3. Alternatives Considered

3.1. Introduction

3.1.1. This chapter provides a summary of the main alternatives evaluated during the development of a preferred design for the Proposed Scheme. It outlines the key aspects taken into account that informed the decision-making process with respect to the route corridor options considered at Design Manual for Roads and Bridges (DMRB) Stage 1, and route alignment options considered at DMRB Stage 2.

3.2. Route Corridor Options

3.2.1. Following significant landslide events in August and September 2020 (with the August events the largest recorded in the area), Transport Scotland commissioned a Strategic Environmental Assessment (SEA) and Preliminary Engineering Services (PES) to investigate a long-term, resilient, and sustainable solution to the ongoing resilience issues on the A83 Rest and Be Thankful (RABT).

3.2.2. The PES comprised an engineering assessment of the A83 RABT route and outputs including engineering constraints mapping, Scheme Options work and other design strategies such as alignment and cross section analysis, junction, access and lay-by strategy. Other activities undertaken as part of the PES commission included geotechnical desk studies, structure assessments, topographical survey work, land referencing and stakeholder engagement. The principal output of the PES was the DMRB Stage 1 Assessment Report.

3.2.3. The SEA identified the key environmental and landscape issues along the length of the A83 RABT and assessed the potential environmental impacts associated with the proposed route corridor options. The SEA was carried out in two stages:

- Preliminary Assessment: An assessment was undertaken of 11 route corridor options (refer to Plate 3.1 below) identified as part of Strategic Transport Projects Review 2 (STPR2), as well as four additional route corridor options

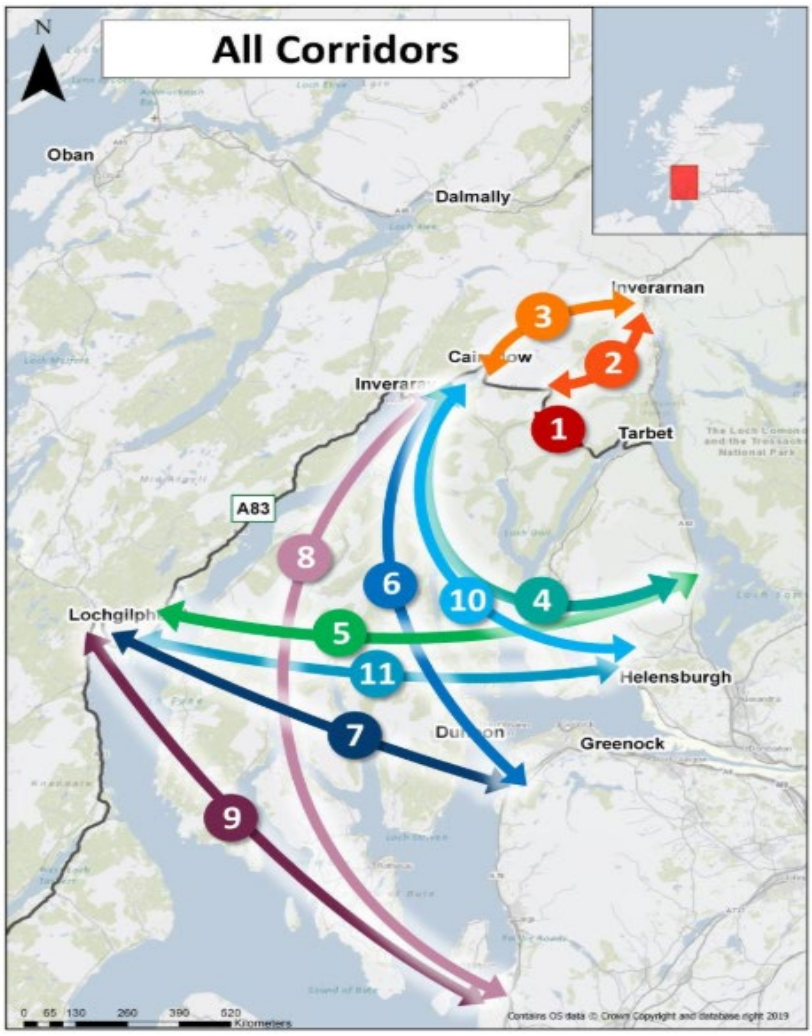
proposed by the public during the consultation held in September and October 2020. A recommended preferred route corridor for the A83 RABT was announced in March 2021. The Route Corridors considered consisted of:

