1. Introduction

1.1 Overview

1.1.1 This Environmental Statement (ES) presents the findings of an Environmental Impact Assessment (EIA) of the proposed A720 Sheriffhall Roundabout in the south-east of Edinburgh. It predicts the environmental effects of the construction and operation of the junction improvements, hereby referred to as the 'Proposed Scheme', and details the measures proposed to reduce or eliminate those effects. A Non-Technical Summary (NTS) accompanies this ES and provides a summary of the findings in non-technical language.

1.1.2 A Design Manual for Roads and Bridges (DMRB) Stage 3 Engineering, Traffic and Economic Assessment has also been prepared separately by AECOM on behalf of Transport Scotland (TS). Further information on the DMRB stages is provided in Paragraph 1.2.2 below.

1.1.3 The Proposed Scheme entails grade separation to allow the A720 Edinburgh City Bypass ('the A720') to be carried over the existing roundabout which will be increased in size to accommodate the current A7 and A6106 and new slip roads to and from the A720 Edinburgh City Bypass.

1.1.4 Sheriffhall Roundabout is in the south-east of Edinburgh and is the only at-grade junction on the A720; see Figure 1.1 'Site Location Plan'. When the A720 was constructed in 1989 the decision to opt for a roundabout in preference to a grade separated junction was largely because of the complex ground conditions which include a geological fault and mine workings that were being worked at the time.

1.1.5 There are extensive plans for residential and business development within the vicinity of Sheriffhall, including the South East Wedge (Shawfair) development. Sheriffhall also provides access to several growth areas, including the South East of Edinburgh where an Enterprise area has been established, and large developments along the A7 corridor. Sheriffhall also provides access from the east of Edinburgh City area to the growth areas around the West of Edinburgh and the M8 Corridor.

1.1.6 Underlying traffic volumes on the road network around Edinburgh are expected to increase by approximately 40% over the next 20 years. This increase is estimated from the impact of developments outlined in the emerging Strategic Development Plan. Congestion and delay on the A720 would increase, especially around key junctions such as Sheriffhall, and it is anticipated that traffic conditions around Sheriffhall Roundabout would deteriorate significantly.

1.1.7 Junction improvements at Sheriffhall were identified as part of the Strategic Transport Projects Review (STPR), published in December 2008 (Scottish Government, 2008). Intervention 22 recommends targeted road congestions/environmental relief schemes, including junction improvements at the Sheriffhall Roundabout. Improvements to Sheriffhall Roundabout are also identified as part of the Edinburgh and South East Scotland City Region Deal.

1.1.8 This chapter provides background on the previous assessments undertaken, and a brief description of the Proposed Scheme and the existing conditions. Information is also provided on the statutory context for this ES, its contents and the assessment team that carried out the EIA.

1.1.9 Details on how to comment on this ES are provided in Section 1.8.

1.2 Background

1.2.1 There have been several studies to assess the improvement of the Sheriffhall Junction, all of which have contributed to the findings of the DMRB Stage 3 assessments. Further detail can be found in Chapter 3 – Alternatives Considered.

1.2.2 The DMRB is a series of standards, advice notes and other documents relating to the design, assessment and operation of trunk roads in the United Kingdom. DMRB follows three assessment stages as set out in DMRB Volume 5, Section 1, Part 2 'Scheme Assessment Reporting (TD37/93) (Highways Agency, et al., 1993). The main aims of the assessment reporting process are:

- To permit consideration of the likely environmental, economic and traffic effects of alternative proposals, and
- To allow the public and statutory bodies to comment on proposals taking account of their environmental, economic and traffic implications.

1.2.3 At each of the three stages of assessment the objective is to ensure that assessment is sufficient to:

- Stage 1 – identify the environmental, engineering, economic and traffic advantages, disadvantages and constraints associate with broadly defined improvement strategies.
- Stage 2 – identify the factors to be considered in choosing alternative routes or improvement schemes and to identify the environmental, engineering, economic and traffic advantages, disadvantages and constraints associated with those routes or schemes.
- Stage 3 – identify clearly the advantages and disadvantages in environmental, engineering, economic and traffic terms of the preferred route of scheme option.

1.2.4 Atkins carried out a detailed Scottish Transport Appraisal Guidance (STAG) Part 1/DMRB Stage 1 Report in 2008 that contained some elements of a STAG Part 2 Report, in that it included initial economic findings (Atkins, 2008). STAG is an appraisal process prepared by the Scottish Government to provide a clear and robust framework to identify potential transport interventions, it follows three stage: Pre-appraisal, Part 1 Appraisal and Part 2 Appraisal. In the long term the assessment found that a simple grade separation provided the best travel time and accident savings benefits whilst minimising the impact on the environment.

