



Llywodraeth Cymru  
Welsh Government

PUBLICATION

# Roads Review Panel: Llanbedr access road and bypass

The panel's decision and recommendation about the Llanbedr bypass.

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## Introduction

The Deputy Minister for Climate Change asked the Chair of the Roads Review Panel to review the Llanbedr Access Road and Bypass (formally described as the “Llanbedr Access Improvements”) within four weeks of appointment of the Panel.

This review is separate to the remainder of the roads review. It is primarily

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focused on two questions specific to the Llanbedr scheme set out in the terms of reference:

- Question 1: Has sufficient consideration been given to non-transport solutions and solutions other than those increasing private car capacity on the road network?
- Question 2: Has sufficient consideration been given to whether the road proposal will lead to increased CO2 emissions on the road network, or cause significant impediment to achievement of our decarbonisation targets?

This review took place in parallel with the Panel developing its criteria for assessment of the road schemes in the remainder of the review. Where possible, consideration has been given to those emerging criteria.

This review of the Llanbedr scheme also took into account:

- Wales' **Well-being Goals**
- the new Wales Transport Strategy **Llwybr Newydd**
- **Future Wales**
- **Planning Policy Wales**
- the forthcoming Net Zero Wales **low carbon delivery plan**
- and the current review of the **WelTAG transport appraisal process**

The following principles and policies in Llwybr Newydd are especially relevant:

- the Sustainable Transport Hierarchy, which states that where new infrastructure is needed, investment decisions should first consider walking and cycling, followed by public transport, then ultra-low emission vehicles, and finally other private motor vehicles
- the commitment to deliver a significant reduction in greenhouse gas emissions from transport by reducing demand, supporting low-carbon services and infrastructure and through modal shift.

The Chair of the Roads Review Panel visited Llanbedr to see the location of the road scheme, and met the scheme promoter (Gwynedd Council), Aerospace Wales, and Welsh Government officials with responsibility for regional development, industrial transformation and transport infrastructure in North

Wales. A written representation was received from Cymdeithas Eryri / the Snowdonia Society. Source documents for the review are listed in [appendix 1](#).

The remainder of this review has five sections as follows: a brief description of the scheme; a review of the consideration given to non-transport solutions in the scheme's development; a review of the consideration given to solutions other than increasing private car capacity; a review of the consideration given to the effect of the road scheme on CO2 emissions; other relevant factors; and the Chair's conclusion.

## The scheme

The village of Llanbedr is on the A496 between Barmouth and Harlech, and lies within Snowdonia National Park. Llanbedr Airfield is about 1.5km west of the village along Mochras Road. The proposed scheme is a 1.5km north-south bypass to the west of Llanbedr, with two junctions with the A496 to the north and south of the village, and a grade-separated junction at Mochras Road to provide access from the bypass to the Airfield. The proposed new section of road has a "design speed" of 100kph (roughly 60mph). The northern half of the scheme is on an elevated structure where it crosses the flood plain of the Afon Artro; the southern half is in a cutting through the hill south of Mochras Road. The most recent (2018) cost estimate for the scheme is £15 million, although Gwynedd Council notes that increases in the cost of materials and land mean that the final cost will now be significantly more than £15 million. The scheme was the subject of a WelTAG Stage 1 study by Gwynedd Council and their in-house consultancy Ymgynghoriaeth Gwynedd Consultancy (YGC) in 2015.

A WelTAG Stage 3 study is presently being prepared by YGC for Gwynedd Council. Due to timing constraints, an invitation to tender for a two-stage "design and build" contract was issued to contractors by Gwynedd Council in advance of completion of the WelTAG Stage 3 study, on 14 June 2021. In discussion with Gwynedd Council officers, it became clear that there is flexibility to vary the design of the scheme from the current specification.

The rationale for the scheme is two-fold. The primary purpose of the scheme, as

set out in the WelTAG Stage 1 study, is to provide increased access for cars and HGVs to Llanbedr Airfield in order to facilitate development of the site. However, there is also an implied (but not explicitly stated) secondary rationale to reduce the negative impact of traffic on Llanbedr. This includes both existing traffic (which is worse during the holiday season, due to tourism traffic along Mochras Road to Shell Island campsite) and forecast future traffic due to development of the Airfield. The rationale for the scheme, and the objectives as listed in the WelTAG Stage 1 study, are described in [appendix 2](#).