- Route Corridor 1 - followed the existing A83 Trunk Road, starting just south-east of the junction between the A83 Trunk Road and the Old Military Road and following route of the existing A83 Trunk Road.
- Route Corridor 2 - off-line within Glen Kinglas and followed the wider valley floor from the A83 Trunk Road west of the Rest and Be Thankful, heading generally north-east towards Loch Sloy and on towards Ardlui.
- Route Corridor 3 - off-line within Glen Fyne and followed the wider valley floor from the A83 Trunk Road at the head of Loch Fyne, heading generally north-east towards Allt na Lairige reservoir and then on to the A82 Trunk Road near Inverarnan.
- Route Corridor 4 - a combination of new offline carriageway and online upgrading works which generally followed the existing road network (A817 and A814) with a new fixed link crossing at Loch Long.
- Route Corridor 5 - a combination of new offline carriageway and online upgrading works which followed the existing road network (A817 and A814) with new fixed link crossings at Loch Long and Loch Fyne.
- Route Corridor 6 - a connection from the A78 Trunk Road to Cowal via an approximate 3.9km fixed link crossing of the Firth of Clyde and upgrades along the A815 route corridor, to its connection with the A83 Trunk Road at Cairndow.
- Route Corridor 7 - a connection from the A78 Trunk Road to Cowal via an approximate 3.9km fixed link crossing of the Firth of Clyde and upgrades along the A815 corridor between Dunoon and Dalinlongart.
- Route Corridor 8 - Route Corridor 8 had two sub-corridors, 8a and 8b. Both of which were a combination of new offline carriageway and online upgrading works which generally followed the existing road network, with new fixed link crossings to the Isle of Bute and Cowal.
- Route Corridor 9 - a combination of new offline carriageway and online upgrading works which generally followed the existing road network with new

fixed link crossings to the Isle of Bute and Cowal. The route corridor included a connection from the A78 Trunk Road in North Ayrshire to Cowal.

- Route Corridor 10 - linked the A814 and A818 at Helensburgh to the A83 Trunk Road at Cairndow via Cowal and the provision of fixed link crossings at Gare Loch and Loch Long.
- Route Corridor 11 - linked the A814 and A818 at Helensburgh to the A83 Trunk Road on Kintyre via Cowal and the provision of fixed link crossings at Gare Loch, Loch Long and Loch Fyne.

Plate 3.1: Access to Argyll and Bute (A83) Route Corridor Options



- A public consultation was undertaken in September and October 2020 and following this four additional route corridors were considered including:
  - Route Corridor 12 - an off-line option which generally headed west from the A82 Trunk Road at Inveruglas to the A83 Trunk Road at Butterbridge.
  - Route Corridor 13 - an off-line option within Glen Loin following the valley floor from the A83 Trunk Road at Arrochar, heading north towards Loch Sloy following the Three Lochs Way.
  - Route Corridor 14 - a combination of new offline carriageway and online upgrading works. The route corridor started at the A83 Trunk Road at Ardgartan to the east of the A83 at Rest and Be Thankful, where it headed south along the west side of Loch Long before turning west at Coilessan Glen and following the Cowal Way to Lochgoilhead.
  - Route Corridor 15 - an off-line corridor option that started at the A83 Trunk Road at Arrochar and headed north west towards the A83 Trunk Road at Butterbridge

- Following the assessment of the 15 Route Corridors identified it was recommended that Route Corridor 1 be retained as:
  - it was a solution that could be delivered most quickly and cost effectively. ·
  - the environmental impacts within Route Corridor 1 were considered to be significantly less
  - there were some engineering complexities identified, particularly geotechnical and structural but potentially less and different than other route corridors
  - traffic and safety benefits were not significant overall, but improved resilience was noted
  - scheme objectives showed some benefit, although other route corridors may perform better except in relation to environmental benefits.

