

## 7. Population and Human Health

### 7.1. Introduction

7.1.1. This chapter reports the outcome of the assessment of Population and Human Health impacts associated with the construction and operation of the Proposed Scheme. While summaries are provided here, reference should also be made to the following appendices:

- Volume 4, Appendix 7.1 Population and Human Health Legislation, Policy and Guidance
- Volume 4, Appendix 7.2 Population and Human Health Methodology
- Volume 4, Appendix 7.3 Population and Human Health Baseline
- Volume 4, Appendix 7.4 Population and Human Health Assessment Tables and
- Volume 4, Appendix 7.5 Land Interest Questionnaire

### 7.2. Approach and Methods

7.2.1. Volume 4, Appendix 7.2 Population and Human Health Methodology sets out the methodology adopted for the assessment of the anticipated impacts on population and human health. It is to be noted that while ‘population’ and ‘human health’ are considered together and are complimentary, they are assessed separately, with a slightly different methodology taken in relation to consideration of population and its assets, to that taken when considering impacts on human health.

7.2.2. The approach and methods have been informed by legislation, policy and guidance and a full list of those that are relevant to the topic are contained in Volume 4, Appendix 7.1 Population and Human Health Legislation, Policy and Guidance.

- 7.2.3. In terms of population / land use, the [Design Manual Roads and Bridges \(DMRB\) LA 112](#) sets out the requirements for assessing and reporting the environmental effects on population from construction, operation, and maintenance of roads projects. Professional judgement is also used to guide the assessment. The guidance requires reporting on the following elements:
- private property and housing
  - community land and assets
  - development land and businesses
  - agricultural land holdings and
  - walkers, cyclists, and horse-riders (WCH).
- 7.2.4. In relation to human health DMRB LA 112 sets out the requirements for assessing and reporting the environmental effects on human health for construction, operation, and maintenance of roads projects. While regard is made of these requirements, it must be borne in mind that DMRB LA 112 provides a means to derive a human health outcome category and provides no mechanism to derive significance of effect.
- 7.2.5. In order to remain compliant with the requirements of [The Roads \(Scotland\) Act 1984 \(Environmental Impact Assessment\) Regulations 2017](#) (SSI 2017 No.137), in addition to DMRB LA 112, consideration is also made of the Institute of Environmental Management and Assessment (IEMA) Guide To '[Determining Significance for Human Health in Environmental Impact Assessment](#)' which sets out the requirements for assessing the direct and indirect effects, in an appropriate manner, of a proposed development on human health (including potential impacts / effects on physical, mental, and social wellbeing).

### Study Area

- 7.2.6. Within the DMRB LA 112, in terms of Land Use and Accessibility, there is a requirement for the study area to be based on the construction footprint / Proposed Scheme Boundary (including temporary land take) plus a 500m area surrounding the Proposed Scheme Boundary.

- 7.2.7. See Figure 7.1 Population and Human Health Receptors which depicts the Study Area in respect of Population and Human Health.
- 7.2.8. In relation to human health, DMRB LA 112 notes that the study area should be based on the extent and characteristics of the Proposed Scheme and the communities / wards directly and indirectly affected by the Proposed Scheme. Therefore, the population of the wider region has been considered for the population and human health study area. As noted in IEMA, administrative boundaries do not define the boundaries of potential mental and physical health effects. As such the baseline data was gathered with a view to develop a conceptual understanding of the wider area rather than apply defined hard administrative boundaries. This includes the area within which the local and regional National Health Service (NHS) organisations operate. Please see Appendix A7-3 Baseline for further information.

#### Method of Baseline Collection

- 7.2.9. In line with DMRB LA 112 the process for developing the baseline comprises the following:
- desk based data collection
  - spatial data mapping and
  - consultation.
- 7.2.10. Where available, publicly available data such as census data and Health Profile reporting has been used to inform the baseline. Consideration has been made of the following:
- Scottish Government statistics
  - Public Health Scotland statistics
  - Scottish Public Health Observatory datasets
  - Local Authority reporting across the Loch Lomond and The Trossachs National Park (LLTNP)

- Argyll and Bute Local Authority area as a whole (including for example Local Authority Profiles and data sourced from Joint Strategic Needs Assessments and Joint Strategic Plans)
- applicable Ward level data and
- information at Data Zone level.

