



**TRANSPORT
SCOTLAND**
CÒMHDHAIL ALBA

A96 Dualling Programme

Strategic Environmental Assessment
Tier 1 Environmental Report

Appendix E - Do Minimum
Scheme Assessments

September 2014

Appendix E – Do Minimum Scheme Descriptions and Assessment Tables

Do Minimum Scheme:

Aberdeen Western Peripheral Route (AWPR) including a new junction on the A96 near Dyce

The Aberdeen Western Peripheral Route (AWPR) is a key part of the modern integrated transport system for the North East of Scotland. Once constructed, it will be situated at the eastern extent of the SEA study area and will be accessed from the A96 at Craibstone Junction. The AWPR will remove traffic from the existing congested, and often unsuitable, local roads in and around Aberdeen, allowing public transport improvements such as strategic park and ride sites to be implemented. As such, the AWPR will act as both a bypass for long-distance traffic and a distributor road for local journeys, proving links between existing and proposed Park and Ride sites and connecting industrial sites around the city. (1)

Do Minimum Scheme:

Aberdeen to Inverness Rail Improvements Phase 1. This scheme aims to deliver a 2 hour journey time, an hourly service and enhanced commuter services into each city. It will also facilitate the construction of new stations at Kintore and Dalcross by 2019

The Aberdeen to Inverness Rail Improvements programme involves the implementation of upgrades such as additional passing loops and double track at various locations. These upgrades, combined with timetable improvements for passenger services, should act to decrease journey times and increase service frequency and reliability (2). New stations at Dalcross (near Inverness Airport) and Kintore (between Aberdeen and Inverurie), in addition to rail upgrades, are intended to encourage modal shift from road to rail, particularly for those commuting to Aberdeen or Inverness.

Do Minimum Scheme:

Strategic Park and Ride (Dyce and Dalcross)

This scheme involves the implementation of bus and/ or rail-based Park and Ride facilities at Dyce (serving Aberdeen) and Dalcross (serving Inverness). By improving facilities and providing 'bus priority measures' (3), this scheme is intended to reduce journey time by public transport through key sections of the A96 corridor, particularly between Inverness and Dalcross, and Aberdeen and Dyce, thereby increasing the incentive for commuters to shift from car to public transport, and in turn reducing congestion along the respective sections of the trunk road.

Do Minimum Scheme:

A9/A96 Connections Study. Link road between A9 at Inshes and A96 at Smithton

At present, the A9 and A96 trunk roads meet at the eastern edge of Inverness, meaning that traffic travelling between the two trunk roads passes through the Raigmore Interchange and close to built areas of the city. The Raigmore Interchange and a number of other junctions in Inverness have been highlighted as suffering from congestion (4), which is likely to be exacerbated by projected increases in future traffic volume. This A9/ A96 connections scheme is currently at the early studies phase, looking at options available to relieve congestion via possible connecting routes around Inverness.

Do Minimum Scheme:

A96 Inverness to Nairn (Including Nairn Bypass). Upgrading of the A96 to dual carriageway between Smithton on the A96 and Nairn, including a Nairn Bypass

This scheme involves upgrading approximately 30km of the A96 between Inverness and Nairn to dual carriageway, and creating a bypass around Nairn. This scheme should reduce journey times and improve journey time reliability along this section of the A96, and reduce congestion within Nairn, relieving issues such as air pollution and associated human health and environmental impacts. The scheme is currently in design preparation (5).

Do Minimum Scheme:

A96 Inveramsay Bridge. Construction of a realigned carriageway to allow for the removal of traffic lights at the Inveramsay Rail Bridge

The existing Inveramsay Rail Bridge is located northwest of Inverurie and carries the Aberdeen to Inverness railway line over the A96. The masonry arch structure has a 4.4m height restriction and due to the arch and span of the bridge, and traffic under the structure is restricted to a single lane controlled by traffic signals. This scheme is being introduced as a result of the localised congestion at peak times caused by the signals, as well as closures of the road and railway due to bridge strikes. The scheme will construct 1.45km of new, offline single carriageway trunk road and a new crossing over the Inverness to Aberdeen Railway line, enabling the removal of the existing traffic signals (6). The scheme has been designed and has completed statutory procedures.

Do Minimum Scheme:

A96 Threapland Junction. Upgrading the junction at Threapland on the A96 trunk road approximately 1 kilometre east of Lhanbryde to improve safety

This scheme involves the implementation of a number of improvements to Threapland Junction (and neighbouring Loch Oire Road junction), located to the east of Lhanbryde on the A96. Between 1998 and 2008, there were 29 accidents at this location (7), and the scheme primarily involves safety-orientated improvements. These improvements will improve visibility and reduce accident rates with the inclusion of a ghost island for right turning traffic. In addition, cycle and foot paths will be created alongside this stretch, improving safety for non-motorised users (NMUs) (7).

