12 DISRUPTION DUE TO CONSTRUCTION

12.1 INTRODUCTION

This chapter examines the effects of disruption from construction of the scheme. The scope of the chapter focuses on traffic effects which are not covered elsewhere in the ES. Environmental effects on people from construction activities are reported in the following chapters:

- Land Use and Property (Chapter 6);
- Geology and Soils (Chapter 7);
- Visual Effects (Chapter 10);
- Noise and Vibration (Chapter 13);
- Air Quality (Chapter 14);
- Pedestrians, Cyclists, Equestrians and Community Effects (Chapter 15); and
- Vehicle Travellers (Chapter 16).

Environmental effects on the natural and cultural heritage from construction are reported in the following chapters:

- Water Quality and Drainage (Chapter 8);
- Ecology and Nature Conservation (Chapter 9);
- Landscape Effects (Chapter 10); and
- Archaeology and Cultural Heritage (Chapter 11).

The following potential effects from construction are considered in this chapter:

- traffic disruption and delays on the existing road network caused by construction activities. These may involve temporary traffic signalling and lane closures (the effects of such disruption on severance of community journeys is addressed in Chapter 15);

- local environmental impacts on people as a result of temporary increases in traffic on the existing road network (for example as a result of the transport of materials) and on temporary diversion routes; and

- other disruption impacts of construction including diversion of existing utilities (see also Chapter 6).

The study area for the appraisal includes the existing road network in the immediate vicinity of the proposed scheme.

12.2 SOURCES OF INFORMATION

The following sources of information have informed the appraisal:

- assumptions on the construction sequence and in particular temporary diversions and haul routes;
- Design Manual for Roads and Bridges: Volume 11, Part 3 – Disruption due to Construction;
- the 1:25 000 Ordnance Survey (OS) map, Loch Lomond North (Explorer 364); and
- feedback from consultations.

12.3 CONSULTATIONS

LLTNP advised that the ES should include analysis of transport related impacts, including during construction phase (LLTNP, 2006).

12.4 BASELINE

Baseline information for this appraisal is included in other sections of the ES. Information about properties in proximity to the route is included in Section 6.4.7 and Table 6.1. Traffic flows (baseline and during operation) are described in Chapter 4 and shown in Figure 4.1. Information about the likely quantities of cut and fill materials are given in Section 3.3.7.

Information about construction activities which could give rise to disruption is set out in Section 12.6. Further information about working hours and other issues relating to construction is provided in Section 3.3.

12.5 ASSESSMENT METHODOLOGY

A qualitative assessment of the traffic effects of the construction activities has been undertaken taking account of the potential impacts which have been identified (see Section 13.6), the mitigation measures which would be implemented (see Section 13.7) and the residual effects of the scheme with the mitigation measures implemented (see also Section 1.6.4). The assessment has taken account of relevant guidance (see Section 12.2) and professional judgement from working on other schemes.

The following assumptions have been made in the appraisal:

- current flows on the existing network are as summarised in Chapter 4;
- for the purposes of assessment it has been assumed that all construction materials would be imported to and exported from the site by road;
- the actual traffic movements associated with construction of the proposals would depend on the stage of construction and the detailed phasing of activities; and
- details of construction methods and locations of site compounds would be finalised following appointment of a contractor. For the purpose of the ES, it has been assumed that construction activities would be undertaken within the corridor of land to be acquired for the scheme, apart from the contractor's compounds, land for which could be outwith the scheme negotiated by the appointed contractor (see Section 3.3.2).

Traffic using the existing road network would be affected by the proposed scheme wherever alterations to the local network in terms of temporary traffic lights or lane closures are required.

The extent to which traffic might be affected by construction would be influenced by the following factors:

- the additional journey distance and time experienced by traffic being diverted around construction areas;
- the requirement for temporary traffic signals (which causes delays);
- the need for lane closures, in particular during construction of tie-ins to the existing network;
- the duration for which measures are active; and
- delays caused by construction traffic using public roads.

The assessment considers the effects of transportation of fill, spoil and scheme construction materials on the road network in the vicinity of the works which would mainly be by Heavy Goods Vehicles (HGVs). Assumptions made in estimating the numbers of HGV movements are presented in Section 4.3.

It has been assumed that the construction period would last for approximately 12 months and that construction at the principal construction areas would be undertaken concurrently (see Section 3.3.3).

12.6 CONSTRUCTION PROPOSALS

12.6.1 Introduction

The details presented in this chapter on construction and used for the assessment are based on the current scheme design and assumptions about how the scheme would be built. Details of construction methods would be determined by the successful contractor when the detailed scheme design is finalised.

12.6.2 Construction Activities

For the purposes of this assessment it has been assumed that all construction activities and storage of materials would be carried out within the land acquired for the scheme. The principal construction activities which could give rise to disruption are likely to occur in relation to the construction of the carriageway at the tie-in locations.

The new single carriageway route would tie into the existing trunk roads at its northern and southern extremities and as such would require traffic management to undertake construction works at these locations. This traffic management is likely to take the form of temporary traffic signals facilitating the one way flow of traffic adjacent to the construction works. It is would be in place for a time period of two weeks at each of the two locations.

A connector path that provides access from the south of Crianlarich village to the West Highland Way spur and which is also a public right of way traverses the bypass route. This spur would be re-aligned as part of the permanent works, however, access to the path or an alternative temporary path would be maintained at all times for the public during the construction period (see Section 6.8.2).

