



A737 Improvements at Beith

Environmental Statement

Non-Technical Summary

October 2016



Introduction

The A737 trunk road runs from St James' Interchange at the M8 near Paisley to the A78 near Kilwinning in North Ayrshire as shown below. The stretch of the A737 considered under this project is a section of single carriageway road which bypasses the town of Beith on its eastern edge, and is known locally as the Beith Bypass.



The A737 was constructed in 1933 and became a trunk road in 1996. The A737 is now sub-standard in terms of width, alignment and visibility when compared to current design standards for new roads. It typically carries 14,000 vehicles per day.

Problems with the A737 include:

- Poor accessibility to and from the side roads at the junctions with the B777 Head street/Wardrop Street and the B706 Barrmill Road/Geilsland Road
- Road safety at these junctions
- Insufficient provision for pedestrians and cyclists and a lack of safer places cross the bypass.

The section of the A737 (1.8km) under consideration incorporates two priority junction arrangements; a crossroads at B777 Head Street/Wardrop Street and an unconventional staggered junction arrangement at B706 Barrmill Road/Geilsland Road. The junctions have a poor safety record and cause regular near misses. Drivers and non-motorised users experience difficulty joining or crossing the trunk road at the junctions. Transport Scotland is therefore promoting the construction of road improvements along the A737 at Beith, referred to as the scheme.

Environmental Impact Assessment (EIA)

The design of the scheme has been developed and assessed in accordance with guidance provided in the Design Manual for Roads and Bridges (DMRB). An environmental impact assessment of the proposals has been completed as required under the provisions of the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended) as amended by the Environmental Impact Assessment (Scotland) Amendment Regulations 2006. The findings of the EIA for the scheme are reported in the A737 Improvements at Beith Environmental Statement (ES).

This Non-Technical Summary (NTS) provides a summary of the findings of the Environmental Statement and outlines the principal environmental impacts and proposed mitigation identified during the assessment.

Consultation

Consultation on the scheme was carried out with statutory and non-statutory bodies in the form of letter, email, telephone and face to face meetings. A public exhibition was held in March 2015 to present the preferred option to the public. Feedback from the consultations has helped inform the design of the scheme and environmental protection measures.

Alternatives

Previous assessments in accordance with Scottish Transport Appraisal Guidance (STAG) generated 17 options which satisfied objectives in terms of improved trunk road, improved journey time reliability, improved facilities for NMU, improved accessibility for side roads and the local roads network and improved safety throughout.

From this assessment, four options were taken forward to the DMRB Stage 2 EIA which included a new bypass to the east of existing A737, a new alignment of A737 with at-grade single roundabout, traffic signals at Head Street/Wardrop Street and Barrmill Road junctions, and two new roundabouts at Head Street/Wardrop Street and Barrmill Road junctions.

The Stage 2 EIA assessment concluded that Option B - Two Roundabouts Barrmill offline was the combined environmental, economic and engineered preferred option to take forward to a DMRB Stage 3 Assessment.

The Scheme

The scheme aims to improve the A737 trunk road from where it commences north of the B777 Wardrop Street continuing southbound to tie-in with the A737 at Manrahead Roundabout. The scheme will introduce two roundabouts on the trunk road for connection of the side roads thereby eliminating two sub-standard existing junctions with the trunk road, at the B777 Wardrop Street and at the B706 Barrmill Road. The scheme is approximately 1.8km long and is illustrated within Propose Scheme Layout.



Environmental Effects

The scheme and associated mitigation measures have been designed to minimise adverse environmental effects. Nonetheless, some effects would arise from the proposals as summarised in the topic headings below.



Nitrogen dioxide diffusion tubes

Air Quality

Beith is located in a rural environment within the district of North Ayrshire. The immediate area consists mainly of medium density residential housing to the west of the scheme and a predominantly rural area to the east of the scheme with a few scattered residential properties. Local concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀) are well below The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) objective levels.

Due to the location of sensitive receptors Transport Scotland commissioned Amey to undertake air quality monitoring in the Beith area to establish the ambient concentrations of nitrogen dioxide to verify the air quality dispersion model outputs. Seven locations were chosen, six in locations adjacent to the current route of the A737 (refer to image below) and one co-located at the North Ayrshire Council's continuous monitoring station in Irvine town centre.

Construction works have the potential to create dust (including PM₁₀), which will be minimised by implementing best practice techniques on site to reduce the risk of disturbance or nuisance.

Once completed the majority of the residential properties in closest proximity to the A737 will see a reduction in the concentration of NO₂, PM₁₀ and PM_{2.5}. A small number of properties will see small increases in the concentration of NO₂, PM₁₀ and PM_{2.5}, however all of the predicted levels will be well below the air quality objectives. The predicted levels for NO₂, PM₁₀ and PM_{2.5} which are related to human health remain well below the air quality objectives when the scheme is built and being used.