Do Minimum Scheme:

A90/A96 Haudagain Roundabout Upgrade

Haudagain Roundabout is an important junction of the southern terminus of the A96 trunk road with the A90 trunk road at the northern end of Anderson Drive in Aberdeen which currently provides a western ring road of the city. A number of options have been developed to DMRB Stage 2 design level for improvements to the junction which would help to reduce traffic queues on approaches to the roundabout which are particularly severe in peak hours. The preferred option involves construction of a 500m section of link road to the west of the roundabout with new signal controlled junctions. The proposals would require demolition of approximately 130 properties and would result in reduced traffic noise exposure and support regeneration of the Middlefield area of the city. No other significant environmental effects are predicted. (8)

Note on References:

All numbered document references used in the 'Do Minimum' assessment tables below are listed in Appendix G.

Table E1 Population and Human Health

SEA Topic →	Population & Human Health
Existing Baseline/ Issues in the SEA Study Area	<ul style="list-style-type: none"> • Two main cities of Inverness and Aberdeen at the northern and southern extents of the study area • Several key rural towns lie within the study area as well as a number of smaller settlements • Public transport within the study area is generally not competitive with private transport, and the majority of people commute by car (9) although rail journey times between Inverness and Aberdeen (2 hours 15 minutes) are competitive with car (2 hours 40 minutes) (10) • Low accessibility to key services within the study area as a whole for both car and public transport users (9) • The majority of A96 journeys are wholly internal trips between settlements within the corridor, and a high proportion of journeys cover a distance of less than 25 miles, indicating the importance of the A96 as a connector between towns and cities throughout the corridor (11) • Road traffic on the A96 is one of the key contributors to noise within the study area (9) • The Inverness to Aberdeen rail route and the two cities' airports also contribute to noise emissions in some locations (9) • One AQMA in Aberdeen (Anderson Drive) designated for NO₂ and PM₁₀ lies at the extreme southern end of the study area (9) • There are problems relating to accident rates or vulnerable road users on some sections of the route, with accident rates at Nairn, Keith and Huntly, and fatal accident rates between Nairn and Forres, Keith and Huntly and Huntly and Inverurie being higher than the national average for the road type. Between 2008 and 2012, approximately half of all personal injury accidents on the A96 occurred at junctions (11) • High traffic volume at either extent of the corridor, on approach to the cities, as well as relatively high traffic volume on approaches to Elgin and Inverurie (11) • Road users on the A96 making longer journeys are likely to experience delays from a combination of junctions in towns, slower moving vehicles and constraints caused by road alignment. Journey time reliability is particularly influenced by the interface with slower moving vehicles for longer trips on the A96 such as those between the cities (11) • Congestion on approach to, and through urban areas expected to lead to driver frustration
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> • The population within the study area is expected to increase by at least the national average rate (0.4% per annum) between 2010 and 2035 (11) • Increases in population are predicted to lead to increased traffic volumes (11) • Predicted increase in number of noise sensitive receptors due to population increase and associated new development (9) • Potential for increase in atmospheric pollutant emissions in population centres of Inverness and Aberdeen and other towns along the current A96 route as a result of increased traffic • Change in engine/ fuel types could provide minor benefit in terms of reduced vehicle pollutant emissions • Potential for increased accident rates as a result of increased population and traffic • Potential for increased congestion as a result of increased population and traffic, leading to increased journey times and reduced journey time reliability on roads within the study area • Predicted modal shift in freight transport from road to rail could potentially benefit congestion, noise and emissions (9)
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> • Potential localised noise and air quality benefits for sensitive receptors, as a result of reduced traffic flow and congestion, at junctions near Dyce • Potential increase in traffic noise and air quality issues for sensitive receptors around the area the A96 and AWPR converge • Potential for some improved air quality in Aberdeen city centre should AWPR remove through traffic (9) • Improved safety and journey times from junctions near Dyce to south of Aberdeen city centre • Localised issues related to potential for property loss within the SEA study area, as a result of AWPR construction (1)
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> • More frequent, regular rail service and reduced journey times between Inverness and Aberdeen (12) • Potential (assume minor) reduction in A96 traffic volumes through some modal shift • Potential (assume minor) improvement in road traffic related emissions due to modal shift (with secondary links to human health) • Potential local increase in traffic flows and associated emissions around new stations • Mixed effects on CO₂ emissions – some overall reductions in road traffic, some increases in diesel trains – could potentially be improved if rail improvements include electrification
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> • Some commuter traffic modal shift likely, from local areas around Park & Ride locations into employment centres (27) • Potential for marginal reduction in peak hour traffic and congestion at either extent of the study area as a result of modal shift • Potential for marginal reduction in peak hour emissions on approaches to Aberdeen and Inverness associated with modal shift • Potential for impacts on local properties affected by the schemes (depending on selected locations)
A9/ A96 Connection Link	<ul style="list-style-type: none"> • Improved traffic flow between A9 and A96, avoiding Raigmore Interchange • Reduced congestion and related emissions in localised areas of Inverness (particularly Raigmore Interchange) as a result of decreased through traffic • Reduced journey times around Inverness for A9/ A96 through traffic • Potential direct/ indirect impacts on some local properties affected by the scheme depending on final route alignment
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> • Improved connectivity and reduced journey times between Inverness and Nairn/ Nairn Bypass (5) • Improved traffic flows between Inverness, Inverness Airport, Nairn and communities in-between (including future development allocations) • Overall reduction in journey time for through traffic between Aberdeen and Inverness • Potential for reduced accident rate and severity between Inverness and east of Nairn Bypass • Reduced congestion through Nairn, with associated environmental relief (traffic emissions/ noise/ road safety) and secondary health benefits for local population (4) • Potential impacts on some properties/ businesses affected by dualled route (including noise and local air quality effects) dependent on final route selection • Potential loss of some productive agricultural land affected by dualled route
A96 Inveramsay Bridge	<ul style="list-style-type: none"> • Reduced congestion – and driver frustration – around Inveramsay Bridge (6) • Minor improvement in local journey times to/ from the surrounding area • Slight increase in walking distance to public transport access in this area (6) • Slight reduction in overall journey time between Aberdeen and Inverness • Potential reduction in bridge strikes at Inveramsay Bridge leading to improved road and rail safety (6) • Improved safety and journey time for local traffic on de-trunked section of the A96 (6) • Minor reduction in noise impacts as a result of 'low noise surfacing' on new section of A96 for small number of adjacent receptors • Minor localised improvement in air quality due to reduced congestion/ improved traffic flow • Potential impacts on some local businesses affected by the scheme (6)
A96 Threapland Junction	<ul style="list-style-type: none"> • Improved road user/ NMU safety at Threapland Junction as a result of improved visibility (7) • Slight improvement in local air quality/ emissions through reduced congestion/ improved traffic flow • Slight reduction in overall journey time between Inverness and Aberdeen
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> • Potential for improved flow of traffic during peak periods which may have minor beneficial effects on exposure of roadside properties to local air pollutants and some reduction in exposure to traffic noise for properties in the vicinity of the proposals • Slight reduction in overall journey time between Inverness and Aberdeen