7.2.11. This is supplemented with Ordnance Survey (OS) Geographic Information System (GIS) data. While undertaken separately, the findings of the Agricultural Impact Assessment (AIA) and Walking Cycling Horse Riding Assessment Reports (WCHARs) are also incorporated within this chapter. The AIA included land owner interviews and the WCHAR included user count surveys. For full details of the baseline see Volume 4, Appendix 7.3 Population and Human Health Baseline.

### Consultation

7.2.12. In terms of consultation, and in line with relevant IEMA Guidance the following bodies were invited to comment on the Proposed Scheme proposals:

- Public Health Scotland;
- Argyll and Bute Council; and
- ScotWays.

7.2.13. No substantive issues were raised by the above bodies though ScotWays provided information regarding WCH routes which have been incorporated in this assessment. Through the WCHAR and as part of the wider stakeholder engagement exercises, consultation has also been undertaken with:

- Sustrans
- Argyll and Bute Council
- British Horse Society
- Paths For All and
- Loch Lomond and The Trossachs National Park Authority (LLTNPA)

- 7.2.14. A Land Interest Questionnaire was issued to relevant land owners in the area and detailed discussions have taken place between the design team and land owners. These discussions are confidential though relevant issues have been considered in this assessment. In addition early engagement with community stakeholders has also been undertaken via the wider community engagement (public exhibitions) being completed as part of the Proposed Scheme, refer to Chapter 6: Consultation and Scoping for further details). Note that responses made through the wider consultation process, as well as the early engagement with community stakeholders, alongside consultation for specific elements such as WCHAR, were used to inform the development of this population and human health assessment.

### Assessment Methodology

- 7.2.15. In meeting the requirements of both DMRB LA 112 and IEMA, linkages between the IEMA wider determinants of health and DMRB LA 112 community aspects have been established. These are set out in Table A7-2.1 of Volume 4, Appendix 7.2: Population and Human Health Methodology which should be referred to for full methodology for the Population and Human Health assessment.

### Limitations of the Assessment

- 7.2.16. Consideration of population and human health in scheme assessment is typically concerned with the population as a whole, or with groups (particularly those considered vulnerable) within it. Due to the low numbers of population directly within the study area, care has been taken to ensure that no individuals can be identified for privacy reasons. This has the limitation of making the assessment necessarily generic in part and limits the ability to describe indicative criteria for determining significance of impact. While no specific surveys were considered necessary, noting the assessment already benefits from WCHAR and AIA, it is to be recognised that due to the low numbers of people, specific surveys would also be considered disproportionate as effects would be discussed directly with sensitive receptors. While the WCHAR provides limited detail with respect to frequency of use for affected routes, it is considered that, given the rural and remote location, sufficient detail has been gathered to inform precautionary interpretations. It is then considered that the assessment remains robust in terms of consideration of population and applicable groups as a whole.

- 7.2.17. As noted, DMRB provides for a health outcome, though it does not assign significance to this. This has required use of a separate piece of guidance (IEMA) to allow identification of significance. Where applicable, both assessment findings are presented. As such, it is considered that the assessment meets the requirements of both DMRB and IEMA guidance.
- 7.2.18. It is possible that the Appointed Contractor may require construction compounds to be located out with land identified in the Proposed Scheme. Should construction compounds be located out with the Proposed Scheme Extents it will be the responsibility of the Appointed Contractor to assess the environmental impacts of the construction compounds and seek to mitigate these where possible. It is expected that environmental impacts associated with such activity would be managed effectively through a Construction Environment Management Plan and engagement of an Ecological Clerk of Works.
- 7.2.19. Referenced baseline information and data which has been accessed from a variety of publicly available sources is correct at the time of publication:
- Information arising from consultations with affected public transport providers (e.g. bus operators and ScotRail) has been utilised in assessing the potential impacts of the Proposed Scheme on traveller service operations.
  - the [Land Reform \(Scotland\) Act 2003](#) grants rights of responsible access on and over most land. It is therefore acknowledged that additional areas of privately-owned land within the study area may be used by walkers, cyclists and horse-riders.
  - The nature of the scope of the chapter topic requires objective and subjective (qualitative) assessments to be made of predicted impacts although quantitative assessment methods have been used where practicable.