12.6.3 Construction Traffic

Increase in HGV numbers using the existing network to access construction areas also have potential to cause disruption (see Section 12.7). Key activities which would give rise to traffic include:

- import or disposal of cut and fill earthworks materials;
- concrete and steel import for the underpass structure and general use; and
- road pavement materials.

Assumed construction traffic generation is listed in Table 12.2. It is assumed that the additional car journeys generated by construction staff would not be significant in terms of disruption.

Table 12.1 Assumed Construction Traffic Generation for 12 Month Construction Period[1]

Activity	Approximate Quantity of Material for Transportation	Approximate Number of HGV Movements[170]
Transport of unsuitable earthworks material off site.	68,800m^3	14,000
Import of suitable fill material to site	3,800m^3	800
Import of concrete for structures and general use	1200m^3	400
Import of steel for structures	42 tonnes	10
Import of road pavement products (including surface course, binder, base, sub-base and capping)	10,500m^3	2100
TOTAL HGV Movements		**17,310 (8,655 trips)**
Average movement per day, (assuming a 6 day working week)		**60**

[1]Estimates of HGV movements are based on the following assumptions:

a) 10m^3 of soil / topsoil material per load
b) 6 m^3 of concrete per load
c) 10 tonnes of steel per load
d) 10 m^3 of road pavement product per load

A worst case assumption has been made that there is no back loading of vehicles. A trip involves two movements e.g. site to tip and tip to site

12.7 POTENTIAL IMPACTS

12.7.1 Construction

Disruption to local village traffic is likely to occur during construction of the scheme. In addition the following may cause disruption:

- impacts of special loads on the existing road network; and
- cumulative effects on local roads if other major construction projects were programmed for the same time and the proposals.

12.8 MITIGATION MEASURES

DDC1. The contractor would be required to ensure that vehicles on the existing A82 (north and south of Crianlarich), Glenfalloch Road, the A85 (east of Crianlarich), the Callander Road, the Tyndrum Road, Willow Brae and Willow Square were safely routed through construction areas and to ensure that works were planned to limit the risk of disruption taking account of any other ongoing construction activities in the area.

DDC2. Information would be given during the life of the contract to warn drivers in advance about the presence of queues and the anticipated delay to journeys as a result. This would be via radio station traffic updates and bulletins. Queue lengths would be checked during construction activities requiring contraflows and the information used to inform traffic information outlets including the Traffic Scotland signs in the wider road network.

[170] One trip involves two movements e.g. site to tip and tip to site

DDC3. Effective liaison by the contractor with the Crianlarich community would be maintained. This would include circulation of information about ongoing activities and a contact telephone number for use by the local community to contact the contractor for information. The telephone would be attended during all operational hours and the person(s) with the appropriate authority to resolve any problems that occur would be available. A log of all complaints and actions taken would be available for inspection.

DDC4. The contractor would be required to consider potential traffic and transport related effects as part of all relevant method statements and to include appropriate mitigation measures for all activities where the potential for significant effects was identified.

DDC5. Any complaints from the public would be followed up immediately and wherever feasible mitigation measures identified and implemented to ensure that complaints in the future were eliminated.

DDC6. The contractor would be required to comply with all contract requirements regarding access and to consult with Stirling Council Roads Department on all proposed traffic control measures on access routes and in advance of movement of any heavy loads.

DDC7. All construction traffic HGV drivers would be briefed on the importance of observing speed limits, in particular through residential areas.

DDC8. All HGV drivers would be briefed on the importance of allowing traffic to pass safely and not causing an obstruction to other road users.

DDC9. The contractor would be encouraged to establish a haul road, internal to the scheme, as early in the contract as possible to reduce the effects of construction traffic on the local road scheme.

DDC10. Access to all properties would be maintained.

12.9 ASSESSMENT OF RESIDUAL EFFECTS

12.9.1 Construction

It is considered that the activities shown in Table 12.1 would occur throughout the construction period of 12 months. The daily average number of HGVs would therefore be in the order of 60 movements per day. A worst case scenario would be that all these movements passed through the village centre. The existing HGV movements at the A82/A85 junction are approximately 330 HGV per day (annual average). The worst case would therefore generate an increase of 18%. It is however likely that HGVs would be routing to a variety of destinations.

The construction site would be accessed from agreed points in the local road network (in agreement with the operating company responsible for the management and maintenance of the Trunk Road Network in this area). The contractor would be likely to programme the works such that the off-road haul route was created as soon as possible so that soils could be transported between cut and fill areas without the need to access the public road system.

There would be some residual disruption as a result of scheme construction even with implementation of committed mitigation measures. The level of disruption would depend on the detailed methods used by the contractor. Key areas which would be affected are:

- on the A82 south of Crianlarich where the southern roundabout ties ins would be constructed to join the existing road. Temporary traffic signals facilitating the one way flow of traffic adjacent to the construction works would be provided; and

- on the A82 north west of Crianlarich where the northern roundabout ties ins would be constructed to join the existing road. Temporary traffic signals facilitating the one way flow of traffic adjacent to the construction works would be provided.

12.10 SUMMARY

- Temporary construction activities would affect the Crianlarich community and the surrounding area and this could be significant over short periods, however, with careful planning, including effective communications with the local community and the travelling public, the effects would be reduced.