SEA Topic →	Population & Human Health
Summary of Future Baseline	<ul style="list-style-type: none"> • Population within the SEA study area is expected to increase by at least the national average rate (0.4% per annum) between 2010 and 2035 and these increases are likely to lead to increased traffic volume along the A96 trunk road • There is currently one AQMA at the southern extent of the study area (in Aberdeen city) designated for NO₂ and PM₁₀ which may benefit slightly from Haudagain Roundabout improvements and air quality in the SEA study area may become an issue in line with increased traffic volume and congestion, e.g. in Inverurie • Committed transport schemes and infrastructure improvements may improve emissions within population centres (e.g. in Nairn) by diverting traffic and improving traffic flows • Long term change in vehicle engine types could provide minor benefits in terms of reduced vehicle emissions • Increasing congestion on the approaches to, and through, key settlements along the A96 and on approaches to the cities expected to lead to driver frustration • Inadequate overtaking opportunities between east of Nairn and Inverurie will remain an issue in some locations • In the absence of specific improvement schemes, higher than national average accident rates for the road type around areas such as Keith and Huntly, are likely to persist • Some modal shift may occur as a result of rail improvements; however, traffic demand modelling for the corridor indicates that there will be an overall growth in traffic in future years

Table E2 Biodiversity (including fauna & flora)