1.2.5 AECOM was appointed by TS in July 2013 to provide clarity on the most appropriate form of junction and to update the previous work done by Atkins in light of the following changes:

- The opening of the Dalkeith Bypass;
- Changes in traffic flows on the routes approaching Sheriffhall;
- Operational links between Sheriffhall, Millerhill and Old Craighall junctions and the A720 to the west including Gilmerton junction; and
- Growth in traffic from development in South East Scotland Strategic Development Plan (SESplan SDP) and relevant Local Development Plans.

1.2.6 Consideration was also to be given to the cost effectiveness of moving the location of the junction.

1.2.7 A Stage 1 DMRB Assessment was carried out by URS (now AECOM) and concluded in September 2014 (URS, 2014). A total of eight options underwent DMRB Stage 1 Assessment. It was recommended that a total of four options were taken forward for further assessment at Stage 2.

1.2.8 A significant level of design development was undertaken at Stage 2 to refine the layouts that emerged from Stage 1 to enable a detailed comparative assessment of the options and ultimately identification of an overall preferred junction layout.

1.2.9 Following a Value Management Workshop in March 2015 it was determined that one option did not sufficiently meet the scheme objectives and that it should therefore not be taken forward for further Stage 2 assessment.

1.2.10 Three options were subject to detailed assessment at Stage 2:

- Option A – Dumbbell Grade Separation at Sheriffhall
- Option B – Grade Separation at Sheriffhall
- Option C – Dumbbell Grade Separation west of Sheriffhall.

1.2.11 The Stage 2 Scheme Assessment was undertaken as defined in the DMRB Volume 5, Section 1, Part 2 'Scheme Assessment Reporting' (TD37/93) (The Highways Agency, et al., 1993). The assessment process identified factors to be considered in choosing improvement schemes and to identify the environmental, engineering, economic and traffic advantages, disadvantages and constraints associated with those schemes. The Stage 2 Report was published in April 2017; it recommended that Option B be adopted as the preferred option and should be taken forward for further development to DMRB Stage 3 assessment and then publication of draft Orders.

1.2.12 Further detail on the Stage 2 options and assessment can be found in Chapter 3 – Alternatives Considered.

1.3 The Proposed Scheme

1.3.1 The Proposed Scheme as reported in this ES has been developed to a DMRB 'Stage 3' level of design and is shown in Figure 1.2 'The Proposed Scheme' and described in full in Chapter 5 – The Proposed Scheme and further details are shown on Figure 5.1 – Proposed Scheme Layout.

1.3.2 The Proposed Scheme comprises of a grade separated roundabout requiring vertical and horizontal realignment of the A720 over an approximate length of 1600m. The A720 would be carried across the Sheriffhall Roundabout by two new bridges with spans of approximately 60m and 70m. The Sheriffhall Roundabout would be enlarged and become an 8-arm roundabout but is retained at its existing location and would be reduced to three lanes. The Proposed Scheme also includes Non-Motorised User (NMU) facilities including five dedicated NMU subways under the new roundabout providing an off carriageway NMU route.

1.4 Existing Conditions

1.4.1 This section provides an overview of the existing engineering, environmental and traffic conditions relating to the Sheriffhall Roundabout on the A720 Edinburgh City Bypass. The overview encompasses both the issues relating to the existing road junction and those pertaining to the surrounding area.

1.4.2 The existing roundabout is in the south-east of Edinburgh on the boundary of the City of Edinburgh Council (CEC) and Midlothian Council (MLC). The Royal Infirmary Edinburgh (RIE) is located on the A7 approximately 6km to the north-west of Sheriffhall Roundabout. The RIE is a major acute teaching hospital located on the Edinburgh Bioquarter, a major health and science campus. The town of Dalkeith lies approximately 1km to the south-east of the Proposed Scheme and there are a range of other settlement to the south of the A720 including, Bonnyrigg, Lasswade, Eskbank, Newbattle. The A7 provides a key route from Midlothian to Edinburgh City centre.

1.4.3 There are several community facilities within 500m of the existing Sheriffhall Roundabout including, Dalkeith Country Park, the Sheriffhall Park and Ride facility and the Spire Private Hospital. Danderhall to the north on the A7 also includes a number of facilities including a leisure centre, library, police station and medical centre. Kings Acre golf course is located to the south-west and there are a few businesses located within 1Km of the existing roundabout and these are described in more detail in Chapter 15 – People and Communities: Community and Private Assets and Human Health.