- In terms of the key environmental constraints identified during the SEA process Route Corridors 2, 3, 8a, 8b, 9, 10, 11 presented the most numerous and difficult to mitigate environmental constraints, with Route Corridors 5, 6 and 7 having the next highest level of constraint. These route corridors contained

environmental constraints that were either designated for their importance, had a high degree of sensitivity, or were clustered in such a way that avoidance or mitigation would be very difficult to achieve. The remaining route corridors, 4 and 1, were expected to present a medium risk of consentability, with Route Corridor 1 having the lowest risk of all. The four route corridors arising from public consultation were also assessed to have a high or medium risk of consentability. For Route Corridors 2 to 11, the most significant environmental constraints were climatic factors, biodiversity, water environment, soils, cultural heritage and landscape and visual amenity. For the route corridors emerging from the public consultation the most significant constraints were identified for corridors 14 and 15.

- Detailed Assessment: A Detailed Assessment of the residual corridor option (Corridor 1, Glen Croe) following the Preliminary Assessment was undertaken in line with the SEA Directive and appropriate guidance documents, considering environmental aspects.

3.2.4. The PES and the SEA together were considered equivalent to a DMRB Stage 1 Assessment, and the outcome was a recommendation of Corridor 1, Glen Croe, as the preferred corridor. The recommended corridor generally follows the existing A83, starting south east of the junction between the A83 and the southern end of the Old Military Road (OMR). It typically follows the route of the existing A83 as it rises through Glen Croe and then past Loch Restil. The corridor ends where the A83 passes the west end of Glen Kinglas and is approximately 6km long.

Route Alignment Options

3.2.5. Following selection of a preferred route corridor, from the PES and SEA studies, a DMRB Stage 2 Assessment was undertaken to develop and assess route alignment options and to identify a preferred alignment for the Proposed Scheme.

Initial Option Development

3.2.6. Within the preferred route corridor, five possible Scheme Options were developed to protect the A83 and its users from landslide and rock fall, with options considered generally comprising tunnels, viaducts and debris flow shelters:

- Green Scheme Option - involves the construction of a predominantly offline new single carriageway road, approximately 4.3km long, on the western side of Glen Croe, loosely following the line of an existing forestry track in Ardgarten Forest. This option includes two viaduct structures (435m and 275m in length) and a length of debris flow shelter.
- Yellow Scheme Option – involves the construction of a predominantly offline new single carriageway road, approximately 2.5km long, located below both the existing A83 Trunk Road and the OMR. This option includes a 1.8km length of viaduct up to 90m above existing ground level.
- Brown Scheme Option – involves the upgrades of the existing A83 over a length of approximately 2.4km, including construction of a debris flow shelter and catch-pit over a length of approximately 1.4km.
- Purple Scheme Option – involves the construction of a predominantly offline new single carriageway road, approximately 3.7km long located along the valley floor of Glen Croe. This option includes a 1.5km length of viaduct up to 52m above existing ground level and a tunnel of approximately 1.2km length.
- Pink Scheme Option – involves the construction of a predominantly offline new single carriageway road, approximately 3.9km long, of which approximately 3km would be within a tunnel.

DMRB Stage 2 Assessment of Alignment Options

3.2.7. The aim of the DMRB Stage 2 assessment process was to identify environmental, engineering and economic factors associated with the Scheme Options (shown in Volume 3, Figure 3.1 Stage 2 Options) and to consider the advantages and disadvantages of each option with regard to these factors.

3.2.8. Each Scheme Option went through a rigorous development and refinement process to support the comparative assessment of Scheme Options. Given the nature of the interventions considered, a key part of the engineering development and assessment during DMRB Stage 2 was to consider the constructability, operation, and maintenance of the options. This assessment drove a number of design developments to ensure the comparative assessment was robust.

