

# ENVIRONMENTAL STATEMENT (VOLUME II)

## Chapter 16 – Traffic and Transport

### **Padeswood Carbon Dioxide Spur Pipeline Proposed Development**

Town and Country Planning Act 1990

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## 16. TRAFFIC AND TRANSPORT

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### 16.1. INTRODUCTION

16.1.1. This Chapter considers the likely significant effects of the Padeswood Spur Pipeline Proposed Development on the environment in respect of Traffic and Transport, and describes:

- Relevant, legislation, policy and guidance;
- Consultation undertaken;
- Assessment methodology;
- Baseline conditions;
- Potential effects of the Construction, Operational and Decommissioning Stages;
- Potential design, mitigation and enhancement measures;
- Residual effects; and
- Next steps.

16.1.2. This chapter (and its associated figures and appendices) is intended to be read as part of the wider Environment Statement (ES), with particular reference to **Chapter 3 – Description of the Padeswood Spur Pipeline Proposed Development** (Document Reference: PW.3.2.3), **Chapter 5 – EIA Methodology** (Document Reference: PW.3.2.5), **Chapter 14 – Noise and Vibration** (Document Reference: PW.3.2.14) and **Chapter 18 – Combined and Cumulative Effects** (Document Reference: PW.3.2.18).

16.1.3. This Chapter is also accompanied by **Appendix 16.2 – Transport Assessment (TA)** (Document Reference: PW.3.3.16.2), **Appendix 16.3 – Interim Worker Travel Plan** (Document Reference: PW.3.3.16.3), **Outline Construction Traffic Management Plan (OCTMP)** (Document Reference: PW.4.2.) and **Outline Public Rights of Way (PRoW) Management Plan (OPRoWMP)** (Document Reference: PW.3.3.16.7).

### 16.2. LEGISLATIVE AND POLICY FRAMEWORK

16.2.1. A summary of the international, national, and local legislation, planning policy and guidance relevant to the Traffic and Transport assessment is set out below.

## LEGISLATIVE FRAMEWORK

### The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017

- 16.2.2. The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 governs the process of Environmental Impact Assessment in the context of town and country planning in Wales.

### The Highways Act 1980

- 16.2.3. The Highways Act 1980 sets out the management and maintenance of highways and defines the various responsible authorities.

### The Road Traffic Act 1988

- 16.2.4. The Road Traffic Act 1988 covers the correct and appropriate use of vehicles on the road in the UK, concerning licencing of vehicles, insurance and road regulation.

### The New Roads and Street Works Act 1991

- 16.2.5. The New Roads and Street Works Act 1991 outlines a code of Practice for the Co-ordination of Street Works and Works for Road Purposes and Related Matters.

### The Traffic Management Act 2004

- 16.2.6. The Traffic Management Act 2004 places a duty on local authorities to make sure traffic moves freely and quickly on their roads and the roads of nearby authorities and outlines the measures for doing this when works are being undertaken.

### The Road Vehicles (Construction & Use) Regulations 1986

- 16.2.7. The Road Vehicles (Construction & Use) Regulations 1986 ensure that vehicles are made to high standards, to ensure that such standards are maintained while in use and that they are roadworthy.

### The Road Vehicles (Authorised Weight) Regulations 1998

- 16.2.8. The Road Vehicles (Authorised Weight) Regulations 1998 concern the licensing, insurance, and road regulation for vehicles associated with transporting goods, and set out maximum authorised axle weights.

## POLICY

### National

- Planning Policy Wales (PPW) Edition 12 (Welsh Government, 2024);
- The National Development Framework: Future Wales – The National Plan 2040 (Welsh Government, 2021); and

- Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security and Net Zero, 2023).

#### Local

- Flintshire Local Development Plan (2015-2030) (Flintshire County Council, 2023); and
- North Wales Joint Local Transport Plan (North Wales Local Authorities, 2015).

### GUIDANCE

#### National

- Technical advice note (TAN) 18: transport (Welsh Government, 2007);
- Guidelines for the Environmental Assessment of Traffic and Movement (IEMA, 2023);
- Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993);
- Transport Evidence Bases in Plan Making and Decision Making (Ministry of Housing, Communities, and Local Government, 2015);
- DMRB LA 112 – Population and Human Health. (DMRB, 2020);
- DMRB LA104 – Environmental assessment and Monitoring. (DMRB, 2020);
- DMRB Volume 11 Section 3 Part 8 Environmental assessment. Environmental assessment techniques. Pedestrians, cyclists, equestrians and community effects (DMRB, 1993);
- Transport Analysis Guidance (TAG) – The Transport Appraisal Process (Department for Transport, 2018);
- TAG Unit A3 – Environmental Impact Appraisal (Department for Transport, 2024);
- TAG Unit A4.1 – Social Impact Appraisal (Department for Transport, 2022)
- TAG Unit M1.2 – Data Sources and Surveys (Department for Transport, 2024);
- Trip End Model Presentation Programme (TEMPro) v8.1 (Department for Transport, 2024);
- Guide to Lorry Types and Weights (Department for Transport, 2013);

## **16.3. SCOPING OPINION AND CONSULTATION**

### RESPONSE TO THE SCOPING OPINION

- 16.3.1. An EIA Scoping Opinion was received by the Applicant from Flintshire County Council (FCC) on 8 May 2024, which included formal responses

from Statutory Consultees. The responses from FCC in relation to Traffic and Transport, and how these requirements should be addressed by the Applicant, are set out in **Appendix 1.3 Scoping Opinion Responses** (Document Reference: PW.3.3.1.3).

#### CONSULTATION UNDERTAKEN TO DATE

- 16.3.2. **Table 16-1** provides a summary of the consultation undertaken to date to inform the Traffic and Transport assessment.

**Table 16.1 - Summary of Consultation Undertaken**

Organisation	Meeting dates and form of consultation	Summary of outcome of discussions
Flintshire County Council	Teleconference on 5 December 2024	Meeting with the FCC Access Officer covered initial proposals for each affected PRow along the pipeline. The officer provided insights into their status, usage and importance. These comments were considered by the Applicant to refine interventions in the OPRoWMP.