Key Environmental Constraints

1.4.4 The key environmental constraints are shown on Figure 1.3 'Key Environmental Constraints' and are summarised here.

1.4.5 A number of properties, including residential, are located within a 1km study area. These include a number of listed buildings, the closest being Summerside Farm which is approximately 100m north of Sheriffhall Roundabout, and Old Sheriffhall Farmhouse which is approximately 150m south-east of Sheriffhall Roundabout. Both are Category B listed. There are five Scheduled Monuments within the study area, the closest being Melville Grange which is located south of the A772 Gilmerton Road, a Roman Camp which is located south of the A6106 South (Old Dalkeith Road) and a Roman Fort which is located on the north side of B6392 Gilmerton Road. Further details of cultural heritage designations can be found in Chapter 10 – Cultural Heritage.

1.4.6 Dalkeith Oakwood Site of Special Scientific Interest (SSSI) is the only nationally designated site for nature conservation within the study area and is located close to Millerhill Junction, approximately 0.5km south of the A720 Millerhill Junction and south of the River Esk, and approximately 2km from Sheriffhall Roundabout. This area of woodland is also listed on the Ancient Woodland Inventory (AWI). There are further swathes of Ancient Woodland within the study area, the largest being in Dalkeith Country Park to the east of Sheriffhall and smaller swathes to the south. Ancient Woodland is shown on Figure 9.1 'Designated Areas of Conservation Interest' and further details can be found in Chapter 9 – Nature Conservation.

1.4.7 The majority of the land located within the study area is prime agricultural land which is designated as Green Belt.

1.4.8 There are two Special Landscape Areas (SLA) within the study area; the North Esk SLA to the south of the Proposed Scheme and The Drum SLA to the north. There are three Gardens and Designed Landscapes within the study area. Further details can be found in Chapter 8 – Landscape and Visual Effects.

1.4.9 There are a number of existing watercourses in the vicinity of Sheriffhall Roundabout, including the Dean Burn and the River North Esk. The Dean Burn is a minor tributary of the River North Esk and flows from west to east, to the south of the A720 Edinburgh City Bypass. Existing culverts carry the Dean Burn beneath the A7 South and A6106 South to its confluence with the River North Esk to the north of Dalkeith. The Dean Burn flows through a number of road culverts along its course including at the A7 South and A6106 South, south of Sheriffhall Roundabout. The Dean Burn was identified as being approximately 2m wide in the vicinity of the existing culverts.

1.4.10 There are a number of existing watercourses in the vicinity of Sheriffhall Roundabout, including the Dean Burn and the River North Esk. The Dean Burn is a minor tributary of the River North Esk and flows from west to east, to the south of the A720 Edinburgh City Bypass. Existing culverts carry the Dean Burn beneath the A7 South and A6106 South to its confluence with the River North Esk to the north of Dalkeith. The Dean Burn flows through a number of road culverts along its course including at the A7 South and A6106 South, south of Sheriffhall Roundabout. The Dean Burn was identified as being approximately 2m wide in the vicinity of the existing culverts. There were no historic flood records available at the site and surrounding areas. Further details on the waterbodies and flooding within the study area can be found in Chapter 11 – Road Drainage and the Water Environment of the ES.

1.4.11 Current noise sources in the area include the A720 Edinburgh City Bypass, local roads, Borders Railway and regular aircraft overhead.

1.4.12 There are currently no Air Quality Management Areas (AQMAs) close to the Proposed Scheme.

Existing Traffic Conditions

1.4.13 An extensive programme of data collection surveys was undertaken within the study area to assist in establishing current traffic volumes and vehicle proportions at key locations, to quantify variations in hourly and daily traffic demand, to establish congestion and delays experienced by road users, and to estimate current vehicle speeds and journey times in the study area. Through the collection and analysis of this information, the prevailing traffic demand and operating conditions in the study area have been established.

1.4.14 The surveys included Manual Classified Counts (MCCs), Automatic Traffic Counts (ATCs), the measurement of journey times, and a survey of pedestrian movements. These surveys were undertaken in May 2017 when traffic conditions were expected to be typical of average demand.

Manual Classified Counts

1.4.15 MCCs were undertaken at the following locations along the A720 to define current traffic volumes and turning movements:

- Straiton Junction;
- Lasswade Junction;
- Gilmerton Junction;
- Sheriffhall Roundabout;
- Millerhill Junction; and,
- Old Craighall Roundabout.