SEA Topic →	Biodiversity, Flora and Fauna
Existing Baseline/ Issues in the SEA study area	<ul style="list-style-type: none"> • There are numerous nationally and internationally designated sites (including Ramsar, SAC, SPA and SSSI) within the study area • Current condition of qualifying features within designated Natura sites varies from 'unfavourable declining' to 'favourable maintained' (13) • No pressures related to A96 traffic have been specifically identified in Site Condition Monitoring reports for relevant Natura sites • Likely pressures on species within the study area include habitat loss/ fragmentation related to land use change, and mortality effects through collisions • Individuals generally anticipated to be locally habituated to A96 traffic related noise/ lighting/ vibration, etc. • Existing A96 trunk road and Inverness to Aberdeen rail line likely to present barriers to movement for some species • Roadside vegetation (verges, trees, etc.) likely to be impacted to varying degrees by traffic emissions/ salt spray/ maintenance regime, depending on species' sensitivity • Surface watercourse quality generally good to excellent, with a number of salmonid rivers • Some watercourses within Nitrate Vulnerable Zones (NVZ) – principally related to nutrient enrichment via agricultural runoff • Road surface runoff and existing drainage provisions assumed to present localised impacts on water quality around outfall locations, with potential for secondary effects on local freshwater biodiversity
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> • Predicted (modelled) growth in traffic flows on A96 (11) could increase the frequency of species-vehicle collisions • Increased flows also likely to exacerbate barrier effects to species movement across the A96 • Climate change likely to have a long term effect on species migration patterns (14) which may be hindered by the presence of barriers such as traffic on the A96 • Anticipated growth in traffic volume, and associated increase in noise and vehicle emissions likely to exacerbate edge effects of the A96 on surrounding habitat and species • Current trends associated with qualifying features of designated sites likely to continue • Water quality effects of surface runoff also exacerbated by increased traffic volume
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> • Potential for localised impacts on species and habitats through AWPR associated with land take from within the far southern extent of study area • Potential for slight to minor benefits through reduced fragmentation effects from traffic should AWPR remove road traffic from the study area
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> • Potential for minor indirect benefits should rail improvements result in modal shift from road to rail, removing traffic (cars and freight) from the A96 • Potential for land take within (as well as outwith) the SEA study area, with potential for limited habitat loss (assumes rail improvements lie within existing Network Rail owned land, and do not impact designated Natura or SSSI sites) • No significant change anticipated in terms of rail related barrier effects to species movements
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> • Potential for marginal indirect benefits should Park and Ride implementation result in modal shift from private to public transport, removing traffic from the A96 • Potential for minor negative effects on species and habitats through land take, depending on location of Park and Ride facilities
A9/A96 Connection Link	<ul style="list-style-type: none"> • Potential for slight negative effects on local species and habitats through land take associated with the scheme • Potential for slight benefit to roadside vegetation through reduced vehicle emission effects around Inverness Raigmore Interchange (improved traffic flow and reduced congestion) • A9/ A96 connection route will include drainage to current standards, including SuDS – no significant impact on local water quality anticipated
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> • Potential for negative effects on species and habitats through land take and habitat fragmentation, where the new route is offline from the existing road • Roadside edge clearance for on line widening may include some woodland removal, with potential impact on associated woodland species • Road widening likely to present wider barrier to species movement • Dualled route permeability for species measures likely to include drainage, including SuDS and culverts with mammal passage, and safe crossing points for non-motorised users • Emissions from traffic on dualled route may exacerbate vehicle emission effects on roadside vegetation • Drainage upgrades to current standards, including SuDS, likely to improve surface runoff discharge quality to local watercourses
A96 Inveramsay Bridge	<ul style="list-style-type: none"> • Potential for slight negative effects on local species and habitats through land take and habitat loss associated with the scheme • Potential for slight benefit to roadside vegetation through reduced vehicle emission effects around Inveramsay Bridge (improved traffic flow and reduced congestion) • Localised improvement to surface runoff discharge quality through drainage upgrade, including SuDS
A96 Threapland Junction	<ul style="list-style-type: none"> • Potential for slight negative effects on local species and habitats through land take associated with the scheme (7) • Potential for slight benefit to roadside vegetation through reduced vehicle emission effects around Threapland Junction (improved traffic flow and reduced congestion) (7) • Localised improvement to surface runoff discharge quality through drainage upgrade, including SuDS (7) • Potential for slight negative impacts on Loch Oire SSSI as a result of surface water runoff – drainage ultimately runs to Loch Oire via SuDS (7) (potential for negative effects most likely via 'first flush' heavy rainfall through SuDS, although rainfall is expected to aid dilution)
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> • Potential for slight negative effects on local species and habitats through land take and habitat loss associated with the scheme (this is not expected to be significant based on the limited nature conservation value of the roundabout and its immediate environs) • Localised improvement to surface runoff discharge quality through proposed drainage upgrade
Summary of Future Baseline	<ul style="list-style-type: none"> • There are a wide range of Ramsar, SAC, SPA and SSSI sites within the SEA study area boundary, the number of which could increase (e.g. new designations being proposed) • Current condition status trends of qualifying features and pressures on designated sites are likely to continue; however, future population growth and settlement expansion/ development within the SEA study area may introduce additional pressures • Pressures on species within the study area include habitat loss/ fragmentation related to land use change, and mortality through vehicle collisions are likely to be exacerbated • Existing A96 is likely to present a barrier to movement for some species, upgrading the Inverness to Nairn (including Nairn bypass) section may provide improved permeability via mammal passes/ pedestrian subways/ bridges; however this will not present route-wide benefits and barrier issues will persist in some locations • Upgraded sections of the A96 route will include drainage provisions (including SuDS) to current design standards; however, this is not the case across the entire route and road surface runoff will continue to present localised impacts on water quality around outfall locations, with subsequent issues for local biodiversity • Some modal shift may occur as a result of rail improvements; however, traffic demand modelling for the corridor indicates that there will be an overall growth in traffic in future years with potential for secondary impacts on roadside vegetation, species movement and road surface runoff