## **16.4. SCOPE OF THE ASSESSMENT**

16.4.1. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5 – EIA Methodology (document reference: PW.3.2.5)** of this ES.

16.4.2. This Section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

### **ELEMENTS SCOPED OUT OF THE ASSESSMENT**

16.4.3. The following elements are not considered to give rise to likely significant effects as a result of the Padeswood Spur Pipeline Proposed Development and have therefore not been considered within this assessment.

#### Operational and Maintenance Stage

16.4.4. The Padeswood Spur Pipeline Proposed Development will be unmanned. Therefore, operation and maintenance, will not result in any significant traffic and transport effects. Traffic generated the Operation and Maintenance Stages will typically relate to infrequent maintenance activities that will have an imperceptible impact upon the operation of the Traffic and Transport network. Therefore, the Operation and Maintenance Stage of the Padeswood Spur Pipeline Proposed Development has been scoped out of the assessment.

#### Decommissioning Stage

16.4.5. Decommissioning of the Padeswood Spur Pipeline Proposed Development at its end of life has been excluded from the assessment. Only Above Ground Installations and above ground pipeline sections will require decommission. These activities will not generate a notable volume of traffic, these will not be expected to occur until a significant number of years into the future, at such a time when future baseline conditions will be very different, and difficult to predict accurately at this time.

#### Construction Stage

16.4.6. The effects of additional traffic on diversion routes have not been assessed. The assessment also does not consider the impact of construction traffic at each temporary access locations. The justification for scoping out these elements is presented in **Appendix 16.1 – Methodology (document reference: PW.3.3.16.1)**.

16.4.7. The delivery of Abnormal Indivisible Loads (AILs) may be required at working locations. When 'D6' bulldozers (or similar) are being

transported between working locations they will have the front blades attached. In this configuration they will exceed the defined wide load category and will fall in the abnormal load category (having a width of more than 2.90 m). The transportation of D6 bulldozers are the only ALLs that are foreseen to be required for the Padeswood Spur Pipeline Proposed Development. The use of abnormal loads will be undertaken in accordance with Government guidance (National Highways, 2024).

- 16.4.8. Abnormal loads are not considered within this assessment and will be assessed under separate cover by the Construction Contractor prior to construction.

## ELEMENTS SCOPED INTO THE ASSESSMENT

### Construction Stage

- 16.4.9. There are a range of potential traffic effects that could be caused by the Padeswood Spur Pipeline Proposed Development without, or prior to, the implementation of mitigation measures. These potential traffic effects are limited exclusively to the construction of the Padeswood Spur Pipeline Proposed Development.
- 16.4.10. The scoping process identified the potential for temporary effects due to increases in traffic flow (i.e. Increases in Light Goods Vehicle (LGV) and Heavy Goods Vehicle (HGV) Traffic) and changes to traffic composition (i.e., increased proportion of HGVs) through construction.
- 16.4.11. The assessment identifies whether the construction of the Padeswood Spur Pipeline Proposed Development will result in the following environmental effects: Severance, Driver Delay, Pedestrian Delay, Pedestrian Amenity, Fear and Intimidation, and Highway Safety.
- 16.4.12. The full methodology which has been used to assess the effects are presented in **Appendix 16.1 – Methodology** (Document Reference: PW.3.3.16.1).

## **16.5. ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA**

### ZONE OF INFLUENCE

- 16.5.1. Traffic and Transport effects are considered within the Zone of Influence (Zoi). This is a Study Area that includes areas of the Traffic and Transport network that could be impacted by the Padeswood Spur Pipeline Proposed Development. The Zoi for the Traffic and Transport EIA is presented in **Figure 16.1 Traffic and Transport Zone of Influence and Survey Locations** (Document Reference: PW.3.4.16.1).

- 16.5.2. Construction traffic will need to access working areas and Construction Compounds through temporary access points. All roads and junctions within the Zol fall under the control of FCC and North and Mid Wales Trunk Road Agency (NMWTRA).
- 16.5.3. The Zol was identified during the scoping stage and is based on the professional judgement as to the extent to which Traffic and Transport effects may materialise. This is in line with the Guidelines (IEMA, 2023) which state that Zols should include road links based on two rules of thumb, described as follows:
- Rule 1: Include highway links where total traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
  - Rule 2: Include any specifically sensitive areas where traffic flows are predicted to increase as a consequence of a development by 10% or more. Sensitive areas may be defined as locations near to more vulnerable user groups, such as school children, people with disabilities or the elderly, or accident black spot areas, roads at or near capacity, or links with high pedestrian flow.
- 16.5.4. In determining the Zol, consideration has been given to the principle that impacts will be direct or indirect. Direct impacts will occur where the Padeswood Spur Pipeline Proposed Development crosses, or is located along, a key transport feature, such as a road or rail line. Indirect impacts will occur where construction traffic uses the existing highway network and thereby increases traffic volumes and potentially the proportion of HGVs. The Zol primarily reflects where indirect effects may be experienced on road links.

## METHOD OF BASELINE DATA COLLECTION

### Desk Study

- 16.5.5. A desktop study has been undertaken to inform the understanding of baseline Traffic and Transport conditions. This included the use of the following online resources:
- Google Maps Service (Google, 2024));
  - Google Earth Pro (Google, 2024);
  - FCC 'Spectrum Spatial' Mapping Service (Flintshire County Council, 2024);
  - DfT 'Countpoint' Road Traffic Statistics (Department for Transport, 2024);
  - Sustrans' National Cycle Network Map (Sustrans, 2024);
  - FCC Active Travel Integrated Network Map (Flintshire County Council, 2017);

- Welsh Government Network Map. (Traffic Wales, 2024); and
- ‘CrashMap’ Personal Injury Accident Online Service (Crashmap, 2024).

16.5.6. The desktop exercise involved the identification of relevant Traffic and Transport related infrastructure and receptors. It considered the suitability of roads to cater for HGV and LGV traffic, the location of PRow and Cycle Routes, the location of personal injury accidents, and network constraints including weight and height limits at bridge crossings. Using the above, and professional judgement, several locations were identified as being appropriate to collect baseline traffic count data. This is discussed further below.