The impact of the scheme on local air quality is not significant.

Cultural Heritage

Cultural heritage is archaeological remains, listed buildings, conservation areas, historic gardens, designed landscapes and other sites noted for their historical heritage. There are 109 listed buildings and structures located within the old parish boundary of Beith, 72 of which are within the town of Beith. 41 cultural heritage features are within the study area which extends 300m from the scheme. Of these, 32 features are unlikely to be directly or indirectly affected by the scheme as they are not visible from the scheme, and were scoped out of the assessment. The Beith town centre conservation area is also scoped out from the assessment because it is a considerable distance away from the scheme.

The scheme will have a slightly positive impact on Spier's School and its grounds, but a slightly adverse impact on the Geilsland School building as the A737 will be slightly closer to the school. There should be no impact on the remaining historic environment features.

An archaeological watching brief may be required during construction as there is a risk of finding buried remains.

Landscape Effects

The study area is dominated by urban and agricultural land. The town of Beith lies to the west of the A737 and contains residential and commercial properties. The area of the settlement alongside the A737 is predominantly residential properties, road space and small areas of recreational space. Open agricultural land lies to the east and southeast of the A737 and is interspersed with small clusters of woodland and small rural dwellings. Between Threepwood Road and Geilsland Road in the northern part of the study area, the agricultural land is of poor quality and contains areas of rough grassland and poor quality shrub. To the immediate north of Geilsland Road, the agricultural land is marshy and prone to flooding from surface water. Towards the southern extent of the study area, the farmland to the east of the A737 improves in quality and there are open views of the surrounding hills.



Rural landscape – low quality agricultural land

The scheme will cut through land which is currently open farmland and as a result, woodland, hedgerow and shrub along the new route will be lost. The road will sever fields to the southeast of the existing A737 and disturb their natural pattern. The creation of embankments and cuttings will further disturb the pattern of the landscape.

Land immediately surrounding the scheme will be needed during construction for site compounds and for the storage of machinery and materials. Earthworks will also be a large element of construction. As a result, there will be noticeable damage to the existing local landscape throughout the construction period.

The new road will require permanent land take and the removal of woodland, hedgerow and vegetation. The proposed road alignments and the creation of two large roundabouts will affect the landscape character. The scheme will result in the change of use of agricultural land to the east and southeast of the A737 as well as the removal of landscape features. The natural topography of the land will also change. The loss of these features will be immediately obvious and will permanently change the local landscape character.

Immediately after construction the new planting will be immature and will not have grown sufficiently to soften the scheme into the surrounding landscape. Re-planted hedgerow will not yet contribute to the landscape character and areas of planted grassland will not have developed into a dense sward. New road infrastructure including fencing, security barriers, road signs and lighting will be emphasised within the landscape due to a lack of weathering.



Four properties will experience the largest adverse impact after construction as the scheme will become the dominant feature of their views. These are residential properties situated within close proximity to one another on Barrmill Road and Spiersland Way. The proposed A737 alignment will run immediately adjacent to the properties through land which is currently open farmland. Barrmill Roundabout will also be created to the northeast of the properties within this open land. As a result, the properties will lose views of open land which will be replaced with views of road space.

Once construction is complete, there will be no impacts on the majority of properties who were affected by the construction works. However, significant adverse impacts will remain for eleven properties that lie in close proximity to the scheme.

Ecology and Nature Conservation

There are no protected nature conservation sites located within 2km of the scheme. Ecological surveys including Phase 1 habitat survey, bat, breeding birds, badger, otter and water vole have been carried out to help the assessment. The bat survey identified that bats are likely to use one area and that one tree could be used for roosting.

A number of habitats suitable for breeding birds were identified during the Phase 1 habitat survey including; broadleaved scattered trees, coniferous plantation woodland, mixed plantation woodland, parkland and scattered trees, semi-natural woodland and species-rich hedgerow. These habitats provide potential nesting and foraging habitat for a variety of species.

Large areas of semi-improved grassland will be lost to the scheme. These areas are not considered to be high quality habitat as they are frequently used by farmers for grazing land and therefore are very disturbed. The scheme will likely cause severance and fragmentation of breeding bird habitat through the removal of the vegetation such as trees and hedgerows which will also reduce the amount of habitat available.

Impacts on ecological receptors from the scheme are mainly from permanent habitat loss, specifically loss of grassland habitats, however none of the impacts are significant as the habitats are not of suitable quality and size to support any large populations of important species.