Table E3 Water

SEA Topic →	Water
Existing Baseline/ Issues in the SEA Study Area	<ul style="list-style-type: none"> • Main surface watercourses through the SEA study area include the Rivers Nairn, Findhorn, Lossie, Spey, Deveron, Urie and Don, as well as numerous tributaries • Water quality of principal watercourses generally good to excellent (15) • Water quality important for the range of distilleries in the area • There are a number of coastal, fluvial and wetland Natura and Ramsar sites within the study area, including the Moray and Nairn Coast SPA/Ramsar and the River Spey SAC • Large areas of the study area are prone to significant flooding (fluvial and coastal) (16) • There are a number of Local Authority flood prevention schemes under development within the study area • Some watercourses within Nitrate Vulnerable Zones (NVZs) – principally related to nutrient enrichment via agricultural runoff • Current A96 road drainage design not to current standards/ does not include SuDS on older sections • Road surface runoff and existing drainage provisions have potential to present localised impacts on water quality around outfall locations, with potential for secondary effects on local freshwater biodiversity/ sensitive habitats/ coastal areas
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> • Climate change anticipated to increase frequency of extreme weather events, including rainfall, which would be likely to increase frequency and severity of local flooding events (17) • Some improvement to local water watercourses/ water quality via non-transport related Water Framework Directive (WFD)/ River Basin Management Planning (RBMP) initiatives • No significant (route-wide) improvement to A96 drainage provisions or surface runoff water discharge quality • Anticipated growth in traffic volume (11) likely to exacerbate surface runoff/ discharge quality issues • Long term change in vehicle engine types could provide slight benefit in terms of vehicle emissions/ surface runoff (assume minimal change as electric vehicles still require oil/ lubricants)
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> • No significant direct effects on the water environment within the study area predicted • Potential for minor indirect benefits should AWPR remove traffic from A96 (assume minimal effect)
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> • No significant direct effects on the water environment within the study area anticipated • Potential for local effects on water environment, depending on the location and type of rail improvements (assume minimal effect due to overarching need to protect the water environment and avoid increasing flood risk) • Potential for minor indirect benefits should rail improvements result in modal shift from road to rail, reducing traffic on the A96 (assume minimal effects)
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> • No significant direct effects on the water environment within the study area anticipated • Potential for minor indirect benefits should combination of rail improvements and strategic Park & Ride facilities result in modal shift from road to rail, reducing traffic on A96 (assume minimal effects)
A9/A96 Connection Link	<ul style="list-style-type: none"> • No specific route/ location of works confirmed at this stage • Any new connection route would be built to current design standards, including SuDS • Connection between A9 and A96 likely to remove some through traffic from Inverness/ Raigmore Interchange • Potential for mixed benefits/ issues depending on final route selection/ level of traffic congestion alleviated
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> • Dualling scheme will upgrade road drainage to current design standards, including SuDS, for the entire section between Inverness and Nairn/ Nairn Bypass (Auldearn) • Inclusion of SuDS likely to improve surface runoff discharge quality to local watercourses and into the surrounding Moray Firth • SuDS will also provide some additional local flood water attenuation for road surface runoff (or at least maintain greenfield runoff rates) • Drainage upgrade likely to relieve problem A96 culverts/ watercourse crossing issues to avoid and minimise increased flooding risk • Overall, likely to result in minor to moderate benefits in terms of discharge quality and flood risk
A96 Inveramsay Bridge	<ul style="list-style-type: none"> • Relatively small scheme within the SEA study area, with drainage upgrade to meet current design standards • Scheme EIA notes that local surface runoff discharge quality to River Urie is improved through SuDS design mitigation • SuDS design also includes local flood attenuation measures • Overall, likely to result in localised minor benefit
A96 Threapland Junction	<ul style="list-style-type: none"> • Small scheme within the SEA study area, with drainage upgrade to meet current design standards • Scheme EIA notes that local surface runoff discharge quality to Loch Oire SSSI is improved through SuDS design mitigation (7) • SuDS design also includes local flood attenuation measures (7) • Overall, likely to result in localised minor benefit
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> • Relatively small scheme in the context of the SEA study area, with drainage upgrade to meet current design standards • Overall, likely to result in localised minor benefit
Summary of Future Baseline	<ul style="list-style-type: none"> • The quality of principal watercourses within the SEA study area (generally good to excellent) is likely to be maintained via non-transport related initiatives and measures to comply with the EU Water Framework Directive • There are a number of coastal, fluvial and wetland Natura and Ramsar sites within the SEA study area, the number and size of which may change in the future • Although there are a number of Local Authority flood prevention schemes within the vicinity of the existing Inverness to Aberdeen corridor, large areas are predicted to remain prone to significant fluvial and coastal flooding • Climate change anticipated to increase frequency of extreme weather events, including rainfall, which would be likely to increase frequency and severity of local flooding events • Upgraded sections of the A96 route will include drainage provisions (including SuDS) to current design standards, with subsequent benefits for surface runoff/ discharge quality and some enhanced capacity for flood attenuation; however, this is not the case across the entire route and current conditions will persist on some parts of the non-upgraded sections • Continued growth in traffic volume predicted on the A96 in future years is likely to exacerbate surface runoff/ discharge quality issues • Long term change in vehicle engine types could provide minor benefit in terms of vehicle emissions/ surface runoff (assume minimal change as electric vehicles still require oil/ lubricants)