### 7.3. Baseline Conditions

- 7.3.1. The complete set of baseline conditions can be found in Volume 4, Appendix 7.3: Population and Human Health Baseline. From a review of the population and human health baseline for Argyll and Bute Local Authority as a whole, as well as data from within this area (e.g. Ward level data), it has been possible to identify a number of groups within the population and communities of Lomond North ward, who, along with the population as a whole (wider groups) could be considered vulnerable in terms of their health and wellbeing. In addition to wider groups (adults and working people) vulnerable groups identified are summarised follows:
- families with children and adolescents (pregnant women, babies, children and adolescents)
  - people who are physically or mentally disadvantaged (elderly people, people with physical disabilities, people with other health problems or impairments) and
  - people who are materially disadvantaged.
- 7.3.2. Full explanation regarding the identification of vulnerable groups is captured in Volume 4, Appendix 7.3: Population and Human Health Baseline
- 7.3.3. The following sensitive receptors have been identified within the vicinity of the Proposed Scheme as a result of baseline investigations reported in Appendix A7-3 Baseline and receptors identified in Figure 7.1.
- Private Property and Housing – two private residences, both located approximately 270m from the Proposed Scheme (Laigh Glencroe (dwelling) and High Glencroe (dwelling)). The former is accessed directly from the OMR and the latter from the A83.
  - Agricultural Land Holdings - There is an agricultural business (farm) on the lower flanks of Glen Croe (Farm Holding No.1). Note this includes a number of structures/buildings associated with agricultural activities. Details of these are provided in a separate AIA.
  - WCH – there are no designated footpaths within the Proposed Scheme extents, though there is a core path (designated by the LLTNPA) in the woodland area approximately 350m to the west. There are also a few walking routes in the

wider area, including Beinn an Lochain, Ben Donich (via the Rest and Be Thankful), and Beinn Luibhean. There are no designated cycle routes in the area, however, cyclists (and walkers) are known to use the OMR.

- 7.3.4. While the immediate locale of the Proposed Scheme is rural with a very low population, the OMR does play a vital role in linking wider communities during periods of A83 closure and as an informal WCH route. During periods of A83 closure (such as due to landslides), users depend on the OMR route for access to and from the services and facilities they need such as those related to education, commercial, jobs and health.
- 7.3.5. In terms of human health it is to be noted that population in the immediate locality of the OMR is very low in absolute numbers.

#### Future Baseline

- 7.3.6. In the absence of the Proposed Scheme, it is anticipated that landslides and the associated closure of the A83 would continue to place reliance on the OMR and therefore impact the ability of local residents and communities to access the health, social, educational, recreational and economic facilities and opportunities that they require. No proposed development or land zoned for development has been identified within the study area. It is not considered that future baseline would change significantly from that currently apparent.

#### Sub-Topics Scoped out

- 7.3.7. Through the EIA Scoping process it has been determined that likely significant effects are not predicted to occur for the following wider determinants of health (and linked community aspect, where relevant) which have therefore been scoped out of the Population and Human Health Assessment and will not be reported on within this EIA Report. Please see the MTS Scoping Report for further details. In respect of receptors identified as within the study area, specifically the Rest and Be Thankful Car Park, viewpoint and bus turning circle, the Proposed Scheme will not impact on these receptors and as such these receptors have been scoped out from further consideration:

- Risk taking behaviour
- Diet and nutrition
- Relocation
- Open space, leisure and play (Community land and assets)
- Transport modes, access and connections
- Community safety
- Community identity, culture, resilience, and influence
- Social participation, interaction and support
- Education and training
- Employment and income (Development land and business)
- Climate change mitigation and adaptation
- Air quality
- Water quality or availability
- Land quality
- Noise and vibration
- Radiation
- Health and social care services and
- Built environment

7.3.8. While it is anticipated that the Proposed Scheme would provide some protection from landslides to agricultural land holdings below the OMR as a result of debris flow fencing included as part of the MTS, this is not addressed further in this Chapter. It is clarified that the Proposed Scheme would not introduce any new or additional landslide risk. Note Major Accidents and Disasters has been scoped out.