1.4.16 An additional 18 locations were surveyed in the area surrounding Sheriffhall Roundbout.

1.4.17 The traffic survey period was extended from the usual 12-hour period to 14-hours to collect additional information earlier in the morning and later in the evening due to the level of demand in the area.

1.4.18 A summary of the MCC data is shown in Table 1-1 'Summary of 14-Hour Traffic Volumes – A720 Edinburgh City Bypass Mainline' below.

Table 1-1 Summary of 14-Hour Traffic Volumes – A720 Edinburgh City Bypass Mainline

Road Section	Two-Way 14-Hour Flow
A720 West of Straiton Junction	73,200
A720 between Straiton Junction and Lasswade Junction	66,200
A720 between Lasswade Junction and Gilmerton Junction	55,600
A720 between Gilmerton Junction and Sheriffhall Roundabout	45,700
A720 between Sheriffhall Roundabout and Millerhill Junction	45,300
A720 between Millerhill Junction and Old Craighall Roundabout	44,100

1.4.19 The results of the May 2017 surveys indicate that 69,100 vehicles passed through the at-grade Sheriffhall Roundabout during the 14-hour survey period.

Existing Junction and Surrounding Roads

1.4.20 Sheriffhall Roundabout is a junction on the A720 and connects six A-class roads of local and regional importance, namely the A7 North, the A6106 North (Millerhill Road), A720 (East), the A6106 South, A7 South, and A720 (West).

Sheriffhall Roundabout is a signalised roundabout and has four lanes on the circulatory carriageway. It has an Inscribed Circle Diameter (ICD) (i.e. the largest circle that can be fitted into the junction outline) of 100m.

1.4.21 Sheriffhall Roundabout is the only at-grade junction on the A720 Edinburgh City Bypass. The six-arm roundabout has undergone various improvements including localised widening, signalisation and the provision of additional lanes to try to alleviate the delays which occur at the junction. Despite the improvements, as traffic levels continue to grow, a congestion problem persists, particularly during peak hours.

1.4.22 The A720 is a dual carriageway located south of Edinburgh which connects the A1 at Old Craighall Junction south-east of Edinburgh to the A8 at Gogar Junction west of Edinburgh. The A720 at Sheriffhall Roundabout typically consists of two 7.3m carriageways, with 1.0m nearside and offside hardstrips, and a 2.5m central reserve, with a section of hardshoulder provided further west along the A720 between the Water of Leith to Lothianburn. The A720 widens to four lanes on the immediate approaches to Sheriffhall Roundabout.

1.4.23 Millerhill Junction is located approximately 1.9km east of Sheriffhall Roundabout at the junction of the A720 and A68 Dalkeith Road. Millerhill Junction is a dumbbell grade separated junction. Gilmerton Junction is approximately 1.5km to the west of Sheriffhall Roundabout and is a grade separated junction with west facing slips only.

1.4.24 The A7 connects central Edinburgh to Carlisle in the north of England. The A7 North and A7 South are both single carriageway roads, typically 7.3m wide with 1.0m hardstrips. A footway is provided in the southbound verge of the A7 North. The A7 North widens to three lanes on the immediate approach to Sheriffhall Roundabout. The A7 South widens to two lanes on the immediate approach to Sheriffhall Roundabout. There is no footway provision on the A7 South.

1.4.25 The A6106 connects Dalkeith to Portobello on the east of central Edinburgh. The A6106 North is typically 7.3m wide carriageway, with 0.5m hardstrips, with a footway provided in the southbound verge. The A6106 widens to two lanes on the immediate approach to Sheriffhall Roundabout. The A6106 South is typically 7.3m wide carriageway, with 0.5m hardstrips, with a footway provided in the southbound verge. The A6106 South widens to three lanes on the immediate approach to Sheriffhall Roundabout.

Borders Railway

1.4.26 The Borders Railway passes under the A720 via an underbridge approximately 250m east of Sheriffhall Roundabout. The underbridge was designed such that it can accommodate a depth of up 5 metres of additional fill in anticipation of possible future improvements for grade separation of Sheriffhall Roundabout.

Non-Motorised User Provision

1.4.27 Detailed information on the existing NMU provision is provided in Chapter 14 – People and Communities: Effects on All Travellers. Current provision across the existing Sheriffhall Roundabout is poor with users having to cross the arms of the roundabout without a dedicated traffic signal phase. Figure 14.1 ‘All Travellers - Baseline’ shows the existing cycleways, core paths and public transport provision.

Footways

1.4.28 Footways are located adjacent to the A7 North and A6106 North. Shared cycleway/footways are located adjacent to and offline from the A6106 South and adjacent to the A772 Gilmerton Road.

