20. Cumulative Impacts

20.1. Introduction

20.1.1. This chapter considers potential for cumulative impacts of the Proposed Scheme, and those of the Proposed Scheme in combination with committed developments and other major proposed development projects, including other projects forming part of the A9 dualling programme.

20.1.2. Potential for cumulative impacts due to the combined effect of a number of different environmental impacts of the Proposed Scheme on a single receptor/resource is assessed, based on the findings of the topic chapters in this Environmental Statement (ES).

20.1.3. The likely longer term upgrade of the A9 dualling programme from Perth to Inverness was identified as having the potential to have a cumulative impact in terms of effects due to loss of woodland including areas included on the Ancient Woodland Inventory (AWI), materials and waste management and long distance NMU routes. Any cumulative impact as a result of changes in traffic volumes was incorporated into the relevant assessments reported in Chapters 8 to 19 of this ES and is not considered in this assessment.

20.1.4. In relation to loss of AWI significant cumulative impacts are expected and further details of the expected impacts from other A9 dualling projects is required to confirm the level of this cumulative impact.

20.1.5. Consideration is given to both the impacts of the Proposed Scheme on receptors, and the impacts of other 'reasonably foreseeable' projects in line with the European Commission guidelines[i] .

20.1.6. The assessments as reported in Chapters 8 to 19 of this ES have, where relevant, already taken into account the potential for cumulative impacts within a specific topic area as a result of a number of different activities affecting a single receptor. An example of this is Chapter 11 (Road Drainage and the Water Environment), which identified a single level of overall significance for each water feature, taking in account a number of different activities potentially affecting the same waterbody (such as bridge or culvert construction, installation of outfalls or realignment).

20.1.7. Traffic modelling (TMfS14) has indicated that whilst individual A9 dualling projects are generally not likely to notably affect the traffic demand at a local level, the cumulative effect of full implementation of wider programme of A9 dualling works may be to increase traffic flows on the A9 by attracting additional usage of this strategic route. To ensure that the potential cumulative impact of the Proposed Scheme in combination with other projects anticipated as part of the A9 dualling programme was taken into account, traffic data utilised in the Environmental Impact Assessment (EIA) therefore include the traffic increase predicted as a consequence of implementing the full programme of works to dual the A9. Traffic data has informed the aspects of EIA reported in this ES, and therefore any potential cumulative environmental impacts of these traffic changes are incorporated within these assessments, and no supplementary assessment is required.

20.2. Approach and Methods

20.2.1. Two types of cumulative impacts interactions have been considered in this chapter:

- **Type 1 cumulative impacts** – the combined effect of a number of individual impacts arising as a result of the Proposed Scheme on a single sensitive receptor/resource
- **Type 2 cumulative impacts** – the combined effects of the Proposed Scheme with other reasonably foreseeable development schemes on a single sensitive receptor/resource

Type 1 Cumulative Impacts Assessment

20.2.2. To consider the potential for a combined effect of different environmental topic-specific impacts on a single receptor/resource, a 2 step process has been followed:

- Step 1 – Review of the residual effects from the individual topic assessments, as set out in chapters 8 to 19, where there is potential for interaction with other topic areas and subsequent identification of potential combined effects at sensitive receptors. Where the same sensitive receptor is identified, in relation to two or more individual topics, this receptor has been considered further at Step 2.
- Step 2 - Consideration of the potential for resultant combined effects both during the construction and/ or operation of the Proposed Scheme. The relevant residual inter-topic effects are grouped and, applying professional judgement, the potential for significant combined effects upon the receptors assessed.

Type 2 Cumulative Impacts Assessment

20.2.3. Assessment of potential cumulative impacts of the Proposed Scheme in combination with other reasonably foreseeable developments (Type 2 cumulative effects) has been carried out at two levels. The first being a high-level appraisal of potential inter-project (A9 Dualling Programme) cumulative effects and the second within a defined study area (see paragraph 20.2.7 below).

20.2.4. The assessment paid particular attention to the impacts summarised in Chapter 22 (Summary of Significant Residual Impacts), which are those that are expected to remain as significant in the context of the EIA Regulations after application of any proposed mitigation, as these generally have the greatest potential to contribute to a significant cumulative impact. However, there is potential that multiple non-significant impacts in combination could result in a significant cumulative impact, and therefore all residual impacts were reviewed including non-significant residual impacts reported in the individual assessments of this ES. Conversely, it is possible to have multiple significant residual impacts (as reported in the ES chapters for each environmental parameter) which in combination do not constitute an *additional* significant (cumulative) impact.