## Consideration of non-transport solutions

Although non-transport solutions have become a stronger focus following the publication of Llwybr Newydd in March 2021, the appraisal guidance at the time of the WelTAG Stage 1 study of the scheme (WelTAG 2008) did outline that “in the early stages of the planning process, non-transport interventions should have been given thorough consideration, to establish whether they would constitute a better way of meeting defined objectives than a transport proposal.”

There is no specific reference to non-transport solutions in the WelTAG Stage 1 study. A key omission is that no consideration is given to limiting the development of the Airfield to aerospace activities while avoiding less specialist land uses that do not have to be at this car-dependent location.

The Economic Impact Assessment (EIA) for the road scheme, dated 2017, suggests that it should be considered as a part of a broader intervention to develop the Airfield. The EIA identifies a wide range of future uses for the Airfield including aerospace-related activities such as testing of remotely piloted aircraft systems (drones), and maintenance, repair and overhaul of aircraft; but also general uses, such as a business park for research and development and light industry, and a hotel.

The aerospace-related activities are forecast to generate fairly modest traffic flows, although possibly with some need for occasional delivery of large loads by HGV. The Traffic Impact Assessment (TIA), dated 2020, suggests that by far the largest traffic demand would be from the business park units, which are

estimated to generate 748 vehicle movements in the 0700-1000 morning peak period. A smaller number of vehicle movements are anticipated from a new hangar (186 vehicle movements between 0700 and 1000) and from a hotel (50 vehicle movements between 0700 and 1000). Traffic generated by a Space Flight Academy and visitor attraction is considered to be uncertain, and no forecast is given, but the TIA suggests vehicle movements as a result of these uses will be relatively modest and mostly outside peak periods.

The parking provision for the business park is put at 838 spaces. The TIA also notes that there is a large amount of land within the existing site, which could be used for additional parking if necessary. The TIA notes that the capacity of the new Access Road will “vastly increase” and that this will “remove the impact / effect this development will have on the A496 and Mochras Road”. The impression gained from the TIA is of a lack of attention to the need to minimise motorised traffic.

Gwynedd Council suggested that the TIA, which was commissioned from YGC by the leaseholder of the Airfield, was premised on assumptions about longer term development, and that in the shorter term, the development of the Airfield might be more limited. However, no plan has been formulated to limit development in the longer term.

The proposed road scheme is therefore catering for a scale and type of development of the Airfield that is difficult to justify in the context of the question posed in Future Wales of “Is this the right development in the right place?” Although Llanbedr Airfield has been identified as part of a Snowdonia Enterprise Zone, this designation is for its potential development for aerospace activities, not for more general uses. Llanbedr is in a rural location and lies outside the North Wales Regional Growth Areas identified in Future Wales. Development of a fairly large business park, with very significant parking provision, therefore appears incompatible with national policy, as set out in Future Wales and Planning Policy Wales.

Without the business park, it has not yet been demonstrated that the development of the Airfield requires a large increase in capacity of the Access Road and Bypass. It is possible that a more restricted development of the Airfield, solely for aerospace uses, would mean that access needs could be met

by other means: the existing road (with a traffic and freight management plan); an access road on a smaller- scale than the current scheme; or delivery via the sea or rail for occasional large and indivisible loads. All these options should be investigated more thoroughly before it can be assumed that the proposed scheme is the appropriate solution as regards access to the Airfield.

## Consideration of solutions other than increasing private car capacity

The long-list of options considered at the WelTAG planning stage comprised:

- 7 options for a bypass or a new link road between the A496 (either north or south of Llanbedr) and Mochras Road
- 7 options that modify the A496 / Mochras Road junction, or move it north or south to increase width or capacity, or install traffic lights to manage vehicle flows
- 2 options that widen Mochras Road or provide HGV passing bays
- 1 option to develop an existing emergency access to Llanbedr Airfield from the south, which would also provide access for HGVs
- 3 alternative freight access options: develop Llanbedr railway station to provide rail freight facilities, including rail access into Llanbedr Airfield; provide access for freight from a sea-based freight hub; and develop Llanbedr Airfield as an air freight hub
- 1 option to provide more car parking in Llanbedr (replacing on-road parking)
- 1 option to reduce traffic conflicts in Llanbedr through conventional traffic calming measures.

While the long-list of options considered was therefore extensive (with 22 options in all), it was largely focussed on options that have the effect of increasing capacity on the road network. It did not include demand management options that could reduce car traffic, options to support modal shift for existing trips, or options to encourage access to the Airfield by active travel and public transport.