## 7.4. Embedded Mitigation

- 7.4.1. General embedded mitigation measures are described below, however it should be noted that through the iterative design process, the design of the Proposed Scheme as detailed in Chapter 4: The Proposed Scheme has been developed with input from the Population and Human Health team in order to minimise agricultural land loss.
- 7.4.2. With respect to paths (informal or formal), these will be realigned as close to their original alignment as practical to avoid extending WCH routes, where possible (PHH-EMB-1). Where the Proposed Scheme would affect existing paths, replacement network provision will be made to ensure routes remain open by providing suitable crossing points or diversions (PHH-EMB-2). Where new paths are required, they would be designed to be as fully accessible as possible (PHH-EMB-3).

## 7.5. Potential Impacts

- 7.5.1. Impacts during construction and operation have been grouped and presented under respective IEMA categories with subheadings outlining the linked wider determinants of health and DMRB LA 112 community aspect. Where considered helpful, full assessment tables have been included in this Chapter. Those assessment tables not included in this Chapter have been provided in Appendix 7.4 Population and Human Health Assessment Tables. Note the assessment accounts for embedded mitigation identified in Section 7.4.

## Construction

### Social Environment

#### Housing / Private property and housing

- 7.5.2. Potential disruption to access as a result of construction works on the OMR on 1 no. property (medium sensitivity) with direct access from the OMR is considered of minor magnitude. As a result slight adverse effects are anticipated. This is associated with a Negative Health Outcome in line with DMRB LA 112. Effects are considered temporary to the construction phase of the Proposed Scheme. No significant effects have been identified with respect to residential properties and it is considered viability of any property will not be compromised.

### Health Related Behaviours

#### Physical activity / Walkers, cyclists and horse-riders (WCH)

- 7.5.3. WCH routes are identified in Table A7-3-2 of Volume 4, Appendix 7.3 Population and Human Health Baseline and on Volume 3, Figure 7.1 Population and Human Health Receptors. Impacts on these routes are then considered in Table 7.1 as follows. Note residual effect accounts for all embedded mitigation set out in Section 7.4.

**Table 7.1 - Potential Construction Phase Impacts on WCH Routes**

Assessment Criteria	WCH Route	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Population / Land use and accessibility	OMR	While no changes are predicted to journey length along the OMR, in respect of accessibility it is recognised that this route would be effectively closed for WCH users. Given the low numbers of WCH users anticipated on this route impact magnitude is considered moderate	Medium	Moderate	Moderate adverse (Significant) Temporary during the construction phase
Human Health	OMR	During the construction of the Proposed Scheme users of the OMR would need to use alternative routes in the wider area. This would result in a temporary impact during the anticipated one year construction period of the OMR Improvements.	Medium	Medium	Moderate adverse (Significant)  DMRB finding: Negative – an adverse health impact is identified

Assessment Criteria	WCH Route	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Population / Land use and accessibility	Route 1	No changes are predicted to journey length along Route 1	Medium	No change	Neutral (not significant)
Human Health	Route 1	Route 1 runs immediately adjacent to the temporary works area associated with the Proposed Scheme. While closure is not anticipated, there would be potential temporary impacts to the amenity of the journey (impacts such as noise, air quality and visual) arising from construction activities.	Medium	Low	Minor adverse (not significant)  DMRB finding: Negative – an adverse health impact is identified
Population / Land use and accessibility	Routes 2, 3, 4, 5, 6, 7,11 and 13	No changes are predicted to journey length along these routes	Medium	No change	Neutral (not significant)