20.2.5. The following steps in the assessment were undertaken.

- Step 1 – Identification of 'reasonably foreseeable' developments. In accordance with DMRB HA205/08[ii] 'reasonably foreseeable' is interpreted as projects that are 'committed' including:
  - trunk road and motorway projects which have been confirmed (i.e. gone through the statutory processes)
  - other relevant projects of the A9 Dualling programme irrespective of status
  - committed developments with consented, or yet to be determined, planning applications, as granted by the local planning authority/authorities, and for which formal EIA is a requirement or for which non-statutory EIA has been undertaken to support the planning application

20.2.6. A review of other major developments beyond those that are 'committed' has also be undertaken to ascertain whether any should justifiably also be included in the assessment by virtue of their scale, location or timing.

- Step 2 – Consideration of potentially significant cumulative impacts from identified 'reasonably foreseeable' developments. Once developments have been identified and agreed, professional judgement will be used to 'scope out' any of the developments that are not considered likely to have in combination significant cumulative impacts. For example this may be based on location, type of development, development status. This will allow the assessment to focus on those 'reasonably foreseeable' developments that may potentially result in significant cumulative effects in combination with the proposed scheme.
- Step 3 – Based on the 'reasonably foreseeable' developments identified as having the potential for significant Type 2 cumulative impacts, a topic by topic consideration was carried out, relying on professional judgement to determine the potential for combined effects.

20.2.7. The study area was defined as up to 500m from the Proposed Scheme for the purposes of initial identification of committed developments. However, a wider area search of additional projects that may contribute to a cumulative impact was then undertaken through review of planning information such as development plans (refer to Chapter 19: Policies and Plans), which included the projects of the A9 dualling programme.

20.2.8. Approved applications that have either lapsed or been completed are assessed as existing land use. However, where consultation with landowners and the planning authority has confirmed the presence of a planning application where development has been being initiated but not completed this is included in the assessment.

20.2.9. Further to the above, a review of other major developments beyond those that are 'committed' was also undertaken to ascertain whether any should justifiably be included in the assessment by virtue of their scale, location or timing.

Assumptions and Limitations

20.2.10. The cumulative assessment has utilised available information on other likely developments, including the other projects of the A9 dualling programme from Perth to Inverness. However, this assessment has only been able to take account of currently available information, and potential for cumulative impacts to occur due to subsequent A9 dualling projects currently at earlier stages of design development is therefore identified where applicable in this assessment but cannot be quantified.

20.3. Potential Cumulative Impacts

Type 1 Cumulative Impacts (of the Proposed Scheme)

20.3.1. As noted in paragraph 20.1.2, for each environmental topic area as reported in Chapters 8 to 19 of this ES, the potential for a number of construction or operational impacts on the same receptor was considered where appropriate and is therefore not repeated here. The following paragraphs relate to potential combinations of environmental topic area impacts on specific areas/receptors.

20.3.2. Following implementation of mitigation, there are comparatively few significant residual effects, primarily because the Proposed Scheme is largely online widening, which limits the area of land required and also means that the baseline conditions already include

the existing A9 trunk road. As such, impacts are often unlikely to be significantly different during operation of the Proposed Scheme.

Construction

20.3.3. Chapter 5 (The Proposed Scheme) provides currently available information regarding the timing/programming and type of construction activities anticipated. The precise details of these will be dictated by the Contractor(s) detailed design and construction methodology. It is recognised that during construction, those properties closest to the works may be subject to temporary disturbance such as changes to visual amenity, noise and access to/from properties.

20.3.4. Mitigation is proposed in the relevant chapters to mitigate these impacts, and it is considered that residual effects identified in this ES would, in combination, not constitute an additional significant cumulative impact on any receptor during construction. Key controls to facilitate implementation of this mitigation will be the Construction Environmental Management Plan and community liaison strategy, both of which are required by mitigation measures set out in Chapter 21 (Schedule of Environmental Commitments) (Mitigation Item S1 and Mitigation Item S3, respectively).

Operation

20.3.5. The review of the findings of each topic area identified a number of receptors that would be subject to a range of residual impacts that could, in combination, potentially contribute to a Type 1 cumulative impact during operation of the Proposed Scheme.