#### CrashMap Data

16.5.7. Personal Injury Accident (PIA) data has been sourced from the Crashmap database (Crashmap, 2024) for the most recently available five-year period for which data is available (2018-2022) along all of the identified construction traffic routes.

16.5.8. All PIA locations for this time-period are presented in **Figure 16.2 Personal Injury Accident Locations (Document Reference: PW.3.4.16.2)**. The assessment of PIA on construction traffic routes for the Padeswood Spur Pipeline Proposed Development is presented within the **TA (Document Reference: PW.3.3.16.2)**.

#### Site Visits and Surveys

16.5.9. Site visits were carried out at various road links within the Zol, considering the Red Line Boundary for the Padeswood Spur Pipeline Proposed Development.

16.5.10. Site visits were carried out on 11 June 2024 at relevant Padeswood Spur Pipeline Proposed Development locations to understand any local constraints, and to establish baseline traffic conditions.

16.5.11. Automatic Traffic Count (ATC) surveys have been undertaken to provide 24-hour, 14-day period flows, as well as traffic speed information. Data was collected in the form of classified counts inclusive of LGVs and HGVs.

16.5.12. ATC surveys were carried out between 26 June and 9 July 2024.

16.5.13. The ATC data is classified so that the proportions of LGVs and HGVs may be derived in accordance with TAG Unit M1.2 (Department for Transport, 2024), which recommends that traffic flows are derived using a ‘neutral’ month (for example, a month that is unlikely to feature school holidays). The ATC surveys were carried out outside of the school holidays in FCC.

- 16.5.14. All ATC locations which captured traffic data within the Padeswood Spur Pipeline Traffic and Transport Zol are presented in **Figure 16.1 Traffic and Transport Zone of Influence and Survey Locations** (Document Reference: PW.3.3.16.1).

#### DfT Countpoint Data

- 16.5.15. Additional traffic flows data have been sourced from the DfT Countpoint Road Traffic Statistics for the following locations:
- A5119 between B5126 and Hall Lane (DfT Count Point 40666);
  - A494 Mold Road Bypass, between A5119 and A541/A549 (DfT Count Point 40572); and
  - A494, between A5119 and A55 (DfT Count Point 99779).

#### Third-party Traffic Data

- 16.5.16. Traffic data have been sourced from transport assessment in other planning applications available in public domain to validate baseline traffic flows in the following locations:
- Bryn Lane; and
  - Bryn-y-Baal Road

### IMPACT ASSESSMENT METHODOLOGY

- 16.5.17. The following are the key parameters for the Traffic and Transport assessment:
- Baseline and Future Baseline HGV and LGV traffic flows for construction traffic routes;
  - Forecast LGV and HGV Proposed Project peak year traffic flows;
  - Construction traffic routes and access locations (embedded mitigation); and
  - Sensitivity of highway links along construction traffic routes.
- 16.5.18. Each of these is required for the assessment and is set out in detail within this the **Baseline Conditions (Section 16.6)** of this Chapter.
- 16.5.19. The full methodology which has been used to calculate the effects of the Padeswood Spur Pipeline Proposed Development for Traffic and Transport are presented in **Appendix 16.1 – Methodology** (Document Reference: PW.3.3.16.1).

### ASSUMPTIONS AND LIMITATIONS

- 16.5.20. To ensure transparency within the EIA process, the following limitations and assumptions have been identified. Some of these assumptions

have been adopted to ensure that the assessment is robust and represents a reasonable worst-case scenario:

- Construction traffic volumes have been estimated based upon the Preliminary Design and based on working experience of similar projects.
- All HGV and LGV construction traffic is assumed to originate from the Trunk Road Network (TRN) and will route along prescribed construction traffic routes; and
- All vehicle movements quoted are assumed to be two-way; i.e. 40 movements will consist of 20 inbound and 20 outbound trips.

## **16.6. BASELINE CONDITIONS**

### **EXISTING BASELINE**

#### Highway Network

- 16.6.1. The highway network within the Zol comprises a range of roads of varying classification, from the trunk road network A55 and A494, to unclassified single-track rural lanes.
- 16.6.2. Broadly speaking, roads may be categorised as being within the TRN or Local Road Network (LRN). The TRN comprises the trunk road network. These routes are not managed at the local authority level and are instead the responsibility of the NMWTRA on behalf of the Welsh Government. These routes will form the entry and exit points for construction traffic within the Zol; construction routes have been identified to find the most appropriate routes along the LRN to the TRN from Construction Compounds and other working areas.
- 16.6.3. The TRN within the Zol is comprised of the A55 and the A494. All other non-TRN routes are categorised as being within the LRN. These routes are managed and maintained by FCC.
- 16.6.4. The Zol and baseline conditions presented below, are informed by likely preferred construction traffic routes.
- 16.6.5. Construction routes have been identified based upon their suitability to accommodate HGV and LGV traffic. For the purposes of assessment HGVs are defined as any vehicle exceeding 3.5 t gross weight. This process is set out in the **OCTMP (Document Reference: PW.4.2)**. As far as reasonably practicable, HGV routes will maximise use of the TRN. Proposed construction traffic routes for LGVs and HGVs are presented in **Figure 16.3 Construction Traffic Routes (Document Reference: PW.3.4.16.3.)** and are summarised in **Table 16-2**.