Assessment Criteria	WCH Route	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Human Health	Routes 2, 3, 4, 5, 6, 7, 11 and 13	While closure of these routes are not anticipated, there would be temporary impact to the amenity of the journey (impacts being noise, air quality and visual) throughout the construction period.	Medium	Low	Minor adverse (not significant)  DMRB finding: Negative – an adverse health impact is identified

- 7.5.4. While no changes are predicted to journey length along the OMR (medium sensitivity), in respect of accessibility it is recognised that this route would be effectively closed for WCH users. This is associated with moderate impacts and a Moderate Adverse effect is anticipated. In respect of amenity impacts (human health) effects are considered Moderate Adverse and a Negative Health Outcome is attributed, in line with DMRB LA 112. No other WCH routes are anticipated to be directly impacted by the Proposed Scheme. Impacts (e.g. to amenity) on other WCH routes within the study and wider area are considered of low magnitude resulting in minor adverse effects. Effects are considered temporary to the construction phase of the Proposed Scheme.

#### Institutional and built environment

#### Wider societal infrastructure / Agricultural land holdings

- 7.5.5. Tables 7-5.2 – 7-5.3 set out the construction related impacts to two land holdings directly impacted by the Proposed Scheme. Note no other land holdings are anticipated to be impacted by the Proposed Scheme.

**Table 7.2 - Construction Impacts on Farm Holding No.1**

Assessment Criteria	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Population / Land use and accessibility – Land Take	<p>The landholding extends to c.89ha of which c.7.78ha (8.74% of the land holding) would be permanently lost within the Proposed Scheme Boundary as a result of land required for construction. In addition to this, there is also predicted to be a further effective loss of land amounting to c.0.72ha where access is severed to wider land parcels. A total, permanent loss of land including the OMR equating to c.8.5ha (9.55% of the land holding).</p> <p>Remaining areas of land between the watercourses routing between the A83 and OMR could potentially be deemed to be no longer workable from a farming perspective, however these areas have not been deemed to be required for the Proposed Scheme. Should discussion with the land holding deem these parcels no longer viable then appropriate compensation would need to be agreed however this falls outwith the EIA process.</p>	Medium	Moderate	Moderate Adverse (Significant), Permanent

Assessment Criteria	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Population / Land use and accessibility - Other	<p>Whilst access to all buildings will be maintained during the construction period, moderate adverse effects are anticipated through the disruption of access to farm buildings during construction works associated with the OMR.</p> <p>Construction works between the OMR and A83 have the potential to give rise to moderate severance issues for the farm which is considered of medium sensitivity owing to increased traffic utilising the OMR during the construction of improvements to the OMR (lasting an estimated one year)</p>	Medium	Moderate	Moderate Adverse (Significant), Temporary

**Table 7.3 - Construction Impacts on Forestry Holding No. 1**

Assessment Criteria	Potential Impact	Sensitivity	Impact Magnitude	Significance of Effect
Population / Land use and accessibility – Land-take	<a href="#">The Glen Croe Land Management Plan 2019 – 2028</a> notes that the Glen Croe Land Management Plan (LMP) covers 3082ha which is part of the wider national forest. The Proposed Scheme is predicted to result in a loss of c.15.73ha. These areas have been discussed and agreed with Forestry and Land Scotland throughout the EIA process noting much of the land take is associated with Biodiversity Net Gain requirements as detailed in Volume 4, Appendix 4.1 Biodiversity Net Gain / Natural Capital Assessment.	Low	Minor	Slight Adverse (Not significant) Permanent
Population / Land use and accessibility - Other	Construction works has the potential to give rise to severance issues for the forestry holding owing to increased traffic utilising the OMR during the construction of improvements to the OMR (lasting an estimated one year)	Low	Moderate	Slight Adverse (Not significant) Temporary

## Operation

- 7.5.6. In respect of operational effects and unless otherwise stated, effects are considered permanent to the operation phase (i.e. at least for the first year of operation in line with DMRB LA 112 land use considerations and up to year 15 in respect of health outcome in line with DMRB LA 112 reporting).