20.3.6. Receptors potentially affected by cumulative impacts during operation are set out in Table 20.1 below and are all residential/agricultural properties. Whilst there are other properties along the route of the Proposed Scheme that may experience some degree of environmental impact, those likely to have the greatest potential for overall cumulative impacts are set out in Table 20.1. All of these cumulative impacts are considered to be not significant.

Table 20.1: Type 1 Cumulative Operational Impacts

Receptor	Description of Individual Residual Effect	Cumulative Impact
Tigh-An-Allt	Significant area of land take (approx. 19% of land associated with property), but no impact on residential building) Significant visual impact resulting from closer proximity of traffic movement, but only intermittently visible Slight/moderate forestry land take (small area but comprises the entire land holding forestry area) Slight (non-significant) change in access/journey time to/from the A9 via the Tomatin GSJ	Not Significant
Dalmagarry Quarry	Significant area of land take (approx. 16% of land associated with quarry) but overall business viability not significantly affected Significant change in access/journey time to/from the A9 via the Tomatin GSJ, but southbound access also available via the Moy LILO - no significant impact on business viability Slight (non-significant) forestry land take	Not Significant

Receptor	Description of Individual Residual Effect	Cumulative Impact
The Sheiling	Significant area of land take for an access track to Dalmagarry Farm (approx. 36% of land associated with property), but no impact on residential building). Change in access/journey time to/from the A9 via Moy LILO (southbound) and the B9154/Lynebeg LILO (northbound) - non-significant	Not Significant
Dalmagarry Farm	Slight/moderate agricultural land take (approx. 5% of land holding), but no impact on farm buildings Slight severance of fields Slight forestry land take Significant visual impact resulting from the open character of the landscape and proximity of the A9 Dalmagarry Bridge and the Ruthven Moy Link Road bridge structures Change in access/journey time to/from the A9 via Moy LILO (southbound) and the B9154/Lynebeg LILO (northbound) - non-significant Neutral to adverse impact on farm business viability	Not Significant

Type 2 Cumulative Impacts (Other Developments)

20.3.7. As noted in Section 20.2 (Approach and Methods), the wider A9 dualling programme from Perth to Inverness was included in the cumulative impact assessment.

20.3.8. Other reasonably foreseeable developments in the vicinity of the Proposed Scheme include a number of planning applications as shown on Figure 8.2a-f and summarised in Table 20.2.

Table 20.2: Reasonably Foreseeable Developments

Ref No. (Highland Council Application Ref.)	Development Description	Development Status	Further Considered in Cumulative Impact Assessment
PA1 (15/00892/FUL)	Installing paths at Tomatin from the centre of the village to the A9 bus stop. Non-EIA development.	Consented (partially constructed)	No (included in baseline condition)
PA2 (07/00163/FULIN & 12/02590/FUL) New application (18/00962/FUL)	Former Little Chef building, Tomatin – mixed-use development incorporating hotel, restaurant, retail and related services. Non-EIA development.	Consented (extension of time) Pending determination	No
PA3 (13/02441/FUL & Appeal Ref. PPA-270-2115)	Glen Kyllachy, Tomatin – erection of a wind farm comprising 20 turbines and associated infrastructure, access tracks and 3 borrow pits. Access to the site via the existing Farr wind farm access.	Consented	Yes

Ref No. (Highland Council Application Ref.)	Development Description	Development Status	Further Considered in Cumulative Impact Assessment
	EIA undertaken / ES submitted.		
PA4 (14/03270/FUL)	Sand and gravel quarry (Dalmagarry Quarry) – re-opening of a previously used quarry and extraction of sand and gravel over a period of 15 years in two phases and then the land returned to forestry use. EIA undertaken / ES submitted.	Consented (enacted)	Yes
PA5 (13/00239/MSC & 15/00632/FUL)	Morlich, Moy village – erection of new 1.5 storey house within existing garden ground. Non-EIA development.	Consented	No
PA6 (16/00769/FUL)	Substation at Tomatin - erection of an electricity substation (the substation itself is more than 500m from the Proposed Scheme to the southwest of Tomatin, the access point will be via the existing Farr wind farm access). Non-EIA development.	Consented	No
PA7 (16/01410/PIP)	Eiledon, Moy village - erection of house and garage within existing garden ground. Non-EIA development.	Consented	No
PA8 (14/01055/FUL)	Burnside Cottage, Moy village - demolition of existing dwelling and erection of replacement dwelling. Non-EIA development.	Consented	No
PA9 (16/03558/PIP)	Land 30m west of Tigh N' Ulaidh, Tomatin - erection of dwelling. Non-EIA development.	Consented	No
PA10 (16/03510/FUL)	Strathdearn Hall, Tomatin - erection of new community hub building with change of use and alterations to existing millennium hall in Tomatin village. Non-EIA development.	Consented	No

20.3.9. The extant planning permissions for Dalmagarry Quarry and Glen Kyllachy wind farm are the only EIA developments and are considered to have the potential to contribute towards cumulative impacts with the Proposed Scheme.