1.4.29 There are several CEC and MLC Core Paths and ‘Other Paths’ within the study area. The NMU provision adjacent to the A6106 South and A772 Gilmerton Road are designated MLC Core Paths and the NMU provision adjacent to the A7 North is a designated Edinburgh City Council Core Path.

Cycleways

1.4.30 There is a network of local cycle routes within the study area. On-road cycle lanes are located on the northbound and southbound carriageways of the A7 North. Off-road shared cycleway/footways are located adjacent to and offline from the A6106 South and adjacent to the A772 Gilmerton Road.

Bridleways

1.4.31 There are no dedicated equestrian paths or trails within the study area.

Bus Routes

1.4.32 A summary of the bus routes operating in the study area is shown in Figure 14.1 'All Travellers - Baseline'. The main bus routes at the existing Sheriffhall and Gilmerton junctions are along the A7 North and South, along the A6106 South and along the A772 Gilmerton Road. A bus route also leaves/joins the A720 from the west at Gilmerton Junction. Furthermore, the Stakeholder consultation responses highlighted the development of the Edinburgh Orbital Bus service which would be accommodated on segregated bus lanes on the A720 Edinburgh City Bypass.

Topography and Ground Conditions

1.4.33 The topography of the study area mainly consists of gently undulating ground with natural slope angles of typically around 5° to 10°. The land surrounding the site mainly consists of arable farm land with occasional small residential or industrial properties. The Borders Railway line runs north-south to the east of the roundabout. The road infrastructure is in cutting to the west of Sheriffhall Roundabout and on embankment to the east.

1.4.34 The ground conditions comprise superficial deposits of glacial till, glaciofluvial deposits, and glacial sands and gravels. Local deposits of alluvium are present along the course of Dean Burn to the south of the A720 Edinburgh City Bypass. Made ground is present at isolated locations, associated with the existing road and railway earthworks, the historic mining activity of the area and existing development activity.

1.4.35 The bedrock underlying the site comprises strata of the Coal Measures Series and, towards Gilmerton junction south of the A720 Edinburgh City Bypass, the Passage Group Formation.

1.4.36 The depth to rockhead varies considerably across the site with an indicative thickness of superficial deposits of typically between 1.0 metre below ground level (mbgl) and 5.0mbgl at Gilmerton Junction and between 10.0mbgl and 20.0mbgl below Sheriffhall Roundabout.

1.4.37 The Coal Measures strata have been extensively mined in the past and the Proposed Scheme is underlain by historic abandoned shallow mine workings. A number of mine entries are also present either directly beneath the scheme or within influencing distance of the scheme.

1.4.38 Groundwater levels have been monitored in superficial deposits and bedrock. In superficial deposits the maximum level recorded was 55.82 metres relative to Ordinance Data (mOD). In bedrock the groundwater level to the west of the Sheriffhall fault is generally 46mOD and to the east varies from 27.6mOD to 56.09mOD. The sandstone strata in the Coal Measures is the main water bearing unit, but coal workings are also likely flooded.

1.4.39 A major geological fault zone, the Sheriffhall Fault, coincides with the location of the existing Sheriffhall Roundabout and trends broadly east-west, down throwing the strata to the north by approximately 175m. Other minor faults also underlie the site. As a result, the bedrock near the faulted zone is recorded to be disturbed.

1.4.40 The potential for fault reactivation induced by deep mining operations was a key factor in grade separation not being considered for the junction at the time of A720 construction. Deep mining operations have since ceased and there are no plans as such for the future so mining induced fault movement is now considered unlikely.

1.4.41 The historic and current land use information and ground investigation results indicate that there are potential sources of contamination across the site. These include: pesticides/fertilizers from farming activities; colliery spoil, backfilled sand pits and/or abandoned mine entries associated with historic mine workings; existing A720 embankments constructed with fill materials derived from blaes, colliery spoil; disused sewage treatment works; disused water works; disused and operational railway land; waste transfer station; fuel dealers; electrical substation; a market gardening enterprise and areas of fly-tipping.

Public Utilities

1.4.42 Numerous services are present within the study area. These include high voltage electricity cables, gas mains and water mains. The utility infrastructure present within the area serves not only the adjacent residential, commercial and industrial development but also similarly serves developments beyond the study area. There are also services (electricity, sewerage, cable, water, etc.) associated with all the properties within the study area and these will need to be protected or diverted as appropriate when construction takes place. The following information on the location of utilities was sourced from public utilities under procedure C3 of the 'New Roads and Street Works Act 1991' (UK Parliament, 1991).

