scheme could be considered not in compliance with duties for highway authorities and ministers under the Active Travel Wales (Act) 2013.</p> <p>An NMU Audit Report Update will be issued upon completion of the design for Goat Roundabout</p> <p>Indicative NMU usage based on data provided by Gwynedd Council suggests approx. 33 cyclists and 66 pedestrian movements per day using the recreational route.</p> <p>KS3 traffic model provides the following Do Something 2-way AADT flows:</p> <p>A499 (SW) of Goat Roundabout: 8,400 (5% HGVs)</p> <p>A487 (S) of Goat</p>

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
	under the new Active Travel (Wales) legislation.			Roundabout: 11,100 (14% HGVs) A487 (N) of Goat Roundabout: 1,700 (6% HGVs)
C6	At S103 proposed 1.4 metre verge on north side road over the bypass – footway preferential as road section forms part of the All Wales Coastal path.	Gwynedd Council, Highways	The low trafficked and narrow lane does not have footpath provision elsewhere so no value to pedestrians is seen in providing one at the bridge. For cyclists the footpath would be detrimental.	
C7	At S107 2.3m close proximity of access point to Lon Eifion recreational route, means LHS verge of 2.3m should be a footway provision for pedestrian safety.	Gwynedd Council, Highways	The low trafficked and narrow lane does not have footpath provision elsewhere so no value to pedestrians is seen in providing one at the bridge. For cyclists footpath provision would be detrimental.  Residents from approx. 10 properties in Llanfaglan might use the bridge on route to the Lon Eifion. Most would be accessing the recreational route from Bontnewydd however and therefore not be using the new bridge.	
C8	At S109 stopping up order would require consultation with British Horse Society (BHS) and consideration should be made for equestrian type parapet.	Gwynedd Council, Highways	BHS has been consulted on scheme and to date not raised this as an issue.  There is no evidence of equestrian use on this corridor – subject to any consultation response from the BHS.	
C9	The absence of access to the bypass from the A4085 means that local through traffic between Llanwnda/ Dinas, Bontnewydd and	CTC Cymru	Using the KS3 Traffic Model it is estimated there are approximately 30 trips between Llanwnda/Dinas/Bontnewydd and Waunfau/Beddgelert in the 2031 forecast year AM and PM peak hour periods. This would not justify construction of a new junction for access to/ from the A4085. An additional junction would also reduce benefits for the strategic journeys	

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Information
	Beddgelert must still pass through Bontnewydd rather than use the bypass.		the scheme is designed to accommodate by increasing journey times for all users of the bypass scheme.	
C10	<p>The scheme does not accommodate or future proof for development of active travel links between Bontnewydd and Caeathro and on to Cibyn Industrial Estate.</p> <p>Without such links, relative to other communities in the study area, the scheme can be seen to further isolate the small settlement of Caeathro from other settlements and local employment areas.</p>	Sustrans Gwynedd Council, Highways	<p>There are a few options that could be considered:</p> <ol style="list-style-type: none"> <li>1. Scheme widened to incorporate access and a parallel shared use footway/ cycleway on NW side between Meifod Roundabout and Cibyn Roundabout</li> <li>2. A shared use footway/ cycleway link between Caeathro and the NW side of the viaduct</li> </ol> <p>Both the above would incur significant cost implications on the project sponsor given they require widening of the viaduct section of the route where there are also significant restrictions on corridor width</p>	<p>This scheme presents an opportunity to give active travel a relative advantage over motorised options for some potential desire lines between communities and an employment area.</p> <p>The number benefiting would be relatively low given the populations of the communities and employment sites that would be connected.</p> <p>The benefits of this opportunity would need to be investigated further to establish an economic, social and environmental case for the active travel links identified.</p>

**Table 3 – Core Scheme Issues**

ID	Issue	Raised by	Design Response/ Action	Audit Response and Supporting Evidence
F1	S112E A4085 should have 3m width footway (not proposed 2m width) under bypass in order to future proof NMU route between Caeathro and Caernarfon given Caeathro is part of the settlement areas within the Active Travel Act 2015.	Gwynedd Council, Highways	<p>There is currently no footway provision along the A4085 in the vicinity of this structure.</p> <p>The verge width will remain at 2m.</p> <p>The positioning of S112E has required the removal of a section of wall marking the highway boundary on both sides the A4085. Consequently a wider bridge structure would not enable a wider highway cross-section.</p>	<p>Data suggests low existing usage of the corridor by cyclists:</p> <p>ATC Site 16 (A4085 Constantine Road)</p> <p>E/B 12 Mon-Fri and 12 Sat-Sun</p> <p>W/B 9 Mon-Fri and 16 Sat-Sun</p> <p>Given the highway boundary constraints, 2m verge is considered sufficient for any future upgrade to shared use by the local highway authority. This would be a deviation from standard, but fit for purpose given the low potential levels of NMU usage.</p>
F2	<p>At S115 Bethel Road B4366 proposed verge widths are insufficient to accommodate NMU provision.</p> <p>3.0m width footway on one side would be desirable to facilitate LTP proposal for Caernarfon to Lon Ogwen Multi User Path.</p>	Gwynedd Council, Highways	<p>There is currently no footway provision along the B4366 in the vicinity of this structure. The original design verge widths were 1m and 1m. These have been changed to 1.4m and 0.6m to maximise footway provision on one side.</p>	<p>Data suggests low existing usage of the corridor by cyclists:</p> <p>ATC site 6 B4366 Bethel Rd (south of Bethel / Saron)</p> <p>E/B 14 Mon-Fri and 15 Sat-Sun</p> <p>W/B 13 Mon-Fri and 16 Sat-Sun</p> <p>Given the 7.3m carriageway, there is scope for the local authority to increase the verge on one side to 2.0m by reducing the carriageway width to 6.7m. This would facilitate the LTP proposal</p>