3.2.9. The DMRB Stage 2 Assessment included desk studies, field surveys and consultation with various stakeholders and landowners. Alongside these events, a virtual exhibition was provided as well as ongoing updates to the A83 website and A83 Rest and Be Thankful Story Map (an online accessible library of information on the Proposed Scheme).

Assessment Summary and Recommendation

3.2.10. The following section gives a summary of the main findings of the DMRB Stage 2 Scheme Assessment Report. The summary considers the following:

- engineering assessment
- environmental assessment and
- traffic and economic assessment.

Engineering Assessment

3.2.11. The Engineering Assessment identified a number of factors which differentiate the Scheme Options. This includes the following:

- Hydrology, with the Green and Brown Scheme Options considered least favourable.
- Constructability, with the Brown Scheme Option representing the greatest potential disruption to road users during construction. The Pink and Green Scheme Options have the least potential disruption to road users.
- Operations and maintenance, with the Purple and Pink Scheme Options having the highest impact and being least favourable, with the Brown Scheme Option having the lowest impact.
- Cost estimates, with the Brown Scheme Option having the lowest Most Likely Scheme Cost.
- Various other factors, including construction duration, local roads/accesses, resilience, departures from standard, topography and land use, geotechnics and earthworks (including complexity), structures complexity and utilities.

Environmental Assessment

3.2.12. The Environmental Assessment identified a number of factors which differentiated the Scheme Options as presented in Table 3-1.

Table 3-1 – Summary of the DMRB Stage 2 Environmental Assessment

Topic	DMRB Stage 2 Environmental Assessment Summary
Air Quality	The potential changes in air quality at human health receptors were not considered to be significant as total concentrations remained well below the Air Quality Standard (AQS) objectives. Therefore, none of the Scheme Options were necessarily favoured from an air quality perspective and the differentiators related to the potential impacts on ecological sites. Overall, the Green, Brown and Yellow Options are considered to have minor or negligible impacts while the Pink and Purple Options are considered to be least favourable due to the potential operational impacts on the Beinn an Lochain Site of Special Scientific Interest (SSSI).
Cultural Heritage	The assessment of the Scheme Options indicated that during construction, all Scheme Options had the potential to impact on both known and currently unrecorded elements of the Historic Environment. The Green Option would have a Slight adverse significance of effect on ten assets. There would be three Slight adverse effects caused by the Brown Option. The Pink Option would have a Slight adverse effect on one asset and the Purple Option would have one Moderate adverse (significant) effect and two Slight adverse impacts. The Yellow Option has one Moderate adverse (significant) effect, three Slight adverse and three Neutral effects. The operation of the Proposed Scheme would result in nine Slight adverse effects by the Green Option, three Slight adverse effects from the Brown Option, no effects from the Pink Option, two Slight adverse effects from the Purple Option and three Slight adverse effects from the Yellow Option. In conclusion, the greatest residual significance of effect on the historic environment was caused by the Purple and Yellow Options. While the Green Option and Brown Option would impact on a number of assets, this is lesser than by the Purple and Yellow Options. The Pink Option would be the most favourable in terms of the Historic Environment.
Landscape	During Construction, all the Scheme Options resulted in significant effects on Landscape Character Types (LCTs) in the study area. The Green Option would have a Very Large adverse effect on one LCT, a Large adverse effect on three LCTs and a Slight (nonsignificant) adverse effect on one LCT. The Brown Option would result in Large adverse effects on three LCTs and Moderate adverse effects on two LCTs. The Pink and Purple Options would both result in Large adverse effects on four LCTs, and Slight / Moderate adverse effects on one LCT respectively. The Yellow Option would result in Large adverse effects on two LCTs, Moderate adverse effects on two LCTs, and Slight (non-significant) effects on one LCT. During Operation, four of the Scheme Options result in significant residual effects on one or more LCTs, with the Brown Option having a Large adverse effect on three LCTs and a Moderate adverse effect on one LCT. The Purple Option would have a Large adverse effect on one LCT and a Moderate adverse effect on one LCT. The Green Option would have a Large adverse effect on one LCT, and the Yellow Option a Large adverse effect on one LCT and a Moderate adverse effect on four LCTs. Only the Pink Option would result in no significant residual effects on LCTs within the study area during Operation. Overall, the Pink Option was the most favourable with the Green and Brown Options being the least favourable from a Landscape perspective