Most of the long-list options were excluded at a very early stage. Given the

stated primary rationale of the road scheme is to improve access to the Airfield, with a particular focus on freight access, it might have been expected that thorough consideration would have been given to the options listed in 18(e) above, but there is no evidence of this being done. The WelTAG Stage 1 report does not explain the reasons for rejecting the options that were not short-listed.

A sub-set of the long-list was appraised against the scheme objectives listed in [appendix 2](#). This led to selection of four options for detailed consideration (all of which were combined with a fifth option of off-road car parking in Llanbedr to reduce the use of the A496 for on-road car parking). The four short-listed options were all road-based. The short-listed options were:

- Option 1: Two new link roads connecting Mochras Road with the A496 north and south of Llanbedr
- Option 2: Bypass Llanbedr to the west with the section of Mochras Road between the A496 junction and new bypass remaining open to all traffic
- Option 3: Bypass Llanbedr following the previous route announced in 1992
- Option 4: Bypass Llanbedr from the A496 lay-by on the southern approach to Llanbedr then follow the route of the railway line and access track north to Mochras Road
- Option 5 (implemented in combination with Options 1-4): Increased car parking in Llanbedr and parking restrictions on the A496 through the village
- Option 6: Do nothing.

Following completion of the WelTAG appraisal, Option 2 was identified as the preferred scheme.

The focus on road-based interventions reflects the policy context at the time (2015). However, the new policy context of Llwybr Newydd means it is necessary to investigate a wider range of solutions to Llanbedr's traffic problems, better aligned with the Sustainable Transport Hierarchy and more suited to achieving an increase in sustainable transport mode share. Some of these options might not have been considered to be available at the time of the WelTAG Stage 1 study, but the strengthened support for public transport and active travel from Welsh Government and Transport for Wales means that the context has significantly changed. Thus there are now new opportunities that were less available in the past, as well as a newly amplified imperative to reduce

carbon emissions.

Solutions that are now worth thorough assessment are described in [appendix 3](#). These solutions are predicated on the assumption that development of the Airfield should be restricted to aerospace uses, because its rural location makes it an inappropriate site for development of a business park that will generate large volumes of traffic. This means that the main outstanding problem to be addressed is the existing level of traffic through Llanbedr. In summary, solutions that could address this include:

- Option a) Sustainable tourism interventions to manage demand and reduce traffic flows during the holiday season
- Option b) Traffic calming and lower speeds in Llanbedr (revisiting this option from the long-list)
- Option c) Infrastructure to encourage mode shift from car to active travel for journeys along the A496 corridor
- Option d) Improvements in the frequency of bus services along the A496
- Option e) Development of remote working hubs to reduce the need for office-based workers to travel to their workplace every day
- Option f) Traffic management to avoid conflict between holiday traffic and freight traffic to and from the Airfield
- Option g) Potentially, in the medium term, a modestly-set road user charge or “Carbon Charge” in the area, after progress has been made on solutions (a) to (e). This would need to be implemented in the context of the wider Llwybr Newydd commitment to establish a framework for fair and equitable road user charging, and not before charging schemes had been implemented in other, less rural, areas of Wales. The money raised could provide ongoing revenue to support better public transport services and potentially also other important community services in rural areas, such as village schools.
- Option h) “Moving the road sideways”: closure of the A496 through Llanbedr for general traffic (except for vehicle access, and with a through route for cyclists and buses); construction of a low design speed bypass on which traffic would travel at similar speeds to those on the existing A496 north and south of Llanbedr (on average under 40mph), with a design that is more in keeping with the landscape (not requiring a cutting, embankment or grade-

separated junction). This would take traffic out of the village while ensuring no increase in overall traffic capacity, hence avoiding generating additional or “induced” traffic.

Option (h) should be considered a last resort, to be taken forward only if still necessary after the other options have been diligently implemented. This is for two reasons: because the other options have the potential to provide benefits along the whole A496 corridor between Barmouth and Harlech, rather than at a single location; and because the other options could benefit the whole population, including people who cannot drive as well as those who can.

## **Consideration of the effect of the road scheme on CO2 emissions and achievement of decarbonisation targets**

The WeITAG Stage 1 study was not able to quantify the effect of the Llanbedr road scheme on CO2 emissions, because the nature of the businesses that might be based at the Airfield was not known. It comments that improved traffic flow through Llanbedr village could lead to a reduction in CO2 emissions, and suggests that this may offset the (unknown) increase in emissions from traffic associated with the Airfield development. No evidence is presented to justify the assumption that the two effects may be similar in magnitude. On this basis, the effect of the road scheme on CO2 emissions is suggested to be neutral.