				for Caernarfon to Lon Ogwen Multi-User path. Whilst this would be a deviation from standard for a shared use route, it would likely be fit for purpose given potential NMU demand levels.
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Table 4 - Future-Proofing Issues

ID	Issue/ Opportunity	Raised by	Design Response/ Action
W1	Enhancements to existing A487 from Llanwnda to Bontnewydd - Opportunity to improve environment for NMUs on this corridor, within and between communities. Positive – reduced traffic speeds, traffic levels, improved air quality and reduced community severance.	Sustrans	Agree but outside remit of scheme design and land is responsibility of local highway authority.
W2	A4085 Caeathro to Caernarfon No existing NMU route between Caeathro and Caernarfon – no footway or lighting and high traffic speeds. All but confident cyclists likely to be deterred from active travel on this corridor.	Sustrans	Outside remit of scheme design and land is responsibility of local highway authority.  The absolute potential demand is limited to population of Caeathro which was 237 in 2011 according to Nomis data. <sup>2</sup>

<sup>2</sup> Nomis (KS101EW) – Usual resident population for 2011 output areas, area name: W00000617

W3	<p>Caernarfon Town Centre – Lon Eifion (St Helens Rd) to Lon Las Menai</p> <p>Legibility and safety issues for cyclists on the section of NCN Route 8 through the town centre.</p> <p>Inconvenience, uncertainty and potential conflicts for cyclists in particular on a short section of NCN Route 8 that is otherwise legible and of high standard.</p>	Sustrans	<p>Agree but outside remit of scheme design and land is responsibility of local highway authority.</p>
W4	<p>Bethel to Cibyn Industrial Estate -</p> <p>No existing link on potential desire line between the community of Bethel and employment at Cibyn Industrial Estate.</p> <p>Active travel not currently an attractive option for travel between these locations.</p>	Sustrans	<p>Any link between Bethel and Cibyn is outside the remit of the scheme design and is responsibility of local highway authority.</p> <p>The absolute potential demand is limited to population of Bethel which is less than 1,171.<sup>3</sup></p> <p>Distances are prohibitive to utility walking and cycling also for most people.</p>

<sup>3</sup> Nomis (KS101EW) – Usual resident population for 2011 output areas W00000266, W00000267, W00000268 and W00000270

W5	<p>Bontnewydd School to Caeathro Road -</p> <p>Existing shared use route on Caeathro Road doesn't connect across the A487 and on to Bontnewydd School for safe access by cycle.</p> <p>Cycling to school from Caeathro less attractive/ convenient than it would be given more inclusive/ upgraded crossing provision of the A487 and associated localised signing/ infrastructure improvements.</p>	Sustrans	Agree but outside remit of scheme design and responsibility of local highway authority.
W6	<p>Localised sections of NCN Route 8 – Exact locations to be identified/ investigated further -</p> <p>Lower standard (width) compared to Design Guidance and general standard of Lon Las Menai and Lon Eifion</p> <p>Comfort and safety of both cyclists and pedestrians making active travel a less attractive option for some</p>	Sustrans	Agree but outside remit of scheme design and responsibility of local highway authority.

Table 5 Wider Network Improvements or Opportunities

## **5 SUMMARY AND CONCLUSIONS**

### **5.1 Scheme Objectives for NMUs**

- 5.1.1 The scheme objectives for NMUs have been confirmed as those set out in the NMU Context Report. A number of design features have been assessed and found to provide a positive contribution towards achieving these objectives.

### **5.2 Key Issues and Responsibilities**

- 5.2.1 A number of NMU issues identified have been considered by the design team but were yet to be addressed at the time of producing this NMU Audit Report. These are as follows:

- C3 Meifod Roundabout
- C5 Goat Roundabout

- 5.2.2 The scheme does not address the needs of NMUs in respect of a number of wider network improvements and opportunities.

- W1 Existing A487 improvements
- W2 Caeathro to Caernarfon links
- W3 Caernarfon Town Centre improvements
- W4 Bethel to Cibyn Industrial Estate link
- W5 Caeathro to Bontnewydd School
- W6 Caeathro to and Cibyn Industrial Estate

- 5.2.3 The above (W1-W6) are outside the remit of this scheme but present opportunities the sponsor/Employer may wish to investigate further given new responsibilities on Ministers and Highway Authorities under the Active Travel (Wales) legislation.