## Social Environment

### Housing / Private property and housing

- 7.5.7. Improved access provision (higher quality carriageway) along the OMR for 1 no. property (Laigh Glencroe) is considered of minor magnitude. As a result slight beneficial impacts are anticipated. This is associated with a Positive Health Outcome in line with DMRB LA 112.

## Health Related Behaviours

### Physical activity / Walkers cyclists and horse-riders

- 7.5.8. Provision of an improved informal WCH route on the OMR (medium sensitivity) as well as protections to the route afforded by the Proposed Scheme (e.g. debris flow netting) is considered of low magnitude. As a result, Slight Beneficial impacts are anticipated. In respect of human health, a minor beneficial effect is reported. This is associated with a Positive Health Outcome in line with DMRB LA 112. Effects are considered permanent to the operation phase of the Proposed Scheme. Note all other active travel routes are anticipated to be unaffected by the operation of the Proposed Scheme.

## Institutional and built environment

### Wider societal infrastructure / Agricultural Land Holdings

- 7.5.9. Anticipated operational access and viability issues as a result of new field boundaries and changes to OMR for the farm holding (medium sensitivity) is considered of moderate magnitude. As a result, Moderate Adverse effects are anticipated. This is considered permanent to the operational phase of the Proposed Scheme.

- 7.5.10. During periods where the OMR is utilised as a diversionary route, it is recognised that the Proposed Scheme will result in improved and safer access through provision of layby at agricultural buildings associated with the farm holding. This is considered of minor magnitude. As a result, Slight Beneficial effects are anticipated. This is considered permanent for the operational phase of the Proposed Scheme. Note that detailed design is the subject of accommodation works which are yet to be undertaken.
- 7.5.11. Severance issues at the farm holding relating to operational fencing around minor watercourse / field boundaries used as informal drinking supply for livestock is considered of minor magnitude. As a result, Slight Adverse effects are anticipated. This is considered permanent to the operational phase of the Proposed Scheme.
- 7.5.12. No other operational impacts are anticipated at the Farm Holding or to the Forestry Holding.

## 7.6. Mitigation

- 7.6.1. No specific required / additional mitigation, over and above that set out as Embedded Mitigation (Section 7.4) has been identified though, it is recognised that a Construction Environmental Management Plan (CEMP), Traffic Management Plan (TMP) and Community Engagement Plan will be enacted during the construction phase, as is standard for projects of this scale. The CEMP will include mitigation measures to minimise impacts on land use and agricultural holdings during construction.
- 7.6.2. Of particular note is that there are ongoing discussions with the relevant landowner in respect of mitigation to impacts on agricultural activities. This could include issues around fencing or matters such as access to farm buildings. It is worth noting that the design of the Proposed Scheme and embedded mitigation was amended to ensure continued safe access to key agricultural buildings. No further detail on these mitigation measures is provided here as it is considered these are sensitive to the agricultural business. Nevertheless, it is anticipated that these will reduce impact. Note that matters such as financial compensation measures are outside the scope of this assessment

**Table 7.4 - Mitigation measures**

Mitigation Reference	Mitigation Measures
PHH1	Construction Environmental Management Plan (CEMP), Traffic Management Plan (TMP) and Community Engagement Plan will be enacted during the construction phase. This will provide a framework for the implementation of construction activities including plans related to geology and land contamination, surface water and groundwater, air quality (e.g. dust), and noise and vibration. In respect of the Community Engagement Plan, this will ensure that local communities are kept informed of the nature and duration of the works.
PHH2	Any Land temporarily used for construction will be restored to a condition equivalent to its original state. This will be achieved by means of a Soil Resource Plan (SRP) following best practice set out in guidance such as DEFRA's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, SEPA Promoting the sustainable reuse of greenfield soils in construction sites or equivalent guidance.
PHH3	During construction on the Old Military Road, walking, cycling and horse riders will be convoyed through the route.
PHH4	Where applicable, unrestricted agricultural uses are to be resumed on land disturbed during the construction of the Proposed Scheme, the Appointed Contractor will be responsible for ensuring no long-term reduction in the quality of the disturbed land, through the adoption of good practice techniques in handling, storing and reinstating soils and field drains.