This qualitative assessment is unpersuasive for four reasons:

1. the road scheme is intended to open up Llanbedr Airfield for development, with the TIA suggesting there could be over 800 car parking spaces and at least 1,900 daily vehicle movements to and from the Airfield (that is, about 980 vehicle movements from 0700-1000, about 920 from 1600 to 1900, and an unknown but smaller number between 1000 to 1600). Given that all-day traffic flows on the A496 outside the summer holiday season are currently about 2,000-3,000 vehicles, this implies a significant increase in traffic along the A496 corridor compared to current levels: very approximately, it may

represent an increase in traffic of the order of 60% over the whole year. This would have a significant effect on CO2 emissions. Even smaller-scale development of the Airfield will increase traffic and therefore CO2. If, as has been suggested, the jobs at the Airfield are highly-skilled in specialist fields, it is likely that the site will draw employees from a large catchment area, resulting in long commuter distances.

2. although the proposed increase in capacity on the bypass is for a fairly short section of 1.5km, the marginal improvement in the speed and attractiveness of driving will cause some induced traffic from increased trip frequencies, mode shift from public transport or active travel to car, increased trip lengths, and higher car ownership. These effects may be difficult to measure individually, but the empirical evidence from repeated studies is that they nevertheless exist.
3. the proposed bypass has a design speed of 100kph (roughly 60mph), whereas the layout and width of the A496 north and south of Llanbedr is such that vehicle speeds are significantly lower (averaging 39mph). An increase in traffic speed from 40mph to 60mph would increase CO2 emissions by about 10 to 15%.
4. the CO2 emissions from land clearance, felling of mature trees, and embodied carbon in steel, concrete, asphalt and other materials used to build the new road, would be significant. These emissions have not yet been quantified.

Gwynedd Council officers accepted in discussion that the Access Road and Bypass will not reduce CO2, but suggested that the bypass may facilitate improvements for pedestrians and cyclists in future, hence potentially offsetting some of the CO2 impact. However, given that pedestrian and cyclist facilities are not a feature of the design, this is probably wishful thinking.

It therefore seems more likely than not that the scheme will increase CO2 emissions, making it more difficult for Wales to achieve its decarbonisation targets.

## Other relevant factors

In considering the criteria for assessment of the other road schemes under review, the Roads Review Panel has discussed the need for any scheme to be a robust solution in a range of different futures.

One question that the Panel intends to ask for all road schemes is whether the scheme is appropriate in a future with significant adverse impacts from climate change, such as coastal flooding. Gwynedd Council recognises that parts of the Llanbedr Airfield site are vulnerable to flooding, and the new [Natural Resources Wales Flood Map](#) shows part of the Airfield lies within Sea Flood Zone 3 (meaning that there is more than a 1 in 200 chance of flooding from the sea in a given year, including the effects of climate change). While the new Welsh Government [Technical Advice Note on development and flood risk \(TAN15\)](#) does not entirely rule out development in such areas, it suggests that development will only be justified in exceptional circumstances, such as in the interests of national security, energy security, public health, or to mitigate the impacts of climate change.

This means that the development of the northern part of the Airfield (the site of the proposed business park, Space Flight Academy, visitor attraction and conference facility) must be in doubt. If this development is less likely, the requirement for an Access Road is correspondingly less. The flood risk, and the planning implications, must be more thoroughly understood before it is appropriate to commit to the road scheme.

A further question is whether the road scheme risks harming, rather than benefitting, the local economy. If the Access Road and Bypass is built and aerospace investment does not follow, or is less than expected (or less than the “hype”), Llanbedr may be left worse off than before: with an access road to the wrong location; a bypass that takes through traffic away from the village, leading to closure of local shops and services because of loss of trade; and hence a net loss of local employment. This points to the importance of only committing funding to an Access Road after:

- a careful examination of what type of development is appropriate, taking into

account current planning policies; the forthcoming policies and commitments in Net Zero Wales; and the economic needs of the local area

- a degree of certainty that the appropriate development is economically feasible and likely to happen
- consideration of whether any other forms of transport investment might provide better value for money in terms of local economic benefits.

A final question is what might be the unforeseen consequences of the Access Road and Bypass elsewhere on the A496, if the Airfield development went ahead as proposed (with large-scale provision of car parking for business units as well as aerospace activity). As noted above, the traffic flow estimates in the TIA imply that the development could lead to a very significant increase in traffic along the A496 corridor. Even if this did not affect Llanbedr, because most of the additional traffic would be on the bypass, it would certainly adversely affect other communities along the A496, for which there are at present no plans for a bypass.