### **5.3 Recommendations**

- 5.3.1 The following recommendations are made:

- The design team is to complete the appraisal of pedestrian and cyclist crossing options for Goat Roundabout and Meifod Roundabout - the resulting preferred design options to be subject to an NMU Audit Report Update
- Office of National Statistics (ONS) data (work, employment, mode of travel etc.) is combined with stated preference data to understand value for investment in the following:
  - Extending the scheme scope to investigate and assess options for connections between Bontnewydd and Caeathro

- Extending the scheme scope to investigate a the provision of NMU links between Caeathro and Cibyn Industrial Estate

5.3.2 In accordance with Guidance set out in HD/42/05, an NMU Audit should be undertaken at Completion of Construction including site visits during daylight and after dark.

5.3.3 Monitoring should be undertaken upon scheme opening in respect of NMU crossing movements and collisions within and in the vicinity of the scheme. Where appropriate, provisions for NMU should be re-visited accordingly.

**6 NMU AUDIT/ DESIGN TEAM STATEMENT**

6.1.1 I certify that this audit has been carried out in accordance with HD 42/05.

AUDIT TEAM LEADER:

Rob Jones

Signed:



Associate

1 Capital Quarter

Tyndall Street

Cardiff

CF10 4BZ

Date: 4<sup>th</sup> February

DESIGN TEAM LEADER

Neil Garton Jones

Signed



Associate, Highways

1 Capital Quarter

Tyndall Street

Cardiff

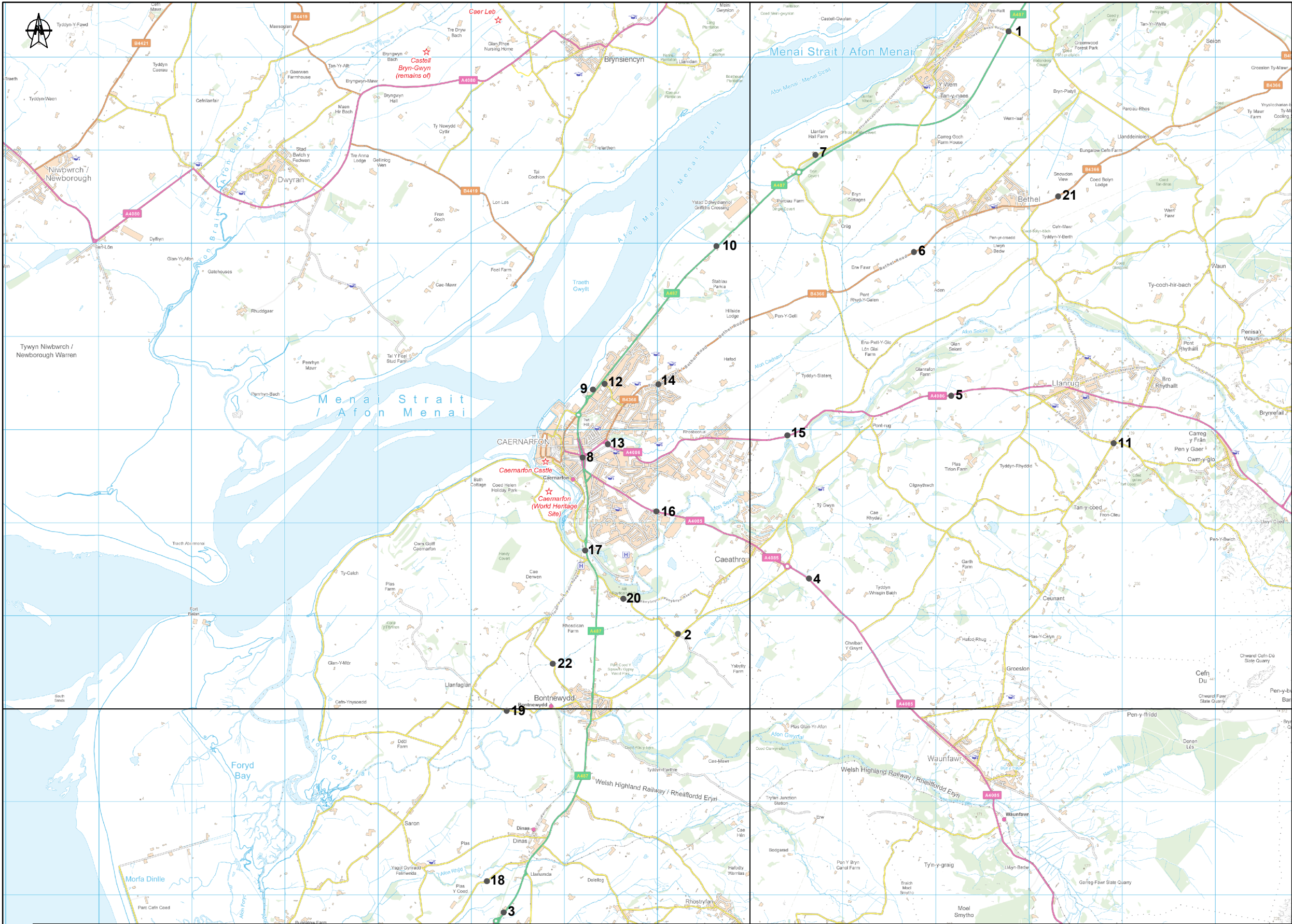
CF10 4BZ

Date: 4<sup>th</sup> February

## **Figure 1 – Automatic Traffic Count Locations**



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- NOTES
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  2. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.