20.3.10. Although redevelopment of the former Little Chef site has the potential for environmental impacts, the project has not been subject to formal EIA and therefore the potential for cumulative impacts with the Proposed Scheme cannot be determined. However, it is noted that no significant environmental issues were raised by the planning authority in the consent decision notice for the proposed development.

20.3.11. No other committed developments shown on Figure 8.2a-f are considered to have potential cumulative impacts with the Proposed Scheme.

Construction

20.3.12. The A9 Dualling construction programme and phasing of individual projects is not yet known, however the majority of the A9 programme is anticipated to be constructed from

2019 to 2025, with individual projects typically taking 1.5 to 2.5 years to complete, depending on size and complexity.

20.3.13. Construction impacts generally occur in a localised area in the vicinity of particular construction activities (e.g. earthwork excavations, foundation piling, or formation of road pavement). As such, whilst there is currently limited information regarding construction, it is unlikely that individual receptors will be affected by multiple projects, due to their geographical separation. Assessment of potential for Type 2 cumulative impacts during construction is summarised in Table 20.3 below.

Table 20.3: Type 2 Cumulative Construction Impacts

Project	Description	Cumulative Impact
A9 Dualling Project 01: Luncarty to Pass of Birnam	Already consented, construction scheduled to commence in 2018. Project 01 will be completed prior to commencement of the construction of the Proposed Scheme and in any case is >50km south of the Scheme.	None
A9 Dualling Project 02: Pass of Birnam to Tay Crossing	Construction timing not confirmed, but northern extent of Project 02 is >50km south of the start of the Proposed Scheme.	Not Significant
A9 Dualling Project 03: Tay Crossing to Ballinluig	Construction timing not confirmed, but northern extent of Project 03 is >50km south of the start of the Proposed Scheme.	Not Significant
A9 Dualling Project 04: Pitlochry to Killiecrankie	Construction timing not confirmed, but northern extent of Project 04 is >50km south of the start of the Proposed Scheme.	Not Significant
A9 Dualling Project 05: Killiecrankie to Glen Garry	Construction timing not confirmed, but the northern extent of Project 05 is >50km south of the Proposed Scheme.	Not Significant
A9 Dualling Project 07: Glen Garry to Dalwhinnie	Construction timing not confirmed, but the northern extent of Project 07 is >50km south of the Proposed Scheme.	Not Significant
A9 Dualling Project 08: Dalwhinnie to Crubenmore	Construction timing not confirmed, but the northern extent of Project 08 is >50km south of the Proposed Scheme.	Not Significant
A9 Dualling Project 09: Crubenmore to Kincraig	Construction timing not confirmed, but the northern extent of Project 09 is approximately 28km south of the Proposed Scheme and the same receptors are unlikely to be affected.	Not Significant
A9 Dualling Project 10: Kincraig to Dalraddy	Already consented, with construction complete.	None
A9 Dualling Project 11: Dalraddy to Slochd	Construction timing not confirmed, the northern extent of Project 11 coincides with the southern extent of the Proposed Scheme. However, the Proposed Scheme involves only minor works at the southern extent with the start of the main construction works being located further north (approximately 8km north of Project 11). The same receptors are unlikely to be affected.	Not Significant
Dalmagarry Quarry	The consent relates to the phased extraction of sand and gravel over a 15 year period. Operation of the quarry will overlap with construction of the Proposed Scheme, however the scale, nature and phasing of activities at the	Not Significant

Project	Description	Cumulative Impact
	quarry are not considered to give rise to significant cumulative impacts.	
Glen Kyllachy wind farm	The proposed wind farm is located approximately 500m from the Proposed Scheme to the southwest of Tomatin, the access point will be via the existing Farr wind farm access.	Not Significant

Operation

20.3.14. Type 2 cumulative operational impacts identified in this assessment comprise the following:

- woodland loss (in particular woodland listed on the Ancient Woodland Inventory (AWI))
- impacts on long-distance NMU routes from multiple projects
- the use of materials and the generation of waste

Woodland Loss

20.3.15. As part of the iterative design process for each of the A9 dualling projects, loss of areas of woodland has been avoided or reduced, for example by refining the road alignment or reducing earthwork extents. However, as much of the A9 runs through areas with numerous environmental constraints, removal of existing woodland is necessary on each of the A9 dualling projects. In line with Scottish Government policy ([iii] and [iv]), each project has aimed to replant equivalent areas of woodland to achieve no overall loss (i.e. 1:1 replacement). Woodland connectivity has also been considered at a project and programme level to ensure that this is maintained or enhanced.