Electricity

1.4.43 Scottish Power Energy Network (SPEN) high voltage electricity lines are present throughout the study area. Overhead and underground lines exist in the immediate vicinity of Sheriffhall Roundabout and the surrounding road network. SPEN provided details of their 275kV, 33kV and 11kV overhead and underground apparatus.

- 275kV overhead lines cross the A6106 North and A7 North, north of Sheriffhall, and also pass over the A720 east of Millerhill Junction.
- 33kV overhead lines cross the A720 at the eastbound approach to Sheriffhall Roundabout, at the start of the Gilmerton off-slip, also crossing the A7 both to the north and south of the junction. 33kV underground lines cross the A720 eastbound approach to Sheriffhall Roundabout, cross the A6106 and A7 south of the roundabout, and at the A7 north of the roundabout.
- 11kV overhead and underground lines are also present in the study area, including running south of the A720 Edinburgh City Bypass, and are present along the A7 and A772 corridors

Scottish Water

1.4.44 Scottish Water Supply and Sewer equipment is located within the study area mainly in the A772 Gilmerton Road and in the A7 North corridors, and there are also several crossings of the A720 main carriageway.

Gas

1.4.45 A medium pressure gas main is in the verge of the A7 South from the Gilmerton Road Roundabout, crossing the A720 Edinburgh City Bypass, and continuing north along the A7 towards Shawfair Park. A low-pressure gas main links to the Summerside properties on north of the roundabout.

Telecommunications

1.4.46 Underground cable ducts cross the Sheriffhall Roundabout and follow the A7, A6106 North and A6106 South to the north and south of the junction and cross the A720 at the Gilmerton Junction overbridge. Underground Virgin Media ducts follow the A772 and cross the A7 South on the northbound approach to the Gilmerton Road Roundabout.

1.4.47 Overhead lines are present along the A7 North, the A6106 South, and along the A772 Gilmerton Road north and south of Gilmerton Junction.

1.4.48 There is one mobile telecommunications mast within the study area. A shared T-Mobile and 3 Mobile mast is located approximately 280m west of Sheriffhall Roundabout.

1.5 Statutory Context for EIA

1.5.1 EIAs have been required for certain major developments in the United Kingdom (UK) since the implementation of the European Council Directive on Environmental Assessment (EC Directive 85/337/EEC) ('the EIA Directive') in 1985. Directive 85/337/EEC was subsequently amended by Directives 97/11/EC (to consider transboundary effects amongst other changes), 2003/35/EC (to widen public participation) and 2009/31/EC (amended Annexes I and II by adding projects). In 2011, the 2011/92/EU Directive (European Parliament, 2011) consolidated all the changes that came before it. Directive 2011/92/EU was subsequently amended by Directive 2014/52/EU, which came in to force in May 2014. Member States were required to transpose the new 2014 Directive into domestic legislation prior to 16 May 2017.

1.5.2 In Scotland, the EIA Directive is implemented by a range of statutory instruments. Those relevant in relation to the construction of trunk roads are The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017. Under Regulation 12(1) of the Road (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 (2017 EIA Regulations) if the Scottish Ministers had made a determination under section 55A(2)(b) of the Roads (Scotland) Act 1984 prior to 16 May 2017, subsections (2) and (3) of those sections continued to have effect as they did immediately before that date. Therefore, road projects subject to a screening and/or scoping procedure prior to 16 May 2017 are to be assessed in accordance with the Roads (Scotland) Act 1984 as amended by the Environmental Impact Assessment (Scotland) Regulations 1999, hereafter referred to as 'the EIA Regulations[1]' (Scottish Parliament, 1984). This is in line with the transitional arrangements described in the 2014/52/EU Directive.

1.5.3 Notwithstanding the above, cognisance has been taken of the new requirements of The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017 (Scottish Parliament, 2017) and some additional elements have been included in this ES to meet best practice proposed in the new Regulations, see Chapter 6 – Overview of Assessment Process.

1.5.4 The EIA Regulations categorise developments according to their requirement for an EIA. Schedule 1 details large-scale developments with the potential for significant environmental effects where an EIA is mandatory. Schedule 2 lists developments that may or may not require EIA depending on the characteristics and location of the development, and the significance of potential effects.