## 7.7. Residual Effects

### Residual Effects – Construction

- 7.7.1. Residual effects during the construction phase are as outlined in Table 7.5. It is to be noted that while mitigation measures will result in some impacts being reduced to non-significant, some residual significant effects remain even after the application of mitigation. Where applicable, monitoring has been proposed in Section 7.7.3.

**Table 7.5 - Residual Effects Construction**

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
Potential impact on 1 No. property with direct access from OMR. Disruption to Access	Minor	Slight Adverse	PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant	Minor	Slight Adverse
Health and wellbeing outcome from construction works adjacent 1 No. house with direct access from OMR	Low	Minor Adverse	PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant	Low	Minor Adverse
While no changes are predicted to journey length along the OMR, in respect of accessibility it is recognised that this route would be effectively closed for WCH users who would be convoyed through the construction area.	Moderate	Moderate Adverse	PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant PHH3 A convoy system will ensure walkers and cyclist users of the OMR can be safely moved through the OMR during construction. This will minimise effects on receptors identified to non-significant	Minor	Slight Adverse
During the construction of the Proposed Scheme the OMR would be effectively closed for WCH users. This would result in a temporary impact to the amenity of the journey during the estimated one year construction period of the OMR Improvements.	Medium	Moderate Adverse	PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified however effects remain significant PHH3 A convoy system will ensure walkers and cyclist users of the OMR can be safely moved through the OMR during construction however effects remain significant	Medium	Moderate Adverse

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
Route 1 runs immediately adjacent the temporary works area associated with the Proposed Scheme. While closure is not anticipated, there would be temporary impact to the amenity of the journey (impacts being noise, air quality and visual) throughout the construction period.	Low	Minor Adverse	PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant	Low	Minor Adverse
Routes 2, 3, 4, 5, 6, 7,11 and 13: While closure of these routes are not anticipated, there would be temporary impact to the amenity of the journey (impacts being noise, air quality and visual) throughout the construction period.	Low	Minor Adverse	CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant	Low	Minor Adverse

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
<p>Farm Holding No.1</p> <p>A total, permanent loss of land, including the OMR, equating to c.8.5ha (9.55% of the land holding). Access will be maintained for the farm holding.</p>	<p>Moderate</p>	<p>Moderate Adverse</p>	<p>PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified however effects remain significant</p> <p>PHH2 Implementation of a Soil Resource Plan ensures any land temporarily used for construction will be restored to a condition equivalent to its original state however effects remain significant</p> <p>PHH4 Good practice techniques in handling, storing and reinstating soils and field drains ensures no long-term reduction in the quality of the disturbed land however effects remain significant</p>	<p>Moderate</p>	<p>Moderate Adverse</p>

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
<p>Farm Holding No.1</p> <p>Severance issues for the farm owing to increased traffic utilising the OMR during the construction of improvements to the OMR</p>	<p>Moderate</p>	<p>Moderate Adverse</p>	<p>PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified however effects remain significant</p> <p>PHH2 Implementation of a Soil Resource Plan ensures any land temporarily used for construction will be restored to a condition equivalent to its original state however effects remain significant</p> <p>PHH4 Good practice techniques in handling, storing and reinstating soils and field drains ensures no long-term reduction in the quality of the disturbed land however effects remain significant</p>	<p>Moderate</p>	<p>Moderate Adverse</p>

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
<p>Forestry Holding No.1</p> <p>The Proposed Scheme is predicted to result in a loss of c.15.73ha.</p>	<p>Minor</p>	<p>Slight Adverse</p>	<p>PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant.</p> <p>PHH2 Implementation of a Soil Resource Plan ensures any land temporarily used for construction will be restored to a condition equivalent to its original state. This will minimise effects to non-significant.</p> <p>PHH4 Good practice techniques in handling, storing and reinstating soils and field drains ensures no long-term reduction in the quality of the disturbed land. This will minimise effects to non</p>	<p>Minor</p>	<p>Slight Adverse</p>