## Conclusions of the Roads Review Panel Chair

I very much appreciate the time that Gwynedd officers gave me, in order to explain the current position with regard to the Llanbedr access road and bypass. I particularly appreciate their openness to explore a variation of the proposed scheme. Many residents of Llanbedr will feel concerned if the scheme is cancelled and nothing else is done instead, and the view that “something must be done” to address the negative impact of traffic on the village is important to recognise. The desire of Gwynedd Council not to jeopardise some development of the Airfield is also understandable, perhaps especially when other factors, including but not limited to the flood risk, may be making that development seem uncertain.

That said, my view of the proposed scheme is that it does not align well with new Welsh Government transport and climate policy, and I do not advise that it is taken forward. My key concerns are:

- significant elements of the analysis appear to have started from the

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- presumption that the only solution is a new road and greater traffic capacity
- non-transport solutions did not receive sufficient consideration at the outset. In particular, there has been inadequate consideration of whether the scale of development envisaged at the Airfield is appropriate in this location
  - the potential for the access needs of the site to be met by a smaller access road, or a non-road option, has not been sufficiently considered
  - there has not yet been a thorough investigation of options that could reduce the negative impact of traffic in Llanbedr (and other villages along the A496) without increasing road capacity, through modal shift from car to public transport, walking and cycling
  - the assessment of the impact of the scheme on CO2 emissions is superficial and lacking in credibility
  - it seems more likely than not that the scheme will increase CO2 emissions due to induced traffic, higher speeds and embodied carbon, making it more difficult for Wales to achieve decarbonisation targets.

For Welsh Government, the Llanbedr scheme highlights the need for better alignment of policies on industrial transformation and regional economies with policies on transport and climate.

Although recommending that the scheme is not progressed, I believe there would be benefit in further discussion between Gwynedd Council and Welsh Government about an alternative package of measures to reduce the negative impact of traffic in Llanbedr and in other villages on the A496, while also encouraging modal shift and reducing CO2 emissions. If proposals for an appropriate scale of development of the Airfield become more defined, I also suggest that access options for the site, better aligned with new Welsh Government guidance in Llwybr Newydd and elsewhere, could be considered as part of that package of measures.

## Appendix 1: documents reviewed

Main documents reviewed, in date order:

- 2014: Llanbedr Aviation Centre and Enterprise Park Masterplan Arup for WG

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- 2015: WeITAG Stage 1 report
- 2016: Llanbedr Access Improvements NMU context report
- 2017: An Economic Impact Assessment for the A496 Llanbedr Access Improvement and Snowdonia Aerospace Centre Development (Wavehill)
- 2017: Llanbedr Access Improvement Design and Access Statement
- 2018: Business Plan Snowdonia Aerospace Centre, Llanbedr Airfield
- 2018: Snowdonia Enterprise Zone Llanbedr Hydraulic Modelling Report
- 2018: Snowdonia Enterprise Zone Strategic Plan 2018 to 2021
- 2020: Horizontal Spaceport Traffic Impact Assessment YGC
- 2021: Welsh Government Local Transport Capital Grants 2021 to 2022 application for Llanbedr access road
- 2021: (June) Llanbedr Roads Review Pro Forma
- 2021: (August) Short paper on Llanbedr Airfield and Space Plans Welsh Government
- 2021: (July) WEFO paper: Roads Review potential implications of delaying EU funded schemes
- 2021: (September) Letter from Cymdeithas Eryri / the Snowdonia Society to Roads Review Panel
- 2021: (September) Llanbedr Access Improvements: Paper prepared by Arcadis for the Roads Review

## Appendix 2: rationale for the proposed scheme

In considering the rationale for the scheme, two separate sets of issues arise:

- the future development of the airfield
- the impact of current traffic levels in Llanbedr

### Development of the airfield

Llanbedr Airfield was decommissioned in 2004. Since then, Gwynedd Council, Welsh Government and the leaseholder of the site (Snowdonia Aerospace Centre, SAC) have been exploring the potential for it to be developed for aerospace and other uses.

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There has been some evolution of the proposals for the site, and associated proposals for increased access, over the last eight years. From the documentation reviewed, and discussions with Welsh Government, Gwynedd Council, and Aerospace Wales, it appears that the scale of development, and the range of uses, is not yet fixed.