1.5.5 The Proposed Scheme is considered to constitute a relevant project falling within Schedule 2 as defined by the EIA Regulations. Screening using Annex III criteria of the EIA Directive has identified a need for an EIA on the basis that the Proposed Scheme is likely to have a significant effect on the environment by factors such as its nature, size or location, for this project specifically:

[1] *Although the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011 consolidated, updated and replaced Part II of the Environmental Impact Assessment (Scotland) Regulations 1999, Parts III and IV of the 1999 Regulations concerning Roads, Bridges and Land Drainage, remained extant.*

- The works exceed the screening threshold of 1ha in area; and
- Some of the receptors identified are of high sensitivity and detailed further work is required to fully determine the magnitude of potential impacts on ecology, landscape, visual amenity and noise and air quality.

1.5.6 The screening process was recorded to support a Record of Determination (RoD), submitted to TS in May 2017 (Appendix 1.1 - Record of Determination).

1.6 Content of Environmental Statement

1.6.1 This ES reports the findings of the EIA process undertaken for the Proposed Scheme. This ES has been prepared in line with DMRB Volume 5, Section 1 - Scheme Assessment Reporting (TD37/93) (Highways Agency, et al., 1993)

1.6.2 The assessments have followed the guidance set out in DMRB Volume 11 'Environmental Assessments' which provides general guidance on principles of environmental assessment and specifically Section 3 of Volume 11 'Environmental Assessment Techniques' which provides topic specific guidance. Where relevant other guidance may have been used; this will be referenced within the relevant ES chapters.

1.6.3 The structure of the ES is presented as below in Table 1-2 'Structure of this ES'.

Table 1-2 Structure of this ES

ES Component	Description
Non-Technical Summary	Summary of the ES presented in non-technical language. Available as a separate document.
Chapters 1-5	Background and information on the Proposed Scheme - Chapter 1 – Introduction - Chapter 2 – Need for the Scheme - Chapter 3 – Alternatives Considered - Chapter 4 – Iterative Design Development - Chapter 5 – The Proposed Scheme
Chapter 6	Provides an overview of the assessment process and details the assessment topics considered within this ES.
Chapter 7	Provides a summary of the consultation undertaken throughout the development of the Proposed Scheme and during the EIA Scoping process. Includes a summary of key issues raised.
Chapters 8-18	Provides specific topic assessments including an introduction, the approach and methodology employed, an overview of relevant planning policies and plans for that topic, summary of relevant consultations, baseline conditions, potential impacts, mitigation measures proposed, residual effects, a statement of significance and an assessment of compliance against policies and plans.
Chapter 19	Considers the overall cumulative impact of the Proposed Scheme and the potential cumulative effect with other developments in the area, where not covered in preceding chapters.
Chapter 20-21	Provides tabular summaries of the mitigation measures proposed and the key residual effects remaining after the implementation of mitigation.
Technical Appendices	Where necessary chapters are accompanied by detailed technical supporting information. The appendix number corresponds to the relevant ES chapter number.
Figures	The ES is supported by figures illustrating the Proposed Scheme and environmental information. The figure numbers correspond to the relevant ES chapter.

1.6.4 A glossary of terms and abbreviations is provided in the preface to this ES.

1.6.5 Schedule 4, Part 1 of the EIA Regulations sets out information for inclusion in environmental statements. Table 1-3 'Requirements of EIA Regulations' below highlights where the required information is located within this ES.

Table 1-3 Requirements of EIA Regulations

Schedule 4 Requirement	Information Required	Location within ES
1	Description of the development, including in particular:	

Schedule 4 Requirement	Information Required	Location within ES
	(a) A description of the physical characteristics of the whole development and the land-use requirements during the construction and operational phases;	Chapter 5
	(b) A description of the main characteristics of the production processes, for instance, nature and quantity of the materials used; and,	Chapter 17
	(c) An estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the development.	Chapters 8, 9, 10, 11, 12, 13, 16, 17 & 18
2	An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	Chapter 3
3	A description of the aspects of the environment likely to be significantly affected by the development, including population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.	Chapters 8-19 (Baseline and Potential Impacts)
4	A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from: (a) the existence of the development; (b) the use of natural resources; (c) the emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant or appellant of the forecasting methods used to assess the effects on the environment.	Chapters 8-19 (Approach and Methods and Potential Impacts)
5	A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	Chapters 8-19 (Mitigation) Chapter 20 (Schedule of Environmental Commitments)
6	A non-technical summary of the information provided under paragraphs 1 to 5	Separate Non-Technical Summary which accompanies this Environmental Statement
7	An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant or appellant in compiling the required information.	Chapters 8-19 (Limitations to Assessment)

1.6.6 The EIA of the Proposed Scheme has formed an integral part of the engineering design development. The EIA process has informed decision-making throughout the design process by identifying potentially significant effects and where practicable by refining the design to avoid or prevent, reduce, remedy or offset any potential adverse environmental effects.