- KEY
- ATC SURVEY LOCATIONS ( x22 )

REV	DATE	DESCRIPTION	BY	CHKD	APPD

• TITLE

**A487 CAERNARFON AND BONTNEWYDD BYPASS**

**ATC SURVEY LOCATIONS**



Ty Glyn, Canol Y Dre, Ruthin  
Denbighshire Tel: 01824 703661

• DATE 16/03/15  
• SCALE NTS

DRAWN BY G.Smith  
DESIGNED ---  
CHECKED C.Nichols  
APPROVED C.Nichols

• CONTAINER NUMBER  
3513874-PB-XX-XX-DR-TR-00003 | P02

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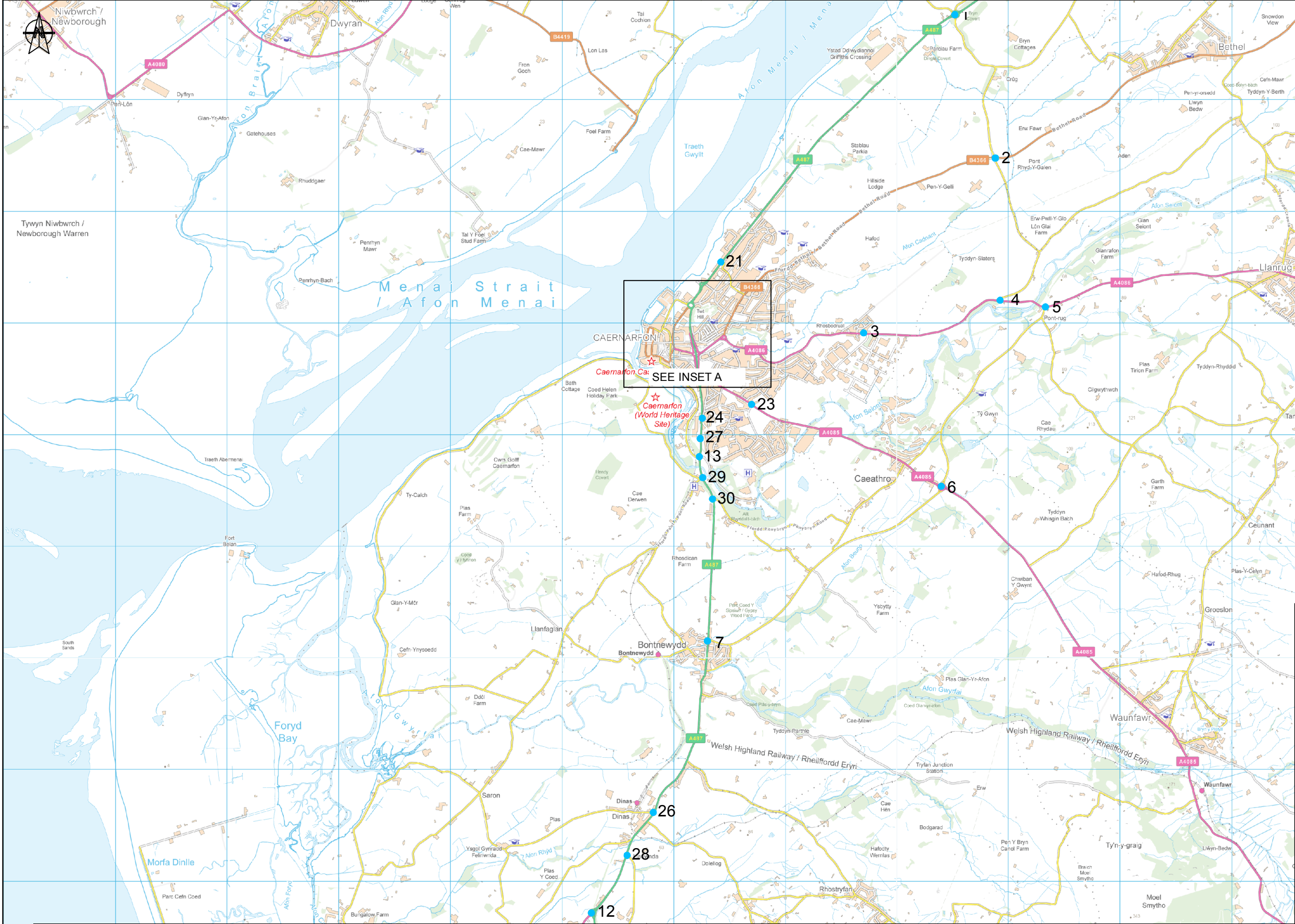
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Figure 1 - Automatic Count Locations

## Figure 2 – Manual Classified Count Locations

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NOTES

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KEY

- MCC SURVEY LOCATIONS ( x30 )

INSET A



REV	DATE	DESCRIPTION	BY	CHKD	APPD	TITLE
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A487 CAERNARFON AND BONTNEWYDD BYPASS