Geology and Soils

There are no protected geological sites within the study area and no recent mineral extractions have been carried out therefore the scheme will have no significant impacts on the local geology. The scheme does not lie near any underground workings and is not at risk from any proposal for future underground coal workings. The construction of the scheme will have slight impacts on superficial and bedrock geological strata and soil deposits.

The earthworks include embankments and cuttings and it is expected that some of the material that is excavated can be reused in areas of embankments or landscape areas. There is expected to be more excavated material than will be used as a result of this scheme. There is potentially contaminated land in the area including a disused railway and sidings, a former cabinet factory, electrical substation and coal tar within the current road surface. With mitigation measures, the likelihood of a pollutant pathway between a contamination source and a receptor is reduced so that the risks during construction are low to moderate and post construction are low to very low with the main risk being from ground gas.

Materials

The scheme will have a large impact on materials, as the new road will be constructed primarily offline. There will be a considerable volume of material excavated during construction of cuttings, a proportion of which will be reused in embankments and in landscape areas. However, not all excavated materials will be suitable for reuse and taken either to a materials reclamation centre or to a landfill site for disposal. Through a Site Waste Management Plan, a Materials Management Plan and a Soils Resource Plan, the reuse of excavated materials can be maximised, reducing the volume of virgin materials required by the scheme.

Although every effort will be made to ensure materials are sourced locally, logistical constraints will likely cause inevitable wastage through transport of materials and the scheme will result in the production of waste that will have to be taken off site and disposed to landfill. The main sources of waste will be excavated material that cannot be reused on site and organic waste from site clearance.

Noise and Vibration

The study area is rural in nature with the main noise source being traffic noise from the existing road network.

During construction it is anticipated that there will be an increase in the noise levels for isolated properties within the study area such as Head Street/Wardrop Street Junction, Manrahead Roundabout, 16 Barrmill Road and 45 Barrmill Road. Mitigation measures will be incorporated into the Construction Environmental Management Plan to keep impacts to a minimum. Local residents will be advised in advance of any construction works likely to cause disruption.

Once in place, the scheme will reduce the number of properties where people are annoyed by traffic noise. This is mainly in the area of properties close to the existing road as the new road will be moved away from them.

A few scattered properties to the east of the existing A373 were found to experience significant increases in noise levels from the new road, including the following representative locations:

- 45 Barrmill Road
- 16 Barrmill Road
- 2 Spiersland Way
- 18 and 18 (G/2) Wardrop Street (two addresses but one building)
- 14 Barrmill Road.

Mitigation has been incorporated into the scheme design to reduce noise levels at these locations, including low noise surfacing and the provision of noise barriers in the form of either earth bunds or vertical noise barriers. However, significant impacts on noise levels are still experienced at two receptors, 16 Barrmill Road and 18 Wardrop Street, depending on specific façade of the properties.

The impacts at 16 Barrmill Road are different depending on the building façades with decreases in noise levels at the façade facing the existing road and increases in noise levels at the façade facing the scheme (southeast). The increase in noise levels at the southeast façade of 16 Barrmill Road is expected to be significant. Similarly, the impacts at 18 and 18 (G/2) Wardrop Street also differ depending on the façade. The south façade is expected to have lower noise levels than present with the scheme in place, however the north façade will have higher noise levels, and this is considered to be a significant impact.



Earth bunds and noise barriers along proposed A737 adjacent to Barrmill Road

Effects on all Travellers

Access to and from side roads along the study area is a significant problem for both mainline and side road traffic, particularly during peak periods. Delay to the through traffic is often caused by vehicles turning right at the junctions of Head Street/Wardrop Street and Barrmill Road, where there is no room to pass waiting vehicles. Vehicles turning right can sometimes wait for a considerable time due to lack of opportunities to cross the opposing traffic flow. Similarly, traffic joining the A737 at these junctions is subject to delay while waiting for an opportunity to exit the junction. This is particularly difficult for right turn and straight across movements. Visibility from the junctions at Head Street/Wardrop Street and Barrmill Road is very poor and falls far below current standards. Overall, drivers are likely to feel high levels of stress at junctions, in situations where they are emerging from side roads and where travelling on the A737.

Two main areas of non-motorised user (NMU) movement have been identified as most of the community facilities in the area are located within the town of Beith and consequently most NMU journeys take place within this area.

During construction, driver stress is likely to be generated by factors such as uncertainty of route from diversions and traffic management. Further increases in stress may arise from lower traffic speeds and increased uncertainty at junctions. Post construction the scheme will reduce many of the factors that are believed likely to cause driver stress on the existing A737. This will be achieved through the improvement of visibility and sightlines as well as the incorporation of roundabouts at existing junctions that are easier to negotiate than the current arrangements.