Topic	DMRB Stage 2 Environmental Assessment Summary
Visual Effects	For Views from the Road, the Pink Option was less adverse during construction as A83 users are diverted but during operation had the largest adverse impact as there will be no view from the tunnel. The Purple Option varied from beneficial to adverse during operation as the viaduct views would be an improvement, but the tunnel section would not afford any view. The Yellow Option is the only option that resulted in a beneficial residual effect. For residential receptors, the Green Option was the only option with theoretical visibility from Lararchpark and Creagdhu. Similarly, the Green Option wa also considered to result in greatest residual effect on recreational receptors (Rest and Be Thankful car park, Forest Paths/Cycle Paths, The Cobbler (Ben Arthur), whereas the Brown Option would have less of an impact on the Old Military Road as it was further removed and on the existing A83. The Yellow Option had most residual impact due to the open nature of the view towards it from Laigh Glencroe (Roadmans Cottage) and High Glencroe. Overall, the Purple and Brown Options result in being the most favourable with the Green Option resulting in the most overall significant effects and therefore considered least favourable from a visual perspective
Biodiversity	The Brown Option was most favourable in terms of residual impacts on designated sites (Glen Etive and Glen Fyne Special Protection Area (SPA) and Beinn an Lochain SSSI). For Annex I habitats the Green Option resulted in the least temporary loss of Annex I habitat, followed by the Pink Option, and the least favourable was the Purple Option. The area of permanent habitat loss was highest in the Brown and Yellow Options. The smallest area of Annex I habitat loss would be in the Green Option since this option primarily bisects other habitat types. For UK BAP habitats the Purple Option was anticipated to result in the largest area of temporary habitat loss. The smallest area of UK BAP habitat temporary loss was the Brown Option. The Pink and Purple Options were anticipated to result in the largest area of permanent habitat loss. The smallest area of UK BAP permanent habitat loss related to the Brown Option. For Aquatic habitats the Brown Option had the highest impact on aquatic receptors and the Yellow Option the least. The Yellow Option was also associated with the lowest watercourse loss of all the route options. The Brown Option was associated with high watercourse loss as it is an overland (as opposed to tunnelled) option which relies on numerous culverts (as opposed viaducts) to span the watercourses with which it interacts. It is noted that the Croe Water is only crossed by the Green Option (albeit by a viaduct crossing). Regarding Protected and Notable Species differentiators were identified for mammals and birds, with potential loss of rest sites, disturbance to rest sites and individuals, mortality, injury, habitat loss and habitat severance. While all the Scheme Options have Slight adverse significance of effect, the predicted impacts were greater for the Green Option because of the larger additional land take, which could affect a number of protected species.