**Table 16.2 - Construction Traffic Routes**

Reference	Description	Access Type	Route
CTR 1	A5118 (Padeswood Cement Works)	Internal trips between Centralised Compound and Pipeline / Padeswood AGI	A5119, A494, A541, A5118
CTR 2	South of A5118 (adjacent to Padeswood Cement Works)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118
CTR 3	North of A5118 (opposite Padeswood Cement Works)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118
CTR 4	North of A5118 (west of Padeswood Cement Works)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118
CTR 5	Padeswood Road South (east)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118, Padeswood Road South
CTR 6	Padeswood Road South (west)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118, Padeswood Road South
CTR 7	Rose Lane (east)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118, Rose Lane
CTR 8	Rose Lane (west)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118, Rose Lane
CTR 9	A5118 (off Wylfa Roundabout)	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541, A5118
CTR 10	A549	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541 Chester Road

Reference	Description	Access Type	Route
CTR 11	A541 Chester Road	Internal trips between Centralised Compound and Pipeline	A5119, A494, A541 Chester Road, Road between A541 Chester Road and
CTR 12	Bryn-y-Baal Road (south)	Internal trips between Centralised Compound and Pipeline	A5119, Bryn Lane, Bryn-y-Baal Road
CTR 13	Bryn-y-Baal Road (north)	Internal trips between Centralised Compound and Pipeline	A5119, Bryn Lane, Bryn-y-Baal Road
CTR 14	A494 (south)	Internal trips between Centralised Compound and Pipeline	A5119, A494
CTR 15	A494 (north)	Internal trips between Centralised Compound and Pipeline	A5119, A494
CTR 16	A5119 (compound exit)	External trips from Centralised Compound	A5119, A494
CTR 17	A5119 (compound entrance)	External trips to Centralised Compound	A5119, A494
CTR 18	Unnamed Road (off Alltami Road)	Internal trips between Centralised Compound and Pipeline	A5119, A494, Alltami Road
CTR 19	B5125	Internal trips between Centralised Compound and Pipeline / Northop Hall AGI	A5119, A494, Alltami Road, A5119, B5125, B5126

16.6.6. Sensitivity of Highway Links along construction routes is also a key parameter for this assessment. This is detailed further in **Section 16.7**.



### Baseline Traffic Flows

- 16.6.7. Baseline traffic flows have been established through ATC surveys and DfT statistics. Baseline traffic flows are presented in **Appendix 16.4 – Baseline Traffic Data** (document reference: PW.3.3.16.4).

### Highway Safety

- 16.6.8. All PIA locations are presented in **Figure 16.2 Personal Injury Accident Locations** (document reference: PW.3.3.16.2). The assessment of PIA on construction traffic routes for the Padeswood Spur Pipeline Proposed Development is presented within the **TA (Document Reference: PW.3.3.16.2)**.

### Walking and Cycling

- 16.6.9. There are several Public Rights of Way (PRoW) within the Zol comprising footpaths, bridleways, restricted byways and byways open to all traffic that are expected to interact with the Padeswood Spur Pipeline Proposed Development.
- 16.6.10. There are also instances where PRoWs are impacted by the proposed construction traffic routes. This is reflected in the link sensitivities summarised in **Table 16-4** and subsequent assessment of environmental effects in these locations.
- 16.6.11. Where PRoWs are crossed by the Padeswood Spur Pipeline Proposed Development, diversions, temporary closures, or proposed sequencing of works are to be implemented, these are illustrated in the **Outline (PRoW) Management Plan (Document Reference: PW.3.3.16.7)**.
- 16.6.12. The impact on PRoWs within a 500 m radius of the Padeswood Spur Pipeline Proposed Development has been considered within **Chapter 15 – Population and Human Health (Document Reference: PW.3.2.15)**.
- 16.6.13. Further consideration of the mitigation of impacts at PRoWs is provided in the **OCTMP (Document Reference: PW.4.2)** and the **Outline PRoW Management Plan (Document Reference: PW.3.3.16.7)**.
- 16.6.14. The Zol includes several cycle routes not on the National Cycle Network linking National Cycle Route (NCR) routes. These are a mix of traffic-free and on-road routes. These routes will also be considered regarding exposure to construction traffic, link sensitivities, impacts and mitigation.
- 16.6.15. Interaction with the Padeswood Spur Pipeline Proposed Development and associated construction traffic is not limited to crossing locations and will consider effects along the links themselves. This is reflected in the link sensitivities summarised in **Table 16-4** and subsequent assessment of environmental effects in these locations.

### Future Baseline

- 16.6.16. The future baseline scenario has considered the construction works of Padeswood Carbon Capture Project to commence prior to the Padeswood Spur Pipeline Proposed Development commencing. It is understood that the peak construction activities of Padeswood Carbon Capture Project are not foreseen to overlap with the peak construction activities of the Padeswood Spur Pipeline Proposed Development. Construction and operational traffic of Padeswood Carbon Capture Project has been accounted for the future baseline scenario to ensure a robust assessment.
- 16.6.17. A review of information from **Chapter 7 – Climate Resilience (Document Reference: PW.3.2.7)** has also been undertaken to confirm the Future Baseline has assessed any impacts within the context of climate change.
- 16.6.18. To establish the future baseline conditions on the highways, traffic growth factors have been extracted from the TEMPro database (Department for Transport, 2024) to estimate the traffic growth within the Zol between 2024 (when the ATCs surveys took place), and 2027, which is anticipated to be the year where peak construction activities will commence. The assessment is based on a peak year of construction traffic activity which is assumed to commence in September 2026 and end in February 2028.
- 16.6.19. Growth factors have been extracted using the following parameters:
- Scenario: Regional (as aligned to the geographic area);
  - Geographical Area(s): Flintshire; and
  - Time Period: Average day (as aligned to the ATC data and proposed working hours).
- 16.6.20. **Table 16-3** presents the extracted growth factors for each road type.

**Table 16.3 - TEMPro Growth Factors**

Period	Category	Factor
2024-2027	Trunk	1.0271
	A Road	1.0177
	Minor	1.0189

- 16.6.21. As **Table 16-3** shows a variety of factors have been obtained from TEMPro to reflect the location and category of link comprising each construction traffic route. This includes roads categorised as 'Trunk', 'A Roads' and 'Minor' (i.e. B Roads and below).

16.6.22. The 2027 future baseline flows for the construction routes are presented in **Appendix 16.4 – Baseline Traffic Data (Document Reference: PW.3.3.16.4)**.

Assessment of HGVs and LGVs

16.6.23. Forecast traffic flows for HGVs and LGVs have been taken from information provided by The Applicant. Forecast construction traffic is presented in **Appendix 16.5 – Future Year Traffic Data (Document Reference: PW.3.3.16.5)**.