A Masterplan for Llanbedr Aviation Centre and Enterprise Park, commissioned by Welsh Government in 2014, identified a mix of future uses including aerospace uses, light industrial units, and a research and development technology park. The estimated parking requirement for these uses (an indicator of the likely traffic impact) was 640 spaces. The Masterplan noted that although the existing access along Mochras Road was used by HGVs, it was narrow and unsuitable for large vehicles. Three solutions were suggested, all more modest in scale than the current scheme: changes to the junction between Mochras Road and the A496 in the village; a new 770m access road from the A496 south of Llanbedr, following existing farm access roads; and a new 480m access road from the A496 north of Llanbedr, with an elevated structure to cross the flood plain of the Afon Artro. The access road from the A496 south of Llanbedr was identified as the preferred option.

The 2015 WelTAG Stage 1 report considered these three options, but rejected them in favour of the current (larger-scale) proposal for a Llanbedr Access Road and Bypass.

A 2017 economic impact assessment of the Access Road and Bypass, commissioned by Gwynedd Council, described its purpose as being to de-risk investment and development at the Airfield. The assessment includes several economic scenarios. For the road scheme as a standalone intervention, the economic impact is neutral: some existing businesses benefit (especially those located on the Airfield) but this is offset by some negative impact for businesses based in Llanbedr. In a scenario in which the road scheme was accompanied by development of the Airfield for remotely piloted aircraft systems (RPAS, i.e. drones), there is a net increase of 25 jobs locally (36 jobs Wales-wide). In a scenario in which the road scheme was combined with more significant development at the Airfield (RPAS, Spaceport offering spaceflights, a visitor centre, satellite launching and supporting infrastructure, and a business park of related industries), there is a net increase of 59 jobs locally (97 Wales-wide).

A business plan submitted to the Welsh European Funding Office (WEFO) by the leaseholder, SAC, in 2018 suggested 165 jobs might be accommodated at the Airfield (in addition to 45 jobs already at the site), and that the business park might accommodate 31 SMEs (in addition to 11 SMEs already at the site).

A Traffic Impact Assessment (TIA) of the development was commissioned by SAC in 2020, and undertaken by YGC, a consultancy run by Gwynedd Council. It describes the proposals as a “Horizontal Spaceport” including a Space Flight Academy, visitor centre, conference facility, technology business park, 60-bed hotel and new hangar. The parking requirement for the technology business park is put at over 800 spaces. The TIA notes that the capacity of the new Access Road and Bypass will “vastly increase” and that this will “remove the impact / effect this development will have on the A496 and Mochras Road”. Most of the predicted increase in traffic is from the business park units, which are expected to generate 748 vehicle movements in the 0700-1000 morning peak period. A further 186 vehicle movements are expected from the hangar, and 50 vehicle movements from the hotel (0700-1000). A similar volume of traffic is expected to be generated by these premises in the 1600-1900 afternoon peak period. Traffic generated by the Space Flight Academy and visitor centre is considered to be uncertain, but relatively modest and mostly outside peak periods.

Recently, SAC has gained a ‘Test and Evaluation’ designation from the Civil Aviation Authority, and secured a change of airspace allowing direct access from the Airfield to an area of segregated airspace over Cardigan Bay. The process for applying to the Civil Aviation Authority for a spaceport licence opened in July 2021, and a paper prepared by Welsh Government for this Roads Review states that SAC intends to apply as soon as possible. It was suggested by Welsh Government officials that if the application is successful, it could quickly open the way for SAC to operate as a spaceport for horizontal launch. Gwynedd Council was somewhat more cautious in its assessment of the likely rate of development of the site, noting a hope that there might be significant development of the site in the next 10-20 years.

Gwynedd Council also noted differences between what they perceived as SAC’s view of how the site should be developed (which included letting out business units as a commercial landlord) and the council’s view, which was that the site should only be used for specialist activities and developed on a smaller scale.

Both Welsh Government industrial transformation officials and Gwynedd Council see the site as well-positioned to be a research, development, test and evaluation centre for aerospace-related activities. Both sets of officials think that the Access Road and Bypass will increase the attractiveness of the site for business; that future activities on the site may require occasional access for wide loads; and that the Access Road and Bypass is therefore an enabler of development.

However, from the documents reviewed, and discussions with Welsh Government and Gwynedd Council, it appears that the plans for the site are still somewhat uncertain. The sense that past (arguably grandiose) proposals may no longer be appropriate, and a lack of clarity about the intentions of the leaseholder, mean that it is quite hard to be sure that the Access Road is necessary, or indeed that it will have the effect of attracting private sector investment to the site.

## **Impact of current traffic levels in Llanbedr**

There have been proposals for a bypass of Llanbedr since the 1950s. In 1992, Gwynedd Council proposed a 7.3m wide single carriageway bypass to take traffic out of the village, passing between the village and Llanbedr Airfield, but this scheme was not progressed.