20.3.16. Proposed replacement planting can mitigate woodland loss, and as tree cover becomes established the woodland functionality will develop and currently fragmented woodland areas will be connected to reduce existing fragmentation. However, AWI has a particularly high intrinsic value due to its age, which means it is not readily replaceable, and for this reason AWI loss remains a significant residual impact of the proposed scheme. Given an expectation of similar residual impacts on other A9 projects, it is considered that this will constitute a significant cumulative impact for the A9 Dualling programme.

Long-distance NMU routes

20.3.17. There are a several long distance routes in the vicinity of the existing A9, and these were considered in terms of potential for cumulative impacts to occur due to proximity to different sections (projects) of the A9 forming part of the A9 dualling programme. The Proposed Scheme has a Slight beneficial residual impact on one long distance route that is likely to be affected by other sections of A9 dualling; National Cycle Route 7 (NCN7).

20.3.18. The Proposed Scheme will require minor realignments along the existing NCN7 route but this is unlikely to result in significant increases in journey length. Users of NCN7 will benefit from an increase in safety as a new underpass will be provided at the existing at-grade crossing of the A9 at Dalmagarry. There will be also an improvement with regards to safety due to widening of NCN7 to a minimum of 3m between Tomatin village and the A9 crossing. There may be minor adverse impacts on amenity due to changes in traffic levels along the B9154 (incorporates NCN7), however traffic volumes will still be very low.

20.3.19. Overall, considering the Proposed Scheme results in a beneficial impact, no significant cumulative effect is predicted.

Materials and Waste

20.3.20. Current data (Chapter 18: Materials) suggests that within The Highland Council and TAYPlan areas there is sufficient capacity to supply high quality aggregate material for the Proposed Scheme. However, taking into account the other A9 dualling projects, which are also likely to require locally sourced aggregate material, there is likely to be high demand for materials relative to local availability.

20.3.21. It is anticipated that a high proportion of the excavated material from the A9 dualling projects would be suitable for reuse on-site as engineering fill and would be modified/processed as required to meet specification requirements. However, some earthworks materials along with other aggregates for structures, drainage and road pavement construction are expected to be imported and the quantities of these will vary between the different projects.

20.3.22. There is scope for recycling and reuse of construction waste from the A9 dualling projects, but the quantity achievable will be dependent on the Contractor, and therefore cannot be determined at this stage. However, the construction sector seeks to recycle and reuse construction waste in response to legislative, fiscal and policy drivers, as well as cost minimisation, which would result in a likely reduction in the quantity of material that would leave site.

20.3.23. At this stage, material use and waste generation estimates are not available for all A9 dualling projects. However, allowing for intended re-use and availability of material from both local and non-local sources, it is considered that this can be appropriately managed within projects and across the A9 dualling programme.

20.4. Conclusion

20.4.1. No significant Type 1 cumulative impacts of the Proposed Scheme have been identified.

20.4.2. In terms of potential Type 2 cumulative impacts of the Proposed Scheme in combination with other developments, the loss of AWI is considered potentially significant as the loss is difficult to mitigate due to the age of trees lost.

20.4.3. It is acknowledged that depending on the detailed design for the remaining sections of the A9 dualling programme, additional cumulative impacts are possible. This will continue to be considered at a strategic level by Transport Scotland and in future scheme assessments as more information becomes available.

20.5. References

[i] European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, May 1999. Quoted in Highways Agency et al. (2008a)
[ii] The Highways Agency et al. (2008b). DMRB Volume 11, Section 2, Part 5 HA205/08: Assessment and Management of Environmental Effects, August 2008. Highways Agency, Scottish Government, Welsh Assembly Government and Department for Regional Development Northern Ireland.
[iii] Forestry Commission Scotland (2009). The Scottish Government's Policy on Control of Woodland Removal.
[iv] Forestry Commission Scotland (2015). Guidance to Forestry Commission Scotland staff on implementing the Scottish Government's Policy on Control of Woodland Removal.