Table E4

Soil

SEA Topic →	Soils and Geodiversity
Existing Baseline/ Issues in the SEA Study Area	<ul style="list-style-type: none"> • There are a range of geodiversity sites (SSSI and Geological Conservation Review sites) within the 15km wide baseline study area • None of these are currently directly affected by the main transport routes, or traffic using them • Predominant land uses within the study area include agriculture (soil quality classified up to Grade 3, arable and mixed agriculture) and forestry • There are no significant Inverness to Aberdeen rail route or A96 trunk road related issues/ trends on soils or geological diversity in the study area • Potential for minor adverse effects likely on trackside and roadside soils/ soil biodiversity associated with surface runoff, vehicle emissions and salt spray
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> • Natural weathering/ climatic factors likely to have some impact on soils within the study area (17) (not considered a significant issue related to the A96) • Anticipated increase in traffic volumes has potential to exacerbate existing conditions on roadside soils/ soil biodiversity (assume very minor change) • General land use change and development in the study area (e.g. housing, industry etc.) have the potential to affect designated areas and to reduce the available area of productive agricultural land • No significant effects on soils and geology anticipated in the absence of a 'plan' for the A96
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> • Potential for minor losses of agricultural land, through soil sealing by new road development, at the eastern extent of the study area, associated with AWPR land take • Some displacement of soils and rock through construction of embankments and cuttings for AWPR/ A96 junction (will include some minor losses due to soil sealing) • No significant adverse changes to soils and geology expected within the study area
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> • Potential for land take within (as well as outwith) the SEA study area, resulting in limited soil losses (assume rail improvements lie within existing Network Rail owned land, and do not impact designated SSSI or GCR sites) • Potential for minor losses of agricultural land, through soil sealing, depending on locations of new stations at Dalcross and Kintore • Potential displacement of soils and rock through construction/ expansion of rail line/ passing loops/ stations • No significant adverse changes to soils and/ or geodiversity sites are predicted within the study area
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> • Potential for locally minor losses of agricultural land, through soil sealing, depending on locations of new Park & Ride facilities (considered less likely around Dyce) • Potential displacement of soils and rock through construction of new Park and Ride facilities • No significant adverse changes to soils and geology expected within the study area
A9/A96 Connection Link	<ul style="list-style-type: none"> • No specific route/ location of works confirmed at this stage • Potential for locally minor losses of agricultural land, through soil sealing, associated with land take for this scheme • Some displacement of soils and rock through construction of embankments and cuttings (will include some minor losses to soil sealing) • No significant adverse changes to soils and geology expected within the study area
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> • Potential for locally minor to moderate impacts on soils and geology depending on final route alignment • Provisional (worst case) estimate on soil sealing, based on 30km route length and 35m width, results in 1.05sqkm area lost to sealing (assumes full width of 4 lane dual carriageway and no reuse of existing) • Potential for minor to moderate impact on Kildrummie Kames SSSI, depending on final Nairn Bypass route alignment (could potentially be avoided) • Potential for local impact on peat soils to the north of Gollanfield • Minor losses of agricultural land, through soil sealing, associated with land take for widening and offline construction of new dualled route • Some displacement of soils and rock through construction of embankments and cuttings (will include some minor losses to soil sealing) • Level of losses/ impact depends on final route alignment and efficiency in reuse of existing infrastructure • Impact assumption for this scheme is minor adverse changes to soils and geology within the western extent of the study area
A96 Inveramsay Bridge	<ul style="list-style-type: none"> • Potential for locally minor losses of agricultural land, through soil sealing, associated with land take for road realignment on this scheme • Some displacement of soils and rock through construction of embankments and cuttings (will include some minor losses to soil sealing) to deliver new road section and bridge over railway line • No significant adverse changes to soils and geology expected within the study area
A96 Threapland Junction	<ul style="list-style-type: none"> • Potential for locally minor losses of agricultural land, through soil sealing, associated with land take for road realignment and junction improvement on this scheme • Some displacement of soils and rock through construction of embankments and cuttings (will include some minor losses to soil sealing) • No significant adverse changes to soils and geology expected within the study area
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> • Potential for minor effects on soils although expected scale of works and nature of urban location would not be predicted to result in adverse impacts on soils and there would be no loss of agricultural land or effects on designated sites
Summary of Future Baseline	<ul style="list-style-type: none"> • There are a range of geodiversity sites (SSSI and Geological Conservation Review sites) within the SEA study area, the number of which could change in the future • Development proposals in the SEA study area (transport and other land uses) have the potential to affect designated areas and to reduce the available area of productive agricultural land or peat reserves • Potential for minor adverse effects likely on roadside soils/ soil biodiversity associated with surface runoff, vehicle emissions and salt spray, exacerbated by growth in traffic volume