Topic	DMRB Stage 2 Environmental Assessment Summary
Geology and Soils	The assessment concluded that the Green Option is the most favourable, as whilst potential for direct and indirect losses to potential GWDTEs within the SSSI was identified resulting in a moderate impact significance, all other impacts to the geology soils and groundwater receptors were identified to be of slight (non-significant) significance. The assessment for the Brown Option identified a slight impact significance to all receptors except for GWDTEs both within the study area and the SSSI. However, it is recognised that this is likely to be a conservative assessment due to the proximity of the existing A83 road to this option, suggesting that the Brown Option may also be considered to be a favourable option. The Yellow Option was found to have a potential moderate impact on peat and GWDTEs in both the study area and the SSSI. All other impacts on the geology, soils and groundwater receptors that were assessed were found to be of slight significance. Due to the potential impacts on both GWDTEs and peat, the Yellow Option is slightly less favourable than the Green and Brown Options. The Assessment identified the Pink and Purple Options as the least favourable with the Pink and Purple Options having the largest direct and indirect losses to GWDTEs both across the study area and specifically within the SSSI resulting in Large and Very Large impact significances respectively.
Material Assets and Waste	Based on the findings of the Stage 2 Assessment, there were no differentiators in terms of significance of effects for the Scheme Options for both materials and waste. However, for materials the Pink Option was the most favourable option as it has the highest percentage of quantity of overall material recovery, whereas the Purple and Yellow Options are the least favourable options due to these options achieving the lowest percentage of overall material recovery.
Noise and Vibration	The assessment determined that the Pink Option is most favourable primarily because the tunnel would screen and protect the Glen from most of the noise and vibration impacts. The Purple Option was considered the least favourable option because the road alignment is closest to the sensitive receptor High Glencroe. The Green Option was also considered to be a least favourable option due to it having, the longest construction duration in conjunction with a large cut/fill requirement leading to construction traffic impacts outside the Glen.
Population and Human Health	During the construction stage, the Brown Option was considered the most favourable option with it being online and having little direct impact on Agricultural Land Use or WCH routes. Both the Purple and Pink Options are anticipated to have the least impact on the Rest and Be Thankful Viewpoints, but this was offset by impacts on WCH routes. The Pink Option would result in the loss of a residential property, and as such was considered the least favourable along with Green and Yellow Options which both had potentially significant impacts on the Rest and Be Thankful Viewpoint and loss of (or significant and prolonged disruption to) important and popular WCH routes. From a health perspective, during operation no significant differentiators between any of the Scheme Options were identified.

Topic	DMRB Stage 2 Environmental Assessment Summary
Effects on Climate	In terms of construction phase emissions, the Green Option generated the highest amount of emissions whereas the Brown Option would generated the least. All of the Scheme Options were rated High for construction activity emissions, meaning that this lifecycle module was expected to contribute at least an additional 20% more emissions to the construction phase once quantified. The Green Option was considered the least favourable option when considering impacts on climate from carbon emissions and the Brown Option was considered the most favourable option.
Climate Vulnerability	The climate change risk assessment found that all the Scheme Options could be vulnerable to impacts linked to these changes in the climate. After consideration of mitigation none of the potential climate vulnerability impacts were found to be significant adverse with the Pink Option found to be the most preferred option.
Major Accidents and Disasters	From the perspective of the vulnerability of the Proposed Scheme to major events, the Pink Option followed by the Brown and Yellow Options were considered most favourable, as these Scheme Options were vulnerable to the fewest major event types.
Road Drainage and the Water Environment	The Pink Option had the least adverse construction effect in terms of water quality, with the lengthy 'drill and blast' tunnel section requiring less interaction and disruption to watercourse channels and adjacent working zones. The Green and Brown Options both involve the construction of debris flow shelters, with associated challenges anticipated in preventing sediment transport into adjacent channels from extensive cross-slopes during installation. However, the Brown Option has a baseline of catchpits and altered channel morphology for existing A83 slope management and watercourse crossings and, requires less further modification necessary than for construction when compared to the Green Option. For the operational phase, all options offered beneficial effects to receptors from the introduction of road runoff treatment within a SuDS treatment train. The Pink and Purple Options were considered more favourable. The construction of all Scheme Option was considered to be complex resulting in a similar significance of effect on the watercourses. The Pink Option displayed the least direct interaction with watercourses so would be most favoured, followed by the Yellow Option. For operation, the Yellow Option was most favourable. The Green and Brown Options would require substantial physical modification to watercourses and were least favourable from a hydromorphology perspective. The Brown and Pink Options have the least construction activities planned on floodplain, with the Brown Option considered to be most favourable.