MCC SURVEY LOCATIONS



Llywodraeth Cymru  
Welsh Government  
EC HARRIS  
BUILT ASSET  
CONSULTANCY

RAMBOLL



Ty Glyn, Canol Y Dre, Ruthin  
Denbighshire Tel: 01824 703661

- DATE 16/03/15
- SCALE NTS

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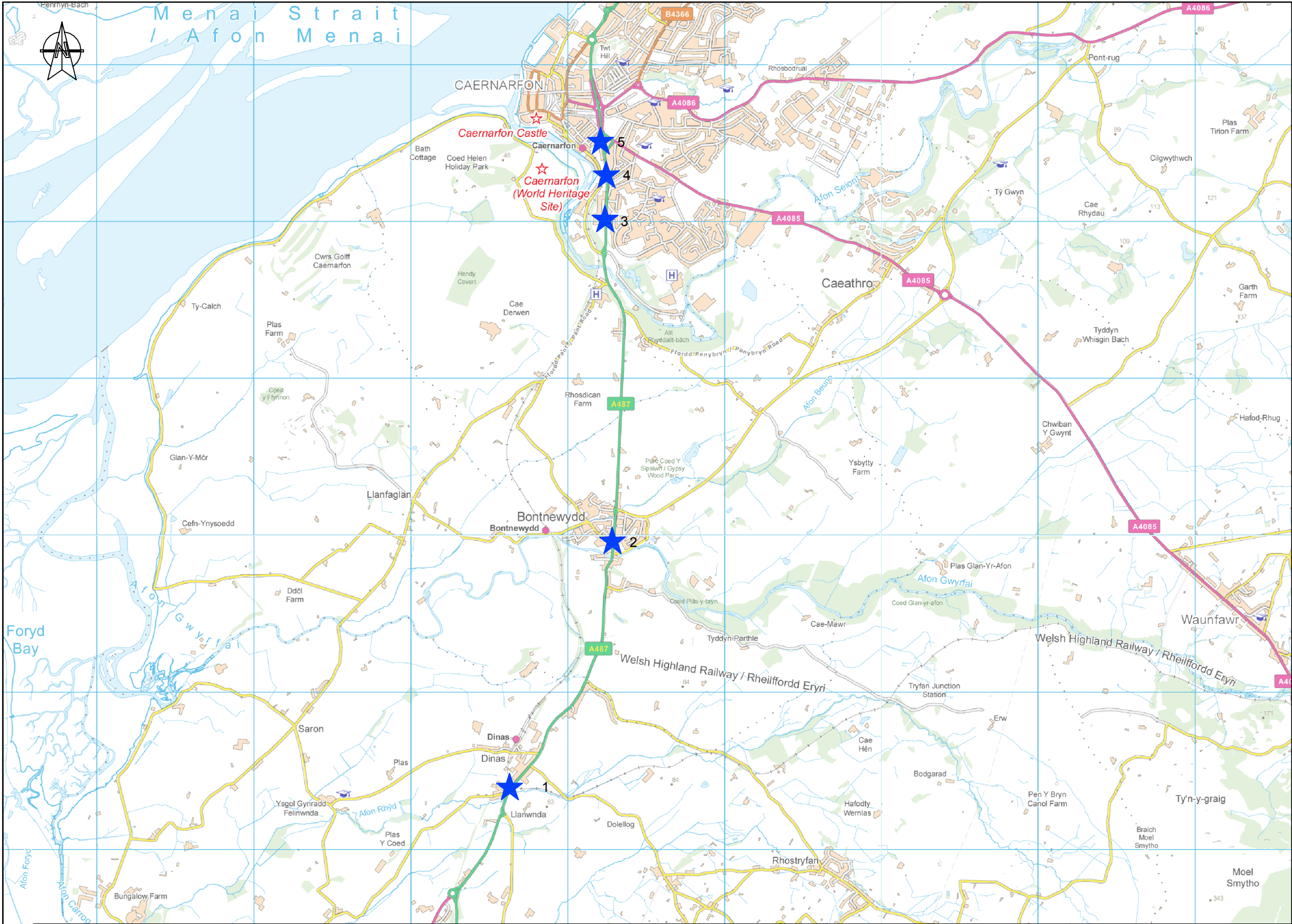
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Figure 2 - Manual Classified Count Locations

### Figure 3 - Pedestrian Crossing Survey Locations

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KEY

★ PEDESTRIAN CROSSING VIDEO SURVEY LOCATIONS ( x5 )

REV	DATE	DESCRIPTION	BY	CHKD	APPD	TITLE
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A487 CAERNARFON TO BONTNEWYDD BYPASS