Table E5 Historic Environment

SEA Topic →	Historic Environment
Existing Baseline/ Issues in the SEA Study Area	<ul style="list-style-type: none"> • There are a diversity of Scheduled Monuments, Battlefields, Listed Buildings and Gardens and Designed Landscapes spread throughout the SEA study area • There are also a number of Conservation Areas and an extensive range of unscheduled archaeology representing a range of periods • Recent trunk road improvement works have had to deal with a range of sensitive historic environment issues (e.g. Gardens and Designed Landscape issues at Fochabers and Mosstodloch bypass)
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> • Inverurie and Kintore have been identified as potential future Conservation Areas (9) • General continuation of existing traffic related effects on local historic environment features, e.g. effects of vehicle emissions on buildings/ monuments in urban areas/ close to the roadside, potentially exacerbated by increases in traffic volume associated with predicted population growth • No significant additional impacts predicted on historic environment in the absence of a 'plan' for the corridor although general development proposals (e.g. housing) have the potential to affect and/or to allow for interpretation of historic environment sites including as yet unidentified buried archaeology
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> • Potential for minor adverse effects (AWPR assessment) on the setting of St. Mary's Chapel and Graveyard (Scheduled Monument) as this lies close to the existing A96 dual carriageway and future junction with the AWPR (20) • Category C listed Walton Farmhouse (MacRobert Experimental Farm) lies within the 15km-wide SEA study area boundary and in the region around the AWPR (assessed as no impact on setting by AWPR) (20)
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> • Potential for slight positive impacts upon surrounding historic environment sites should rail improvements deliver modal shift, resulting in minor reductions in vehicle emissions effects on buildings/ monuments in urban areas/ close to the roadside (assume slight benefit) • Potential for mixed effects depending on final site selection for new stations and other infrastructure • Uncertainty in rail improvements/ station locations limits this assessment
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> • Presents additional potential to support modal shift, in conjunction with rail improvements and new stations • Likely to augment potential historic environment benefits in terms of reducing vehicle emissions (assume marginal benefit) • Potential for mixed effects depending on final site selection for new Park and Ride facilities • Uncertainty in station/ Park and Ride facility locations limits this assessment
A9/A96 Connection Link	<ul style="list-style-type: none"> • Range of minor to major, direct and indirect effects possible, depending on final A9/ A96 connection route alignment, distance from features and visibility (e.g. on setting) • Potential for slight positive impacts upon historic environment features around Inverness Raigmore Interchange, should A9/ A96 connection improvements result in reductions in local vehicle emissions effects on buildings/ monuments close to the roadside (assume slight benefit) • Uncertainty in A9/ A96 connection routing limits this assessment
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> • A range of historic environment features have been identified within the 15km-wide baseline study area between Inverness and Nairn • Range of minor to major, direct and indirect effects likely, depending on final dualled route alignment, distance from features and visibility (e.g. on setting) • Potential for locally major adverse effects should this scheme result in absolute loss of, or significant impact on, a designated historic environment asset/ feature • No significant adverse effects on Conservation Areas predicted • Potential for beneficial effects on assets/ features in Nairn, due to bypass
A96 Inveramsay Bridge	<ul style="list-style-type: none"> • No significant adverse effects on surrounding historic environment assets/ features predicted (6) • Potential for minor adverse effect on the setting of Harlaw Battlefield, located to the southeast of the scheme, and the dismantled section of the Macduff Section of the Great North of Scotland Railway (6) • Potential improvement to the setting of Station Cottages and the Inveramsay Rail Bridge (6)
A96 Threapland Junction	<ul style="list-style-type: none"> • No significant adverse effects on surrounding historic environment assets/ features predicted (7)
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> • No significant effects on cultural heritage are predicted for the preferred design option at Haudagain Roundabout • No significant adverse effects on upstanding or buried archaeology are predicted
Summary of Future Baseline	<ul style="list-style-type: none"> • There are a wide range of designated and non-designated historic environment sites/ features within the SEA study area, the number of which could change in the future, for example Inverurie and Kintore have been identified as potential future Conservation Areas • Committed transport infrastructure schemes in the Do Minimum may have some effects on buried and upstanding archaeology, and other built heritage features, depending on the final alignments and locations of the proposals • General development proposals (e.g. housing) have the potential to affect and/ or to allow for interpretation of historic environment sites, including as yet unidentified buried archaeology • It is predicted that there will be a general continuation of existing traffic related effects on local historic environment features, e.g. effects of vehicle emissions on buildings/ monuments in urban areas/ close to the roadside, potentially exacerbated by increases in traffic volume associated with predicted population growth