Traffic and Economic Assessment

3.2.13. Due to the low traffic volumes and little variance in trunk road length, the economic performance of all Scheme Options was primarily influenced by the cost estimates for each. Although the Brown and Yellow Scheme Options have very similar Benefit to Cost (BCR) ratios (0.04), the Brown Scheme Option gives the lowest value of user benefits in comparison to other options (this is due to disruption during the construction period where traffic is diverted to the OMR). The Purple and Pink Scheme Options give the lowers BCRs (0.02) and both contain tunnel sections. The Brown Scheme Option also has the lowest scheme cost.

3.2.14. The Brown Scheme Option represented the greatest impact to traffic during the construction phase. This has been taken into account in assessing the economic performance but given the generally low traffic flows on the A83 (circa 4500 Average Annual Daily Traffic (AADT)), this does not influence the economic assessment sufficiently to show any other option performing better than the Brown Scheme Option.

DMRB Stage 2 Preferred Route

3.2.15. On the basis of the DMRB Stage 2 Scheme Assessment, it was recommended that the Brown Scheme Option be taken forward as the preferred route for the Proposed Scheme. This was based on a balanced assessment across engineering, environmental and traffic and economic criteria.

3.2.16. The key reasons to support the recommendation were as follows.

- improved resilience and operational safety of the trunk road network by reducing the impact of disruption for travel to, from and between Argyll and Bute and the Central Belt of Scotland
- most favourable performance across a broad range of environmental criteria
- the greatest potential to be delivered quickly and
- the greatest opportunity to encourage sustainable travel.

Old Military Road Improvements

3.2.17. The Medium term Strategy Options Assessment Report sets out the option development and assessment process for the Medium Term Solution (MTS) to improve the resilience of the diversion route when the A83 is closed due to landslides, flooding, or other incidents, prior to the Long Term Solution (LTS) being introduced. The option development and assessment process considered a range of options within Glen Croe comprising of 14 different route options. These options were initially developed before being subject to an initial sifting and short-listing of eight options prior to final development of the short-listed options.

3.2.18. The list of options which were short listed consisted of three online OMR options, two offline options within Glen Croe, and three offline options aligning with the forestry track to the south. These options were subject to a Red-Amber-Green (RAG) against 12 criteria (including environmental considerations)

3.2.19. Three options were shortlisted and assessed against a range of Engineering, Constructability, Environment, Operational, Financial, Public Acceptability, and Reputational criteria, as well as the Estimated Time to Completion, Interface with Forestry and Land Scotland, Consenting and Phasing Considerations. The three options taken forward were:

- single lane forestry track upgrade - generally followed the route of the existing Glen Croe lower forestry track as it rises up the southwest side of Glen Croe, within the lower slopes of Ben Donich
- two way offline MTS along the line of the ‘Green route’ – an offline option on the western slopes of Glen Croe within the lower slopes of Ben Donich. It consisted of a two-way single carriageway with verges. The option was approximately 3.5km long and
- OMR Online Interventions - consisted of a number of interventions to improve the operation and resilience of the OMR when used as a diversion route. The proposed interventions include
  - increased length of two-way working
  - providing edge protection

- curve widening to reduce risk of incidents on the tight bends
- improved resilience of existing structures
- improved resilience of culverts
- potential realignment of the southern A83/OMR junction to reduce flooding impacts and
- geohazard mitigation measures for debris flows and boulder falls in the form of bunds and catch fences.

3.2.20. The following presents a summary of the environmental assessment findings for each of the three options. Each of the options were also assessed against the Proposed Scheme Objectives (detailed in Chapter 2: Need for the Proposed Scheme).

Option 1 Single Lane Forestry Track

3.2.21. The environmental assessment for Option 1 presented in Appendix D of the Options Assessment Report highlights several impacts on biodiversity, fauna, and flora. The removal of extensive woodland could disrupt the wildlife corridor, and any protected species. Depending on how the B828 Glenmore local road is widened there could be a direct impact on the SSSI, with temporary or permanent loss of habitat within that designated area. The spread of non-native species during construction also poses legal and ecological risks however mitigation measures are feasible for such impacts.