Highways Schemes

16.6.24. The Welsh Government announced a freeze on new road building schemes in the country in June 2021 (Welsh Government, 2021) this includes the proposed A55/A494/A548 Flintshire Corridor (Red Route) scheme (Welsh Government, 2024). At the time of writing this ES there have been no further updates to this announcement from the Welsh Government. The original, now delayed, programme indicated that the Padeswood Spur Pipeline Proposed Development will be operational prior to commencement of construction of the Flintshire Corridor (Red Route) Scheme. The proposed scheme will therefore not coincide with the Construction Stage of the Padeswood Spur Pipeline Proposed Development. This scheme has therefore not been accounted for in this assessment contained within this Chapter.

16.6.25. No other highways schemes have been identified for consideration within the Traffic and Transport assessment of the Padeswood Spur Pipeline Proposed Development.

Committed Development

16.6.26. The following committed developments have been identified that are anticipated to contribute to the future baseline traffic beyond background traffic growth:

- Residential development of 90 dwellings on New Brighton Road (Approved Application, FCC Ref. No. 063507).
- Argoed High School Redevelopment (Approved Application, FCC Ref. No. 063496).
- Residential development of 235 no. units together with associated public open space and infrastructure (Approved Application, FCC Ref. No. 061994).

## **16.7. SENSITIVE RECEPTORS**

- 16.7.1. A full description of sensitive receptors within the Traffic and Transport is presented in **Appendix 16.1 – Methodology (Document Reference: PW.3.3.16.1)** and summarised below.
- 16.7.2. For the purposes of the Traffic and Transport assessment, a receptor is defined not as the affected person or group of people, but by the link they are using at the time.
- 16.7.3. To expand on this, an individual cyclist might use multiple routes, some of which experience varying degrees of change to traffic flows as a consequence of the Padeswood Spur Pipeline Proposed Development. It is considered inappropriate to take the highest degree of traffic flow change experienced by the cyclist and conclude that this is the impact of the Padeswood Spur Pipeline Proposed Development, when there may be multiple routes used by the cyclist that have a considerably lower degree of change in traffic flows.
- 16.7.4. Each link (or, in the case of longer links with changing characteristics, each section of link), has been given an overall level of sensitivity based on the character and the presence of certain receptors ('Built Environment Indicators') along the link. Based on the criteria outlined in **Appendix 16.1 – Methodology (Document Reference: PW.3.3.16.1)** each of the highway links allocated as construction routes for the Padeswood Spur Pipeline Proposed Development have been assigned an overall link sensitivity.
- 16.7.5. The assigned sensitivity for each link, including a description of the reasons for its sensitivity, is presented in **Table 16-4**.

**Table 16.4 - Assigned Link Sensitivity**

Link Reference	Link	CTR	Sensitivity	Rationale
1	A5118, West of Padeswood Drive (A5118-1)	CTR 1	Low	No direct residential frontage
2	A5118, near Laburnum Cottage (A5118-2)	CTR 1, CTR 2 and CTR 3	Low	No direct residential frontage
3	A5118, West of Padeswood Road South (A5118-3)	CTR 1 to CTR 6	Low	No direct residential frontage
4	Padeswood Road South	CTR 5 and CTR 6	Medium	Residential frontage and high community activity
5	A5118, West of Rose Lane (A5118-4)	CTR 1 to CTR 8	Low	No direct residential frontage
6	Rose Lane	CTR 7 and CTR 8	Low	No direct residential frontage, no footpath and minimal activity
7	A5118, West of Alyn Lane (A5118-5)	CTR 1 to CTR 8	Low	Employment area suited in accommodating HGV trafficflow, wide geometry
8	A541, West of Tyddyn Farm	CTR 1 to CTR 9	Low	No direct residential frontage
9-a	A549 Mold Road - East of Pipeline (A549-1)	CTR 10	High	Residential frontage, kerbside activity and 20mph speed limit
9-b	A549 Mold Road - West of Pipeline (A549-2)	CTR 10	Low	No direct residential frontage with wide geometry
10	Road between A541 Chester Road and Argoed Hall Lane	CTR 11	Medium	Narrow road geometry and Cygnet Delfryn House access
11-a	A541 Chester Road - West of Pipeline (A541 Chester Road - 1)	CTR 11	Medium	Residential frontage with wide geometry
11-b	A541 Chester Road - East of Pipeline (A541 Chester Road -2)	CTR 11	Low	Employment area suited in accommodating HGV trafficflow, wide geometry
12	Bryn Lane	CTR 12 and CTR 13	High	Residential frontage and 20mph speed limit
13	Bryn-y-baal Road	CTR 12 and CTR 13	Low	No direct residential frontage
14-a	A5119 - West of New Brighton Road (East of Compound) (A5119-1)	CTR 1 to CTR 19	Low	No direct residential frontage
14-b	A5119 - West of New Brighton Road (West of Compound) (A5119-2)	CTR 1 to CTR 19	Medium	Proximity to residential area with wide geometry
15	Alltami Road, West of Bryn Offa Lane (Alltami Road-1)	CTR 18 and CTR 19	Low	No direct residential frontage
16	Alltami Road, West of Alltami Brook (Alltami Road-2)	CTR 18 and CTR 19	Low	No direct residential frontage
17	B5125, East of Smithy Lane (B5125-1)	n/a	Medium	Residential frontage with wide geometry
18	B5125, West of Highfield Hall (B5125-2)	CTR 19	Low	No direct residential frontage
19	B5126 Connah's Quay Road 1, West of A55 (B5126-1)	CTR 19	Medium	Proximity to residential area with wide geometry

Link Reference	Link	CTR	Sensitivity	Rationale
20	B5126 Connah's Quay Road 2, East of A55 (B5126-2)	n/a	Low	No direct residential frontage
21	A5119 between B5126 and Hall Lane	CTR 19	Medium	Proximity to residential area with wide geometry
22	A494 Mold Road Bypass, between A5119 and A541/A549	CTR 1 to CTR 11, CTR 16 and CTR 17	Low	No direct residential frontage
23	A494 Mold Road, between A5119 and A55	CTR 14 to CTR 19	Medium	Proximity to residential area with wide geometry

## **16.8. DESIGN DEVELOPMENT, IMPACT AVOIDANCE AND EMBEDDED MITIGATION**

- 16.8.1. Mitigation measures have been identified and incorporated into the Preliminary Design of the Padeswood Spur Pipeline Proposed Development to minimise environmental impacts ('Embedded Mitigation'). In relation to Traffic and Transport, mitigation by design has included the selection and specification of temporary access points off the public highway. Construction traffic routes have been selected to reduce, where possible, traffic effects on links that will be more sensitive to changes in traffic volumes, due to the presence of built environment indicators used by sensitive affected parties. Further description of the selection of construction traffic routes is presented in the OCTMP (Document Reference: PW.4.2).