The WelTAG Stage 1 report (2015) notes that traffic through the village is constrained by the listed stone bridge over the Afon Artro and by on-road car parking. During the holiday season, traffic volumes on the A496 and on Mochras Road to Shell Island give rise to traffic delays and congestion. The narrow bridge and parked cars have the effect of reducing the speed at which vehicles pass through the village, but speed data nevertheless suggests some vehicles exceed the 30mph limit. There are a number of small shops on the A496 in the centre of the village, and consequently a level of pedestrian activity. Footways on both the A496 and Mochras Road are discontinuous and inadequate. The limited road width also means that there is no provision for cyclists, despite National Cycle Network Route 8 passing through the village.

Traffic flows on the A496 through the village are about 2,000-3,000 vehicles per

day in winter, but about 5,500 vehicles per day in August (2015/16 data, which was the most recent available for this review). There is also a substantial increase in traffic along Mochras Road in the summer, to access Shell Island camp site: the WelTAG Stage 1 report notes traffic flows along Mochras Road of 150 vehicles per day in November, compared with about 2,000 vehicles per day in August (2006 data). Thus the traffic problem is greatest in the (fairly short) holiday season. Most of the traffic passing through Llanbedr on the A496 is cars, with a relatively small number of HGVs (about 200 per day). The Access Road and Bypass is predicted to reduce the traffic passing through Llanbedr by about 90%.

## Scheme objectives

The WelTAG Stage 1 report lists the transport planning objectives of the Llanbedr scheme as follows:

- reduce traffic congestion at the Mochras Road/A496 junction
- reduce the negative impact of traffic on the community of Llanbedr
- improve transport connectivity to and from Llanbedr Airfield
- improve the efficiency and reliability of all transport to and from Llanbedr Airfield
- improve the actual and perceived safety of travel for all travellers within Llanbedr and along Mochras Road
- improve freight transport access to and from Llanbedr Airfield
- improve travel opportunities for pedestrians and cyclists within Llanbedr and along Mochras Road
- minimise the impact of transport improvements on local environmental and heritage features
- be resilient to local effects of climate change, particularly future increases in flood events.

## Appendix 3: options that could address transport issues in Llanbedr

This appendix describes a range of solutions to the problems that the Access Road and Bypass is intended to address. It is indicative of possible solutions that are worth investigation, and that may form part, or all, of an appropriate development of the travel network in this rural area to solve existing problems while also reducing CO2 emissions.

These solutions would align closely with national priorities as set out in Llwybr Newydd, and would also align with the Wales Well-being Goals and Gwynedd Council's own Well-being Objectives. They could have beneficial effects beyond Llanbedr itself, potentially reducing the negative impact of traffic on other villages on the A496, such as Tal-y-Bont and Dyffryn Ardudwy.

### Interventions to reduce traffic during the holiday season

Seasonal traffic flows might be addressed through an area-wide sustainable tourism strategy (as is currently being considered in the northern area of Snowdonia National Park). This would benefit not only Llanbedr, but also other villages along the A496. Drawing on initiatives elsewhere in Wales and the UK, the sort of options that could form part of such a strategy include Fflecsi buses serving primary tourist destinations such as Shell Island (similar to those now being offered by Transport for Wales in the Llŷn Peninsula and Pembrokeshire); free park and ride hubs in key regional towns such as Barmouth and Porthmadog; greater use of visitor charges to provide a revenue stream for improved public transport (e.g. a toll for non-residents using Mochras Road in the summer); rebranding of Llanbedr railway station (e.g. "Llanbedr for Shell Island") to establish a greater sense of geographic understanding; provision of a shared use segregated path next to Mochras Road, to provide a better link from the station to Shell Island for pedestrians and cyclists; a "last mile" bus from the station to Shell Island campsite, timed to connect with trains; and incentives or discounts for those travelling to Shell Island by sustainable modes. By encouraging visitor travel by sustainable modes, this type of strategy would

benefit the local economy, as visitors travelling by public transport or active travel would be more likely to shop locally than visitors arriving by car. This type of strategy for managing visitor travel is common (and effective) in many European visitor destinations; it has also been used to good effect in the UK in the New Forest National Park and elsewhere.