PEDESTRAIN CROSSING POINTS



DATE	17/03/15	DRAWN BY	G.Smith
SCALE	NTS	DESIGNED	---
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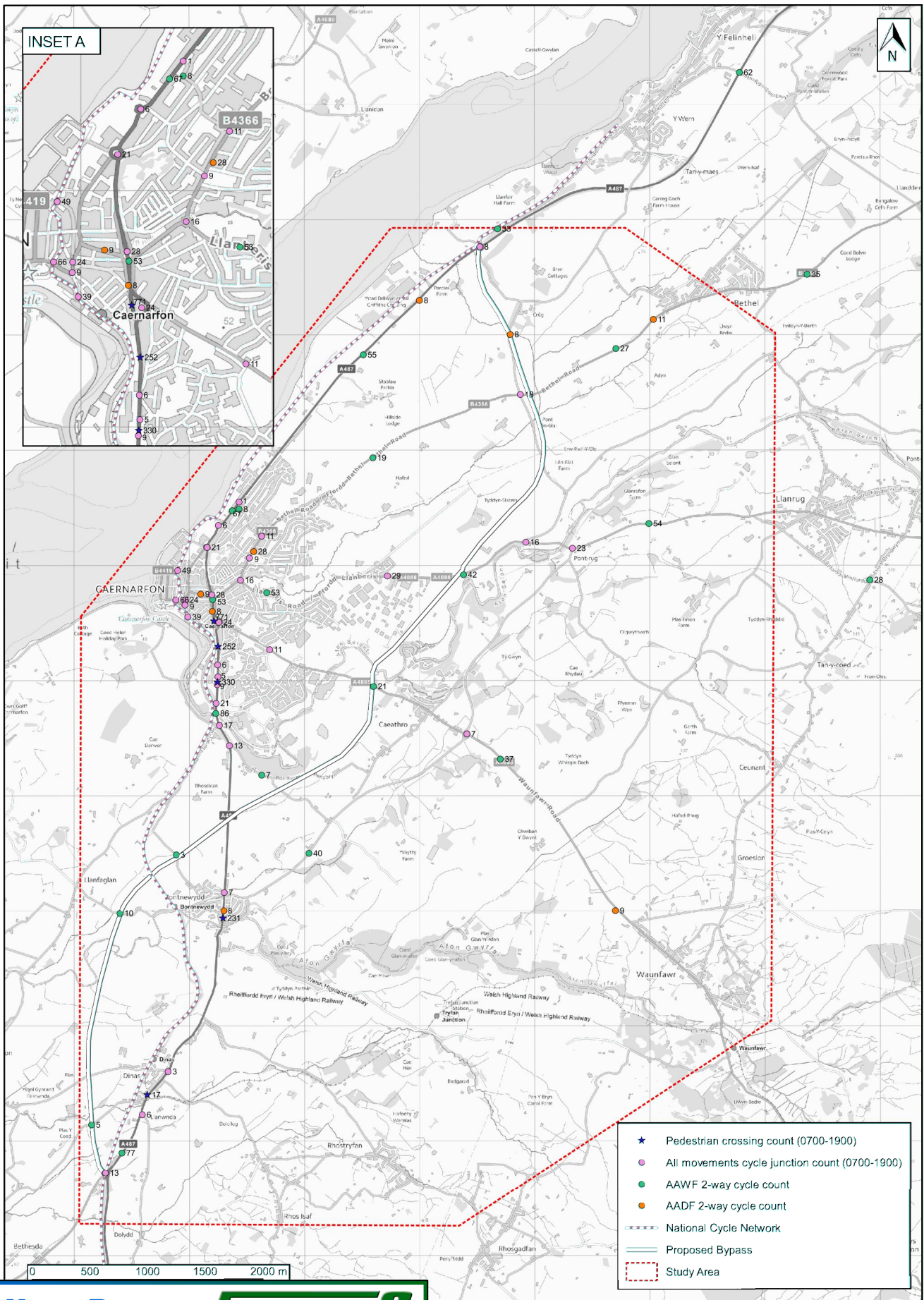
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Figure 3 - Pedestrian Crossing Locations



## Figure 4 – Walking and Cycle Usage (Updated from Context Report)

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**Balfour Beatty** **JONES BROS**  
CIVIL ENGINEERING UK

**PARSONS BRINCKERHOFF**



Ty Glyn, Canol Y Dre, Ruthin Denbighshire Tel: 01824 703661



Llywodraeth Cymru  
Welsh Government  
EC HARRIS  
BUILT ASSET  
CONSULTANCY  
**RAMBOLL**

Client/Project:

**A487 CAERNARFON TO BONTNEWYDD BYPASS**

Title:

**FIGURE 4 - WALKING & CYCLING USAGE**

Initial Status or WIP

Drawn: JR		Checked: RJ	
Designed: ---		Approved: RJ	
Date: 16/10/15	Scale: NTS	A4	Sheet:
Container Number:			Revision:
3513874-PB-ZZ-ZZ-DR-TR-00008			P01.1
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## Figure 5 – Layout Plan with Reference to Issues/ Actions Taken

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## **Appendix I.3 – Record of Consultation with Gwynedd Council**





**Date:** 10/02/2015

**Venue:** Gwynedd Council, Caernarfon

**Meeting title:** Non-Motorised User Audit

**Contract No:** 3513874A-HHC

**Purpose:** To get more information of the NMU network in the local area

**Present:**

Rob Jones	Parsons Brinckerhoff (PB)
Jess Railton	Parsons Brinckerhoff
Robin Perkins	Gwynedd Council (GC)
Dylan Wynn Jones	Gwynedd Council
Mark Roberts	Gwynedd Council