## **16.9. ASSESSMENT OF LIKELY IMPACTS AND EFFECTS**

- 16.9.1. This Section details the preliminary assessment of predicted impacts and effects for the Padeswood Spur Pipeline Proposed Development during the Construction Stage.
- 16.9.2. The assessment is structured across two stages, the first being a calculation of effects based on the methodology outlined in **Appendix 16.1 – Methodology (Document Reference: PW.3.3.16.1)**. The second stage (**Section 16.12**) considers the residual effects based on the calculated effects (**Section 16.9**), consideration of proposed mitigation measures (**Section 16.10**), and professional judgement in reaching a conclusion.

### **SIGNIFICANT EFFECTS**

- 16.9.3. This Section describes the potential Traffic and Transport effects that could occur as a result of the Padeswood Spur Pipeline Proposed Development in the absence of mitigation. There is the potential for environmental effects where affected parties are exposed to increases in LGV and HGV traffic through their proximity to a construction traffic route. As described in **Appendix 16.1 – Methodology (Document Reference: PW.3.3.16.1)**, the presence of affected parties is determined by the presence of Built Environment Indicators (BEI). The presence of BEI has, in turn determined the link sensitivities presented in **Table 16-4**.

Having assigned construction traffic along proposed construction traffic routes and considered the magnitude of impacts against the sensitivity of each link, there are a range of potential traffic effects that

could be caused by the Padeswood Spur Pipeline Proposed Development prior to mitigation. These are described in in **Table 16-5**.



**Table 16.5 - Magnitude of Environmental Effects**

Link Reference	Link	Link Sensitivity	Magnitude				
			Severance	Fear and Intimidation	Pedestrian Amenity	Driver Delay	Pedestrian Delay
1	A5118-1	Low	Negligible	Negligible	Negligible	Negligible	Negligible
2	A5118-2	Low	Negligible	Negligible	Negligible	Negligible	Negligible
3	A5118-3	Low	Negligible	Negligible	Negligible	Negligible	Negligible
4	Padeswood Road South	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
5	A5118-4	Low	Negligible	Negligible	Negligible	Negligible	Negligible
6	Rose Lane	Low	High	Negligible	Negligible	High	Negligible
7	A5118-5	Low	Negligible	Negligible	Negligible	Negligible	Negligible
8	A541, West of Tyddyn Farm	Low	Negligible	Negligible	Negligible	Negligible	Negligible
9-a	A549-1	High	Negligible	Negligible	Negligible	Negligible	Negligible
9-b	A549-2	Low	Negligible	Negligible	Negligible	Negligible	Negligible
10	Road between A541 Chester Road and Argoed Hall Lane	Medium	High	Negligible	Negligible	High	Negligible
11-a	A541 Chester Road - 1	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
11-b	A541 Chester Road -2	Low	Negligible	Negligible	Negligible	Negligible	Negligible
12	Bryn Lane	High	Low	Negligible	Negligible	Low	Negligible

Link Reference	Link	Link Sensitivity	Magnitude				
			Severance	Fear and Intimidation	Pedestrian Amenity	Driver Delay	Pedestrian Delay
13	Bryn-y-baal Road	Low	Low	Negligible	Negligible	Low	Negligible
14-a	A5119-1	Low	Medium	Negligible	Negligible	Medium	Negligible
14-b	A5119-2	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
15	Alltami Road-1	Low	High	Negligible	Negligible	High	Negligible
16	Alltami Road-2	Low	Medium	Negligible	Negligible	Medium	Negligible
17	B5125-1	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
18	B5125-2	Low	Medium	Negligible	Negligible	Medium	Negligible
19	B5126-1	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
20	B5126-2	Low	Negligible	Negligible	Negligible	Negligible	Negligible
21	A5119 between B5126 and Hall Lane	Medium	Negligible	Negligible	Negligible	Negligible	Negligible
22	A494 Mold Road Bypass, between A5119 and A541/A549	Low	Low	Negligible	Negligible	Low	Negligible
23	A494 Mold Road, between A5119 and A55	Medium	Negligible	Negligible	Negligible	Negligible	Medium

- 16.9.4. Profiles of estimated construction traffic volumes across the construction programme are presented in the **Appendix 16.5 – Future Year Traffic Data (Document Reference: PW.3.3.16.5)**.
- 16.9.5. Given the rural location of much of the Padeswood Spur Pipeline Proposed Development, several very lightly trafficked highway links are proposed to be used as temporary construction traffic routes **Figure 16.3 Construction Traffic Routes (Document Reference: PW.3.4.16.3)**. Given that the ES is based on percentage increases in traffic, even small increases – in absolute numbers of vehicles and HGVs can result in high magnitudes of impacts. Where a low baseline of traffic exists on a link this is discussed in determining residual effects in **Section 16.11**.
- 16.9.6. Furthermore, it is important to note that the IEMA guidelines (IEMA, 2023) do not distinguish between temporary and permanent changes in traffic flows, whereas, in reality, short duration increases are likely to be more tolerable than permanent increases, and therefore less significant.
- 16.9.7. Therefore, although the level of effect is initially reported for peak month traffic, the methodology set out in the IEMA Guidelines assumes this is a permanent increase. As such professional judgement has been applied in considering the influence shorter durations may have on the overall significance of effects.