1.6.7 The design development of the Proposed Scheme has been informed by a series of workshops and reviews. The environmental team has been integral to the design process and has contributed the design progression throughout the preparation of the ES and at the early DMRB design and assessment stages. The early involvement of environmental specialists has assisted in the development of a design which inherently reduces the environmental impact and the EIA has been used as a design tool to identify potential impacts and recommend appropriate changes.

1.6.8 This ES presents an assessment of the Proposed Scheme as described in Chapter 5 – The Proposed Scheme. The design of the Proposed Scheme may be refined through detailed design but should be deemed to comply with the findings of this ES. Any refinements to the design should be subject to environmental review to ensure that the residual effects would not be greater than those reported in this ES. The findings of any such review should be subject to approval by TS and where necessary opinions should be sought from the statutory bodies.

1.7 The Assessment Team

1.7.1 The EIA was undertaken, managed and compiled by AECOM Limited. Appendix 1.2 - Table of Expert Competencies provides a list of the expert responsible for each chapter along with details of their qualifications and experience.

1.7.2 AECOM is an Institute of Environmental Management and Assessment (IEMA) Registered EIA Quality Mark Company. The IEMA EIA Quality Mark is based around a set of EIA commitments that organisations registered to the scheme agree to comply with. IEMA operates the EIA Quality Mark and undertakes an independent review of an organisation's compliance with its EIA commitments both during the application process and through an annual review process. As such, the IEMA EIA Quality Mark provides registrants with a benchmark for their EIA activities and allows them to demonstrate their commitment to effective practice.

1.7.3 Independent reviews and audits of assessment have been undertaken at key stages to ensure the assessment complies with the requirements of the EIA Regulations. AECOM also have a system whereby each ES is reviewed by an 'EIA Lead Verifier', a seasoned technical professional who provides high-level review of throughout the project and as deliverables are prepared. Wide consultations have also been undertaken with regards to the approach to the assessment and engagement has been ongoing throughout the EIA process. Further details are included within Chapter 7 – Consultation and Scoping and individual assessment chapters.

1.8 Review and Comment

1.8.1 Copies of the Environmental Statement are available for inspection during normal office hours at the following locations:

Transport Scotland
Major Projects
Buchanan House
58 Port Dundas Street
Glasgow
G4 0HF

Telephone: 0141 272 7100

Dalkeith Library
2 White Heart Street,
Dalkeith,
EH22 1AE

Telephone: 0131 663 2083

Midlothian Council
Fairfield House
8 Lothian Road
Dalkeith
EH22 3ZN

Telephone: 0131 270 7500

City of Edinburgh Council
Waverly Court,
4 East Market Street,
Edinburgh
EH8 8BG

Telephone: 0131 200 2000

1.8.2 This Environmental Statement (including the NTS and the draft Road Order) may also be viewed online at https://www.transport.gov.scot/projects/a720-sheriffhall-roundabout/a720-sheriffhall-roundabout/.

1.8.3 Printed copies of the Environmental Statement (including the NTS) may be obtained at a charge of £150, or in DVD format at a cost of £10 by writing to Transport Scotland at the address above. Copies of the NTS are available free of charge from the same address or by email to: a720sheriffhallroundabout@transport.gov.scot.

1.8.4 Any person wishing to express an opinion on the Environmental Statement should write to Transport Scotland at the address above. The statutory six-week period (excluding a two week Christmas break) to make comments following the publication of the Environmental Statement and draft Road Order will end on 31 January 2020.

1.9 References

AECOM (On behalf of Transport Scotland) (2017) A720 Sheriffhall Roundabout DMRB Stage 2 Assessment Report Part 2 Volume 1 'Environmental Assessment'

European Parliament (2011) Directive 2011/92/EU of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification) [Online] Available from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0092

The Highways Agency, et al. (1993) Design Manual for Roads and Bridges, Volume 5, Section 1, Part 2 'Scheme Assessment Reporting' (TD37/93)

Scottish Parliament (1984) Roads (Scotland) Act 1984 (as amended by the Environmental Impact Assessment (Scotland) Regulations 1999 and 2006)

Scottish Parliament (2017) The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017

Scottish Government (2008) Strategic Transport Projects Review (STPR) (Adopted December 2008)

UK Parliament (1991) New Roads and Street Works Act 1991

URS (now AECOM) (On behalf of Transport Scotland) (2014) A720 Sheriffhall Roundabout DMRB Stage 1 Scheme Assessment Report, Edinburgh