**Apologies:**

Item		Action and date required
1.	There are no form of cycle networks connecting Caethro to Caernarfon, Bontnewydd to NCN 8, Caernarfon and Caethro to the industrial park, or connecting towns outside the study area to Snowdonia.	<i>As part of the scheme, PB and GC look into proposing a better connection.</i>
2.	The new proposed link road could cause disruption to NCN 8, where it meets and crosses over the A487 at the Llanwnda roundabout. Currently, there is a splitter island allowing cyclists to cross the roundabout, however, when the new link road is built, there will be another major road to cross.	<i>Create several solutions to this problem in accordance to the Active Travel Guidance; will another splitter island be suffice? Will it be possible to go underneath the roundabout where the link road and NCN 8 meet the A487?</i>
3.	6 Public Right of Ways will be affected by the new bypass, however no agricultural crossings will be affected.	
4.	Sustrans will be completing their integrated network map by September.	<i>PB to follow up with Sustrans the date of completion.</i>
5.	The current shared use space in the centre of Caernarfon works well with traffic, however there are varying levels of public acceptance.	<i>N/A</i>
6.	Signal timings of junctions are maintained by Siemens, and data can be collected from Gwynedd Council.	<i>GC to provide signals data for the pelican crossings on the A48 to PB.</i>
7.	Count data: there is no permanent ATC data in the area, nor turning counts. There are a couple of cycle counters on NCN 8 from Countryside services.	<i>RB to provide PB with cycle count data if available.</i>
8.	There has been a previous NMU audit conducted by TMS, looking at the NCN 8 through the centre of Caernarfon	<i>GC to provide PB with the audit.</i>

9. Other key stakeholders identified are Sustrans, Welsh Highland Railway, any others?

*PB to get in contact with other key stakeholders.*

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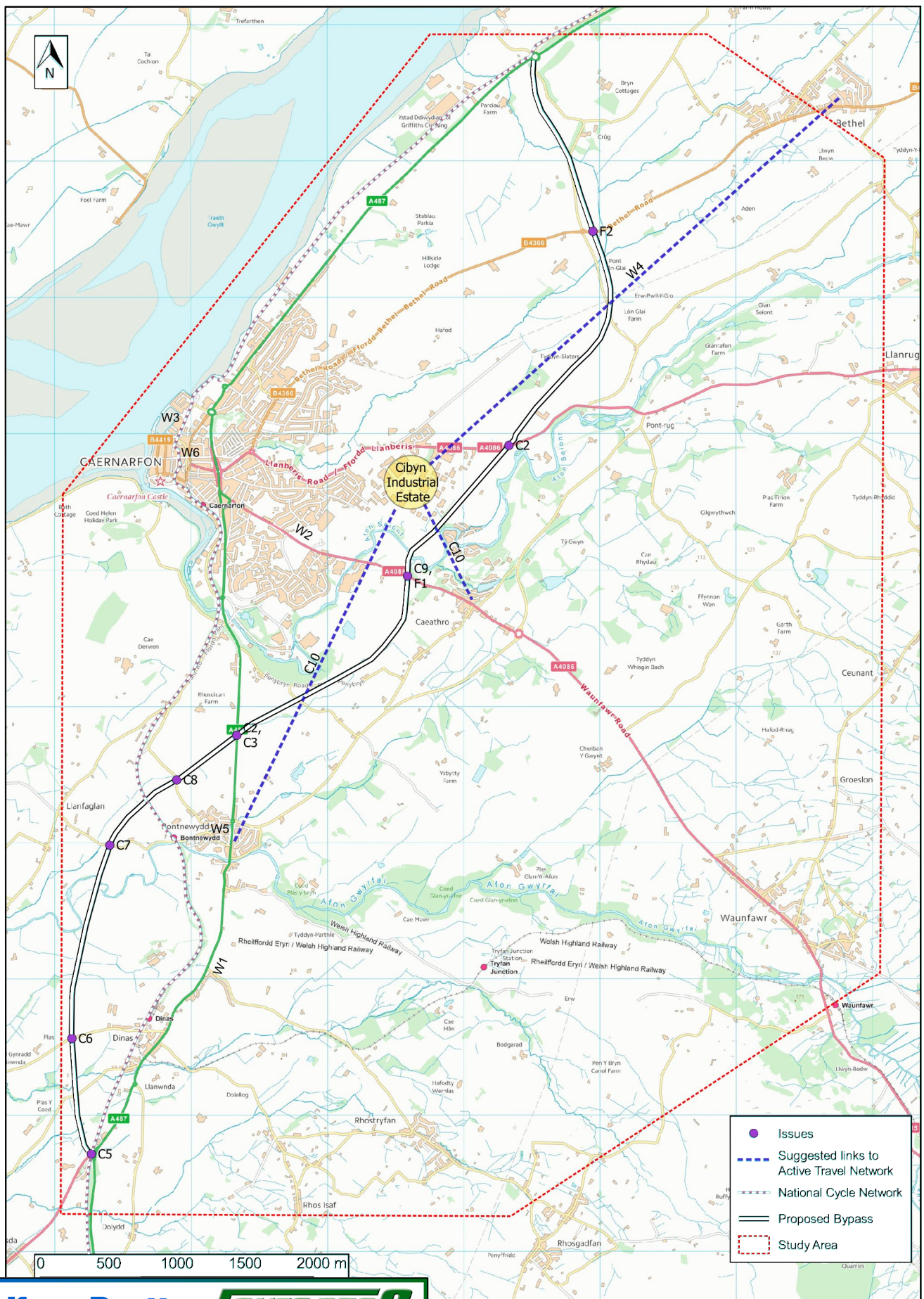
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Approved by:

Date:

Issued by:

Date:



**Balfour Beatty** **JONES BROS**  
CIVIL ENGINEERING UK

**PARSONS BRINCKERHOFF**



Ty Glyn, Canol Y Dre, Ruthin Denbighshire Tel: 01824 703661



Llywodraeth Cymru  
Welsh Government

EC HARRIS  
BUILT ASSET  
CONSULTANCY

**RAMBOLL**

Client/Project:

**A487 CAERNARFON TO BONTNEWYDD BYPASS**

Title:

**FIGURE 5 - LOCATION SPECIFIC  
NMU ISSUES / ACTIONS**

**Initial Status or WIP**

Drawn: JR		Checked: RJ	
Designed: ---		Approved: RJ	
Date: 16/10/15	Scale: NTS	A4	Sheet:
Container Number:			Revision:
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## **Appendix I.4 – Record of Consultation with Sustrans**



**Date:** 13/02/2015

**Venue:** Teleconference

**Meeting title:** Cycle Routes in Caernarfon

**Contract No:** 3513874A-HHC

**Purpose:** To further understand the cycle network in and around Caernarfon

**Present:** Rob Jones (RJ) Parsons Brinckerhoff  
Jess Railton (JR) Parsons Brinckerhoff  
Glyn Evans (GE) Sustrans

**Apologies:**

---

Item		Action and date required
1.	The main focus for Sustrans on the proposed A487 Caernarfon to Bontnewydd bypass scheme is not just improving and maintaining existing paths, but to create new cycle paths to benefit the cycling community. <ul style="list-style-type: none"><li>- A new cycle path on the bypass from Bontewydd to Caethro</li><li>- A new cycle path from Caethro to the Cibyn Business and industrial estate.</li></ul>	<i>RJ and JR to consult Sustrans during the design consultation.</i>
2.	GE suggested re-routing NCN on the right hand side of the Llanwnda roundabout. RJ suggested the potential to re-route NCN underneath the left hand side of this roundabout, from observations made on the site visit.	
3.	The online integrated network map is due to be completed by the end of March. Currently there is a problem with the website.	<i>GE to tell RJ and JR when the map is available.</i>
4.	GE defined other key stakeholders as CTC and Biker Bangor.	
5.	Sustrans are not involved with the proposed shared user path on the Bethel Road, set out in the North Wales Local Transport Plan.	

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Approved by:

Date:



Issued by:

Date:

<b>Subject</b>	<b>A487 Caernarfon By-pass - active travel enhancements</b>
<b>From</b>	<a href="#">Glyn Evans</a>
<b>To</b>	Jones, Robert L
<b>Cc</b>	Dylan Wynn Jones (Gwynedd C); Colin Jones (Gwynedd C); Railton, Jessica; Peris Jones (WG - Trunk Roads)
<b>Sent</b>	17 March 2015 14:51

Good afternoon Rob,

Thanks for the call a few weeks back to discuss the active travel options and enhancements for the above by-pass scheme.

I was in the Caernarfon area last week and so had a look at some of the possible enhancement areas as well as had some further discussions with Dylan Jones and Colin Jones at Gwynedd Council.

Please find below a list of possible active travel options and enhancements that could be delivered as part of the road scheme. Further work is needed to add detail to the proposals but I hope that this will provide something to work from.

As discussed on the phone this road scheme has the opportunity to open up areas of land where currently there are no active travel routes and so every opportunity should be taken to provide purposeful routes linking communities or key destinations.

On line enhancements:

- A487 Llanwnda – reduce A499 slip to single lane crossing point;
- Bontnewydd (current A487) to Caeathro road – improve shared use path and links;
- Caeathro road shared use path – localised improvements to existing path from Bontnewydd to Erw Wen (minor lane to Caeathro);
- Caeathro to new road (along Waunfawr Road/A4085) – shared use path;
- A4085 (new road) to A4086/Llanberis Road – shared use path alongside new road with links to Cibyn Industrial Estate/A4086/Llanberis; Road to Plas Menai roundabout – shared use path (using 'old road' where possible).

Off line enhancements:

- Widen Lon Eifion path – north of Llanwnda roundabout; south of Caernarfon access point; other local areas to be agreed;
- Lon Eifion to Slate Quay path – develop options for missing link between Lon Eifion & Lon Las Menai;
- Slate Quay / Waterfront / Doc Victoria – minor signing and route enhancements required.

If you need any further information on the above then please do not hesitate to contact me.

I look forward to hearing from you with further details of the NMU report as things progress.

Thanks, Glyn

**Glyn Evans**

Rheolwr Ardal, Gogledd a Chanolbarth Cymru  
Area Manager, North & Mid Wales

**Sustrans Cymru**

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