Journey amenity for non-motorised users will generally be improved with the scheme in place. NMU crossing points will be formalised, with NMUs physically separated from traffic in certain areas and improved footway/cycleway provision.

The improvements are expected to have a significant beneficial impact for all travellers.



Improved footway/cycleway provision

Community and Private Assets

The majority of the properties within Beith will be unaffected in terms of land-take by the scheme, however there are a number of scattered properties to the east of the existing A737, along Barrmill Road and Wardrop Street that are likely to be affected.

One area of community land will be permanently affected. This is a grassed area adjacent to Larch Terrace. This area of land is categorised within the North Ayrshire Council Local Development Plan as 'open space'. As a result of this exchange land will be provided, as agreed by the Scottish Ministers, in order to satisfy the relevant legislative provisions. Two residential properties (16 and 45 Barrmill Road) are expected to lose a small proportion of their gardens as a consequence of the scheme. Agricultural land will have the most noticeable impact as a result of the scheme although no prime quality agricultural land will be affected.

Land use impacts during construction are difficult to quantify, as these will be located and sized largely at the discretion of the contractor. There will be a requirement for welfare facilities, a site compound, materials storage areas as well as access routes. The location of these and the additional land-take required is unknown at this stage. However any impact is not likely to be significant as contractors are likely to try to minimise the footprint of the scheme and will be required to reinstate any disturbed ground.

Road Drainage and the Water Environment

The largest watercourse in the area is the Powgree Burn, located approximately 750m south of the existing A737. Kilbirnie Loch is the largest water body linked to the road drainage network, located approximately 1km to the northeast of Manrahead Roundabout. There are further minor water bodies in the study area. Additionally, there are five unnamed watercourses connected to the existing drainage network for the A737. The road drainage along the A737 is currently via a mix of drainage ditches and pipe-work which are in poor condition. Much of the water collected from the road surface discharges into fields off the southbound carriageway.

During construction there is potential for sediments and other pollutants to enter the watercourse as a result of vehicle movements, earth moving and accidental spillage. With appropriate mitigation in place these potential impacts can be reduced to non-significant levels.

The inclusion of sustainable urban design basins at four locations is likely to improve the quality of water entering the relevant watercourses and will control discharge from the road drainage network more effectively and within certain flow limits. The impact of water runoff from the scheme into groundwater will be moderate adverse based on the risk posed by the various potential pollution pathways associated with the new route.

North Ayrshire Council have been consulted during the development of the drainage design, and are content with the proposals and do not consider that a Flood Risk Assessment is required. The drainage system for the scheme has been designed to capture all water runoff from the new road, hold this runoff within SuDS basins and control the outfall of the runoff into local watercourses. The scheme therefore is unlikely to change local flooding issues.

Cumulative Impacts

Cumulative impacts result from multiple actions on receptors and over time, and are generally additive or interactive (synergistic) in nature. Cumulative impacts can also arise from small changes caused by other past, present or reasonably foreseeable actions together with the scheme.

There will be no cumulative impact from developments within the town of Beith as they are not in close proximity to the scheme. The proposed improvements at A737 The Den, to the south of Beith, were not considered to influence traffic behaviour and have no cumulative impacts with the scheme.

The effects of the A737 / A738 Dalry Bypass, which has been granted Scottish Ministers' approval to proceed, were included in the traffic model, and the results of the modelling have been included in the relevant chapters of the ES. There will be no additional effects from the A737 /A738 Dalry Bypass.

Construction of the scheme will involve considerable disruption to a number of residential properties at Wardrop Terrace, Wardrop Road, Barrmill Road and Spiersland Way. The cumulative impacts likely to affect these properties during construction include emissions of dust, construction noise, visual intrusion, temporary changes in amenity and increased journey length for NMUs.

A number of residential properties may experience cumulative effects when the scheme is in place, even although effects on individual environmental topics are considered significant, these are:

- 12 and 14 Barrmill Road
- 16 Barrmill Road
- 45 Barrmill Road
- 18 Wardrop Street
- 2 Spiersland Way.

These properties are all likely to experience small increases in air pollutants, increases in noise levels and visual impacts.

Further Details

This NTS and ES have been prepared on behalf of Transport Scotland to assess the potential environmental impacts of the A737 Improvements at Beith scheme. A public consultation period of six weeks will follow publication of the Draft Statutory Orders and ES. This will allow comments or representations to be made to Transport Scotland on the scheme and its environmental impacts.

Copies of this Environmental Statement and Non-Technical Summary will be available for inspection during normal office hours at the following location:

Transport Scotland
Buchanan House
58 Port Dundas Road
Glasgow G4 0HF

Any comments on the scheme should be addressed in writing to the Chief Road Engineer at the above address before the closing date for comments and objections given in the public notice.