#### **SUMMARY OF PRE-MITIGATION (CALCULATED) EFFECTS**

- 16.9.8. A summary of pre mitigation calculated effects is presented in **Appendix 16.6 – Summary of Pre-mitigation Calculated Effects (Document Reference: PW.3.3.16.6)**.

### **16.10. MITIGATION AND ENHANCEMENT MEASURES**

- 16.10.1. This Section sets out the preliminary avoidance, mitigation and compensation measures which are likely to be required to address the significant effects as assessed in **Section 16.9**.
- 16.10.2. Careful consideration of the siting of temporary access points during construction will be a key feature in terms of risk reduction of adverse effects. Access points will require the incorporation of site-specific and appropriate visibility splays, turning radii and, where deemed necessary or appropriate, speed limit reductions. These measures will be secured as part of a full Construction Traffic Management Plan (CTMP) to be submitted to FCC prior to construction of the Padeswood Spur Pipeline Proposed Development.

- 16.10.3. Having established proposed construction routes and the predicted volume of construction traffic serving working locations, further mitigation includes the form of traffic management. Traffic management will be used to mitigate any residual constraints identified along construction traffic routes, as set out in the **OCTMP (Document Reference: PW.4.2)**. This includes the use of restrictions such as speed limit reductions, one-way systems, and traffic signals. The need for these measures has been determined on a case by case basis to address identified local risks.
- 16.10.4. The **OCTMP (Document Reference: PW.4.2)** refers to mitigation measures, informed by the assessment, and stakeholder engagement, where deemed appropriate or necessary.
- 16.10.5. The **OCTMP (Document Reference: PW.4.2)** details actions required by the Construction Contractor(s) during the construction process, following these objectives:
- Ensure that movements of people, plant and materials are achieved in a safe, efficient, timely and sustainable manner;
  - Ensure that any impact to local communities and the local economy is reduced as far as reasonably practical;
  - Ensure that construction traffic levels do not exceed an acceptable level during network peak periods;
  - Reduce and control construction vehicle trips where practical;
  - Ensure that strategies and mitigation measures are implemented and adhered to through continued monitoring, review, and improvement; and
  - Limit the effects of construction traffic on the LRN.
- 16.10.6. The **Outline PRow Management Plan (Document Reference: PW.3.3.16.7)** details actions required by the Construction Contractor(s) during the construction process to ensure impact on PRowS will be minimised. This includes specifying any PRowS that will need to be temporarily closed, all to be reinstated when construction works are complete.

## **16.11. MONITORING**

- 16.11.1. The Construction Contractor may be required to demonstrate compliance with the measures included in the **OCTMP (Document Reference: PW.4.2)** during the construction of the Padeswood Spur Pipeline Proposed Development. Further information on monitoring and review is presented in the **OCTMP (Document Reference: PW.4.2)**. The CTMP will be based on the **OCTMP (Document Reference: PW.4.2)**

and prepared by the Construction Contractor (for approval by FCC) prior to construction.

## **16.12. RESIDUAL EFFECTS**

- 16.12.1. A range of potential effects exist that may be caused by the Padeswood Spur Pipeline Proposed Development prior to identified mitigation measures. As described in **Appendix 16.1 – Methodology (Document Reference: PW.3.3.16.1)** these potential effects are identified to be limited exclusively to the construction period of the Padeswood Spur Pipeline Proposed Development, with no permanent effects likely and the assessment for Operational Stage is therefore scoped out.
- 16.12.2. Duration is considered when assessing the overall significance of residual effects, noting that the DMRB (DMRB, 1993) indicates:
- “Recognition should be made that permanent impacts will be more significant than those of a temporary nature. For example, the impact may only occur during a single phase of the project construction and may be temporary. Alternatively, the impact may be long-term or irreversible and hence permanent. It is, therefore, important that the assessment distinguishes between permanent and temporary impacts”.*
- 16.12.3. All the Traffic and Transport effects associated with the Padeswood Spur Pipeline Proposed Development will be temporary effects during construction. Some temporary effects will likely last longer than others and it is considered appropriate to reflect the predicted duration of effects when determining the likelihood of significant effects.
- 16.12.4. **Table 16-6** below summarises the residual effects associated with the Padeswood Spur Pipeline Proposed Development during Construction Stage.

Table 16.6 - Summary of Residual Effects

Receptor	Pre-mitigation significance of effects	Commentary	Mitigation measure	Residual effect
Construction Stage				
Severance	<p><b>Major – Significant:</b></p> <p>10 - Road between A541 Chester Road and Argoed Hall Lane.</p>	<p>Average daily HGV traffic observed on <b>10 - Road between A541 Chester Road and Argoed Hall Lane</b> is notably lower than the Padeswood Spur Pipeline Proposed Development peak month traffic presented <b>Appendix 16.5 – Future Year Traffic Data</b>.</p> <p>Baseline HGV flows are less than 10 vehicles per day and represent very low baseline levels of HGV traffic. Absolute increases in HGVs - when considered across each day - are modest; not more than 10 HGVs per day.</p> <p>LGV movements are primarily associated with worker travel which will take place outside of the typical peak hours (0800-0900 and 1700-1800) therefore sensitive receptors' exposure to increases in LGV traffic is anticipated to be low.</p>	<p>Mitigation measures on these routes are outlined in the <b>OCTMP (Document Reference: PW.4.2)</b>. Traffic management measures will be implemented to manage construction traffic movements and reduce the potential effect of severance on communities adjacent to these links.</p> <p>These measures, as outlined within the <b>OCTMP (Document Reference: PW.4.2)</b> include community engagement with local residents, walking and cycling groups, prior, and throughout works, to minimise inconvenience and disruption to road users.</p> <p>These measures will be set out in the full CTMP prepared by the Construction Contractor for approval by FCC.</p>	Minor – not significant
	<p><b>Moderate – Significant</b></p> <ul style="list-style-type: none"> <li>• 6 - Rose Lane;</li> <li>• 12 – Bryn Lane; and</li> <li>• 15 - Alltami Road-1.</li> </ul>	<p>Average daily HGV traffic observed is notably lower than the Padeswood Spur Pipeline Proposed Development peak month traffic presented <b>Appendix 16.5 – Future Year Traffic Data</b>.</p> <p>Baseline HGV flows less than 150 vehicles per day on <b>12 – Bryn Lane</b> and less than 10 vehicles per day on <b>6 - Rose Lane</b> and <b>15 - Alltami Road-1</b>, which represent very low baseline levels of HGV traffic. Absolute increases in HGVs - when considered across each day - are modest; a maximum of 41 HGVs per day on <b>12 – Bryn Lane</b>.</p> <p>LGV movements are primarily associated with worker travel which will take place outside of the typical peak hours (0800-0900 and 1700-1800) therefore sensitive receptors' exposure to increases in LGV traffic is anticipated to be low.</p>	<p>Mitigation measures on these routes are outlined in the <b>OCTMP (Document Reference: PW.4.2)</b>. Traffic management measures will be implemented to manage construction traffic movements and reduce the potential effect of severance on communities adjacent to these links.</p> <p>These measures, as outlined within the <b>OCTMP (Document Reference: PW.4.2)</b> include HGV restriction hazard warning signage, and community engagement to minimise inconvenience and disruption to road users.</p> <p>These measures will be set out in the full CTMP prepared by the Construction Contractor for approval by FCC.</p>	Minor – not significant