## **Traffic calming and lower speeds in Llanbedr**

Traffic calming and speed restrictions could reduce the adverse impact of traffic in Llanbedr. Changes that could be considered include a default 20mph speed limit along the A496 within Llanbedr village and along the residential sections of Mochras Road; design of the road environment to prioritise and give space to the needs of people who are shopping, walking, cycling or accessing premises, and to send a visual signal to drivers that they are a “guest”; traffic lights to manage alternating one-way traffic flow through the village, or use of “yellow box” road markings to manage the junction between Mochras Road and the A496; and extension of existing on-street parking restrictions further away from the Afon Artro bridge and junction with Mochras Road.

## **Infrastructure to encourage mode shift from car to active travel**

Like other local authorities, Gwynedd Council has recently consulted on its Active Travel Network Maps for the main settlements in the county. It is apparent from the consultation that there is also a desire for safe active travel routes between smaller settlements along the A496. A safe walking and cycling path between Harlech and Barmouth (and connecting across Barmouth Bridge with the Mawddach Trail to Dolgellau) would meet this need. To be suitable for all users, it would need to be physically separated from traffic.

This would benefit both residents and visitors. It would align with the commitment in the Welsh Government Rural Transport Offer to give every village safe cycling access to the nearest town.

## **Improvements in the frequency of public transport services along the A496 corridor**

Current bus services are infrequent, with seven buses per day from Llanbedr northwards to Harlech, and seven buses per day southwards to Dolgellau. Bus times do not align well with commuting times. Train services on the Cambrian Rail Line are timed for the needs of school pupils (although the line is currently closed for major works on Barmouth Bridge), but provide only very limited options for commuter travel. This means that people living in Llanbedr do not have good public transport options for travel to work, or for shopping and other purposes. Transport for Wales is currently undertaking analysis to develop improved, more frequent bus services on networks in other areas of North Wales (initially Ynys Môn and northern Snowdonia), and a similar exercise would be beneficial for the corridor between Barmouth and Porthmadog.

This would help meet the commitment in the Welsh Government Rural Transport Offer to develop public transport service frequency standards for every village and town, based on population. It is worth noting that in similar rural areas in some other European countries, services for villages like Llanbedr would be more frequent, would start earlier and finish later, and would run to the same frequency on Sundays as on Monday – Saturday.

## **Development of remote working hubs to reduce the need for office-based workers to travel to their workplace every day**

Welsh Government has set a target for 30% of all employees to work from home, or a hub close to home, on a regular basis, and is trialling remote working hubs. Development of remote working hubs in Harlech, Porthmadog and Barmouth (and potentially also 'micro-hubs' in villages along the A496) could reduce the number of people travelling to work by car along the A496.

## **Management of freight traffic to and from the Airfield**

If there is a need for occasional delivery of large freight loads to the Airfield these could be scheduled to avoid using the A496 / Mochras Road at times of day / week / month when there will be heavy holiday traffic. More thorough investigation of non-road (i.e. rail, sea) options for freight deliveries to the Airfield should also take place, once the freight requirements (frequency and size of load) for future uses of the Airfield are more fully defined.

## **Modestly-set road user charge**

In the medium term, after progress has been made on the solutions noted above so that residents and visitors have better alternatives to driving, a modestly-set road user charge, or “Carbon Charge” could be introduced. This would need to be implemented in the context of the wider Llwybr Newydd commitment to establish a framework for fair and equitable road user charging. It might involve differential charges for residents and visitors, with the money raised being used to provide benefits such as better public transport services, and potentially also to support important community services, such as village schools.

Like the plastic bag levy, which has significantly reduced the number of single-use plastic bags sold by supermarkets while also raising money for good causes, this would encourage people to think about their travel options, and to use alternatives where possible.

## **“Moving the road sideways”: closure of the A496 through Llanbedr and construction of a low speed bypass**

The layout and width of the proposed bypass is designed to allow vehicles to travel at speeds of 100kph (roughly 60mph). In discussion, Gwynedd Council suggested it would be possible to redesign the Access Road and Bypass, with a lower “design speed” (that is, a different layout and width), that would result in drivers travelling at speeds more like those on the A496 north and south of

Llanbedr, where the average speed is 39mph. This might enable a design that was more in keeping with the existing landscape, without a cutting, embankment and grade-separated junction. To ensure that there was no increase in overall road capacity, it would be combined with closure of the A496 through Llanbedr for general traffic (except for vehicle access, and with a through-route for cyclists and buses).

This would avoid generating additional or “induced” traffic. Keeping vehicle speeds to around 40mph instead of 60mph would also avoid increased carbon emissions. Gwynedd Council suggested that the cost of such a scheme would be significant, and so it should be thought of as a last resort once other solutions have been tried.

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