Table E6 Landscape

SEA Topic →	Landscape
Existing Baseline/ Issues in the SEA Study Area	<ul style="list-style-type: none"> The SNH broad landscape character assessment dataset (26) describes the predominant landscape types within the study area as Lowland Coastal Landscapes of the North East to Agricultural Lowlands of the North East, with smaller areas of Highland Strath and Rolling Mountains/ Transitional Moorland in between The Highland Council A96 Corridor Landscape Assessment Report (23) describes the area around the A96 from Inverness to Nairn as a mixture of Coastal Farmland/ Intensive Farming/ Enclosed Farmed Landscapes to Rolling Farmland with Woodland, with views to Enclosed and Open Firth landscapes The Moray and Nairn Landscape Assessment (22) describes the area around the existing A96 from Nairn to Fochabers as Coastal Plain/ Coastal Farmland and from Fochabers to Keith as Upland/ Upland Farming The Moray and Nairn Landscape Assessment (22) identifies the area around Strath Spey (south of the A96) as an Area of Great Landscape Value, with other areas of Landscape Value identified around the Inventory Gardens and Designed Landscapes in the region (22) The South and Central Aberdeenshire Landscape Character Assessment (24) describes the predominant landscape around the A96, south of Keith, as Agricultural Heartland/ Northern Rolling Lowlands/ Central Wooded Estates/ Farmed Moorland Edge with small areas identified as Deveron and Bogie Strath and Grampian Outliers Overall, the key landscape types in the study corridor are predominantly low-lying and agricultural in nature The A96 and the Inverness to Aberdeen railway are established features within these landscapes, and the local authorities in the region have a range of plans for local development growth in the corridor
Development of Baseline in Absence of 'Plan'	<ul style="list-style-type: none"> No significant changes to regional landscape character types, due to A96 maintenance regime or rail improvements, predicted Future population growth could lead to localised adverse effects on the more sensitive landscape character types within the SEA study area, where local development/ expansion/ growth is not sensitively implemented Other infrastructure development, e.g. onshore windfarm development and expansion of urban areas for housing, likely to present some landscape effects – although impacts are expected to be controlled via the planning system and will depend on extent of development which is consented Landscape may continue to change as a result of increasing move to intensification of agriculture and from pasture based systems to arable (25)
Do-Minimum Scenario – Predicted effects of committed schemes on future baseline of the SEA Study Area	
Aberdeen Western Peripheral Route (AWPR)	<ul style="list-style-type: none"> This scheme will locally alter the rural landscape around Dyce at the eastern end of the SEA study area, as The Moray and Nairn Landscape Assessment (22) new road transport infrastructure features are constructed Mitigation measures such as planting and careful use of cutting and embankments should result in no greater than a minor change in the landscape of the SEA study area Traffic flows on the A96 could potentially be reduced, resulting in potential for minor benefits to the landscape and visual receptors in this area
Aberdeen to Inverness Rail Improvements	<ul style="list-style-type: none"> As this rail route weaves in and out of the study area, this scheme has potential for locally minor negative effects, depending on the locations of new passing loops, etc., and the frequency of rail services (assume minimal change as rail enhancements likely to be within existing Network Rail owned land) New stations at Dalcross and Kintore could result in locally minor landscape effects (assume minimal impacts) The scheme may result in modal shift, potentially reducing traffic visible on existing A96
Strategic Park & Ride (Dyce & Dalcross)	<ul style="list-style-type: none"> New Park and Ride facilities at Dyce and Dalcross have the potential for locally minor landscape effects (assume minimal impacts)
A9/A96 Connection Link	<ul style="list-style-type: none"> No specific route/ location of works confirmed at this stage Any new connection route will introduce new road transport infrastructure in the area Potential for mixed effects depending on final route selection/ level of traffic congestion alleviated and mitigation measures Relatively small scheme within the study area and mitigation measures such as planting will minimise effects on landscape such that significant change is not predicted in the longer term
A96 Inverness to Nairn (incl. Nairn Bypass)	<ul style="list-style-type: none"> Will widen existing linear feature, and introduce new linear infrastructure, along some sections of the study area between Inverness and Aulder, depending on final route alignment Landscape sensitivity through coastal farmland areas with views to enclosed/ open Firth will be considered in final alignment design Landscape mitigation measures such as fitting the route to the landform, screen planting and sensitive design of cuttings/ embankments will help minimise negative landscape effects as vegetation matures Assume minor adverse effects on local landscape character over the long term
A96 Inveramsay Bridge	<ul style="list-style-type: none"> The proposed Scheme will be located within the River Urie Valley, where the existing road and the railway are prominent linear features (6) The local and wider landscape is characterised by agricultural land use and rolling hills with flat bottomed meandering river valleys No national, regional or locally designated landscape or identified 'valued views' will be adversely affected by the Scheme Adverse landscape and visual effects are predicted to reduce over time as mitigation planting establishes and matures reducing effects to minor adverse on the local area with negligible effects on the overall landscape (6) Relatively small scheme along the study area and mitigation measures such as planting will minimise effects on landscape such that significant change is not predicted in the longer term
A96 Threapland Junction	<ul style="list-style-type: none"> The landscape in the vicinity of the Scheme is a gently rising, undulating area, which forms a transition between the coastal plain and the uplands (7) The landscape is not designated as an area of particular quality Will result in the road becoming a slightly more engineered and prominent feature in the landscape Some trees and vegetation will be lost and a new section of access road to form a realigned junction and attenuation pond will be introduced The overall significance of visual effects to local receptors will be minor adverse With replacement planting, the significance to the overall landscape character of the area will be negligible
A90/A96 Haudagain Roundabout	<ul style="list-style-type: none"> The landscape in the vicinity of Haudagain Roundabout is of a utilitarian urban fringe location with some open views across the Don valley to the north Townscape and visual effects from the improvement works would have the potential for minor adverse effects depending on the scale and design of the finalised proposals however significant adverse effects are not predicted
Summary of Future Baseline	<ul style="list-style-type: none"> There are no national landscape designations within the SEA study area The area around Strathspey has been identified in local Morayshire reports as an Area of Great Landscape Value, none of the Do Minimum A96 route or Aberdeen to Inverness rail enhancements are expected to affect this area The SNH broad landscape character assessment dataset describes the predominant landscape types within the study area as Lowland Coastal Landscapes of the North East to Agricultural Lowlands of the North East, with smaller areas of Highland Strath and Rolling Mountains/ Transitional Moorland in between Do Minimum schemes are likely to present varying degrees of visual impact within the range of Landscape Character types, depending on the scale of the scheme and sensitivity of the relevant landscape and distribution of visual receptors; however, none are considered a scale sufficient to present significant adverse effects on local landscape character It is likely that there will be some incremental changes in the surrounding landscape over time as a result of proposed developments around towns and settlements and renewable energy (e.g. wind) developments



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