Receptor	Pre-mitigation significance of effects	Commentary	Mitigation measure	Residual effect
Driver Delay	<b>Major – Significant</b> <ul style="list-style-type: none"> <li>10 - Road between A541 Chester Road and Argoed Hall Lane.</li> </ul>	<p>Average daily HGV traffic observed on <b>10 - Road between A541 Chester Road and Argoed Hall Lane</b> is notably lower than the Padeswood Spur Pipeline Proposed Development peak month traffic presented <b>Appendix 16.5 – Future Year Traffic Data</b>. Baseline HGV flows are less than 10 vehicles per day and represent very low baseline levels of HGV traffic. Absolute increases in HGVs - when considered across each day - are modest; not more than 10 HGVs per day. LGV movements are primarily associated with worker travel which will take place outside of the typical peak hours (0800-0900 and 1700-1800) therefore sensitive receptors' exposure to increases in LGV traffic is anticipated to be low.</p>	<p>Mitigation measures on these routes are outlined in the <b>OCTMP (Document Reference: PW.4.2)</b>. Traffic management measures will be implemented to manage construction traffic movements and reduce the potential effect of driver delay. These measures, as outlined within the <b>OCTMP (Document Reference: PW.4.2)</b> include community engagement with local residents, walking and cycling groups prior and throughout works to minimise inconvenience and disruption to road users. These measures will be set out in the full CTMP prepared by the Construction Contractor for approval by FCC.</p>	Minor – not significant
	<b>Moderate – Significant</b> <ul style="list-style-type: none"> <li>6 - Rose Lane;</li> <li>12 – Bryn Lane; and</li> <li>15 - Alltami Road-1.</li> </ul>	<p>Average daily HGV traffic observed is notably lower than the Padeswood Spur Pipeline Proposed Development peak month traffic presented <b>Appendix 16.5 – Future Year Traffic Data (Document Reference: PW.3.3.16.5)</b>. Baseline HGV flows less than 150 vehicles per day on <b>12 – Bryn Lane</b> and less than 10 vehicles per day on <b>7 - Rose Lane</b> and <b>15 - Alltami Road-1</b>, which represent very low baseline levels of HGV traffic. Absolute increases in HGVs - when considered across each day - are modest; a maximum of 41 HGVs per day on <b>12 – Bryn Lane</b>. LGV movements are primarily associated with worker travel which will take place outside of the typical peak hours (0800-0900 and 1700-1800) therefore sensitive receptors' exposure to increases in LGV traffic is anticipated to be low.</p>	<p>Mitigation measures on these routes are outlined in the <b>OCTMP (Document Reference: PW.4.2)</b>. Traffic management measures will be implemented to manage construction traffic movements and reduce the potential effect of driver delay. These measures, as outlined within the <b>OCTMP (Document Reference: PW.4.2)</b> include HGV restriction hazard warning signage, and community engagement to minimise inconvenience and disruption to road users. These measures will be set out in the full CTMP prepared by the Construction Contractor for approval by FCC.</p>	Minor – not significant
Pedestrian Delay	<b>Moderate – Significant</b>	Medium and High magnitudes of effects can occur for Pedestrian Delay	Mitigation measures on these routes are outlined in the <b>OCTMP</b>	Minor – not significant

Receptor	Pre-mitigation significance of effects	Commentary	Mitigation measure	Residual effect
	23 – A494 Mold Road, between A5119 and A55.	<p>where hourly traffic is higher than 1400 vehicles. It should be noted that <b>23 – A494 Mold Road, between A5119 and A55</b> is part of the TRN and has flows of 1,561 vehicles during AM peak hour in the baseline year (2024) and that the impact of the Padeswood Spur Pipeline Proposed Development does not cause any links to exceed this threshold.</p> <p>LGV movements are primarily associated with worker travel which will take place outside of the typical peak hours (0800-0900 and 1700-1800) therefore exposure to increases at key pedestrian demand times is expected to be low in reality.</p>	<p>(Document Reference: PW.4.2). Traffic management measures will be implemented to manage construction traffic movements and reduce the potential effect of pedestrian delay.</p> <p>These measures, as outlined within the OCTMP (Document Reference: PW.4.2) include community engagement with local residents, walking and cycling groups prior and throughout works to minimise inconvenience and disruption to road users.</p> <p>These measures will be set out in the full CTMP prepared by the Construction Contractor for approval by FCC.</p>	
Fear and Intimidation	No significant effects are caused by the Padeswood Spur Pipeline Proposed Development			
Pedestrian Amenity	No significant effects are caused by the Padeswood Spur Pipeline Proposed Development			
Highway Safety	No significant effects are caused by the Padeswood Spur Pipeline Proposed Development			

16.12.5. As can be seen in **Table 16-6**, there are not anticipated to be any residual significant Traffic and Transport effects associated with the Padeswood Spur Pipeline Proposed Development.



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