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
<p>Forestry Holding No.1</p> <p>Severance issues for the forestry holding owing to increased traffic utilising the OMR during the construction of improvements to the OMR</p>	<p>Minor</p>	<p>Slight Adverse</p>	<p>PHH1 CEMP, TMP and Community Engagement Plan will ensure construction related activities minimise effects on receptors identified to non-significant.</p> <p>PHH2 Implementation of a Soil Resource Plan ensures any land temporarily used for construction will be restored to a condition equivalent to its original state. This will minimise effects to non-significant.</p> <p>PHH4 Good practice techniques in handling, storing and reinstating soils and field drains ensures no long-term reduction in the quality of the disturbed land. This will minimise effects to non-significant.</p>	<p>Minor</p>	<p>Slight Adverse</p>

### Residual Effects – Operation

7.7.2. Residual effects during the operation phase are as outlined in Table 7.6. It is to be noted that no mitigation measures have been identified for the operational phase and, as such, some residual significant effects remain.

**Table 7.6 - Residual Effects Operation**

Reference	Pre-Mitigation Effect Magnitude	Pre-Mitigation Effect Significance	Mitigation Measures	Post-Mitigation Effect Magnitude	Post-Mitigation Effect Significance
Improved access provisions along OMR.	Minor	Slight Beneficial	None identified	Minor	Slight Beneficial
Health and wellbeing outcome from amenity / access improvements at 1 No. property (Laigh Glencroe) with direct access from OMR	Low	Minor Beneficial	None identified	Low	Minor Beneficial
Provision of an improved informal WCH route on the OMR	Minor	Slight Beneficial	None identified	Minor	Slight Beneficial
Impact on health and wellbeing associated with improved informal WCH route on the OMR	Medium	Minor Beneficial	None identified	Medium	Minor Beneficial
Private Farm Holding No.1 - Anticipated operational access and viability issues as a result of new field boundaries and changes to OMR.	Moderate	Moderate Adverse	None identified	Moderate	Moderate Adverse
Private Farm Holding No.1 - Improved access through provision of layby at agricultural buildings associated with 1 no. private farm holding.	Minor	Slight Beneficial	None identified	Minor	Slight Beneficial
Private Farm Holding No.1 - Severance issues at the farm holding relating to operational fencing around minor watercourse / field boundaries used as informal drinking supply for livestock	Minor	Slight Adverse	None identified	Minor	Slight Adverse

## Monitoring

- 7.7.3. During construction, the appointed contractor will be required to undertake monitoring with respect to the effectiveness of the convoy system proposed for WCH users during construction along the OMR is undertaken. This is with a view to ensuring suitability, accessibility and frequency of service for all WCH users on the OMR. This may be achieved by registering the number of trips by convoy against a baseline understanding in addition to recording the type of WCH and collecting feedback from those users.
- 7.7.4. During construction, the appointed contractor will be required to undertake monitoring of traffic and parking arrangements to ensure construction works does not have the effect of leading to a rise in vehicle parking along roadsides, verges or other informal, unsuitable or otherwise unsafe areas.
- 7.7.5. As noted in mitigation measure PHH2 any land temporarily used for construction will be restored to a condition equivalent to its original state. Monitoring of agricultural land reinstatement will be undertaken by the ECoW during the maintenance period for the Proposed Scheme.
- 7.7.6. Note that measures of compensation for affected land holdings are considered outside of the scope of EIA and as such no monitoring is proposed. It is however expected that there is continued engagement with the agricultural land holdings throughout construction.

## Planning / Policy Compliance

- 7.7.7. The conclusion of the assessment of population and human health as a result of the construction and operation of the Proposed Scheme is compliant with the relevant policies identified in Volume 4, Appendix 7.1: Population and Human Health Legislation, Policy and Guidance.