3.2.22. This option crosses the Croe Water (a major crossing), seven OS mapped watercourses and circa 107 existing culverts as it traverses the western slopes of Glen Croe. The water environment faces challenges, including flood risks and potential pollution during construction, requiring careful design and mitigation. While air quality is not expected to deteriorate significantly, the project poses challenges related to material use, waste management, and cultural heritage preservation. The landscape and visual amenity of the Loch Lomond and The Trossachs National Park (LLTNP) could suffer adverse effects, though long-term forest management plans may eventually enhance biodiversity and landscape character. Any alignment option to improve the resilience of this route and maintain the passage of vehicles, would be of benefit to the wider community.

Option 2 Two Lane Offline Road

3.2.23. The environmental assessment for Option 2 highlights similar impacts to Option 1 in relation to biodiversity, flora and fauna. The removal of extensive woodland could disrupt the wildlife corridor, and any protected species. Depending on how the B828 Glenmore local road is widened there could be a direct impact on the Beinn an Lochain SSSI, with temporary or permanent loss of habitat within that designated area. The spread of non-native species during construction also poses legal and ecological risks, however mitigation measures are feasible for such impacts.

3.2.24. Option 2 crosses the Croe Water, six OS mapped watercourses and 201 mapped flow pathways as it traverses the southwestern slopes of the valley. The option has significant slope cuttings and impacts on many watercourses with realignment and cascades being the dominant engineering features with the culvert under the road. While air quality is not expected to deteriorate significantly, the project poses challenges related to material use and waste management. There are no designated areas of built heritage along this alignment option. The alignment option is likely to have a significant landscape and visual impact that is unlikely to be fully mitigated. It would also introduce a third (and new) road into the landscape. The alignment option would lead to a permanent visual and landscape impact on the western slope of the glen.

Option 3 OMR Improvements

3.2.25. The environmental assessment for Option 3 highlighted the route of the OMR is not in a sensitive ecological location and any improvement works are unlikely to have significant effects on biodiversity, flora and fauna, subject to relevant controls, particularly to reduce any water quality impacts. In relation to population and human health, the A83 Trunk Road is an important route for access in Argyll and Bute and its closure has a detrimental effect on local communities and businesses. The provision of an alternative route, over a short length, and without significant delay, would have a positive environmental effect for this alignment option.

3.2.26. The OMR crosses the Croe Water and numerous minor watercourses as it traverses the glen. Although a range of channel works is proposed, the channels are relatively minor watercourses and have already been significantly altered by the OMR. The Option may result in relatively minimal increases to the extent of morphological pressures but also interventions provide the opportunity to improve sediment continuity by improving sediment conveyance through culverts. While air quality is not expected to deteriorate significantly, the project poses challenges related to material use and waste management. The OMR itself is regarded as a cultural heritage asset, it has historical and cultural value given its age and historical purpose, however alterations have already been made to the OMR. Further widening of the road along the floor of the glen is unlikely to significantly affect the character of the OMR. Lastly, the visual and landscape impacts would be significant but localised, when viewed in the larger context of the glen itself it may not be as considerable. Minimising the retaining works and using appropriate materials and design for the landscape would help reduce the impact.

Comparative Assessment

3.2.27. With regard to the Offline MTS, whilst it would provide improved resilience and the shortest journey times, its impact, cost and time to complete made it difficult to justify as a temporary diversion only intended to operate until the LTS is in place.

3.2.28. When considering the potential impacts of the Single Lane Forestry Track Option along with the resilience, journey time and other factors, it is difficult to justify as a temporary diversion as the benefit in journey times was not significant for all traffic and any potential benefits of the Single Lane Forestry Track Option did not justify the cost and impact of providing it. However, the main benefit was that it would be as a diversion route if the existing OMR was not available at all and then it would provide benefits over the standard diversion route in terms of journey time.

3.2.29. Of all the options under consideration, the most appropriate option for the MTS was the OMR Interventions, as it would:

- improve the resilience of the route as a temporary diversion
- improvement in the journey time reductions compared to the existing OMR

- although not the lowest cost option, it was not significantly more costly than the Single Lane Forestry Track Option and
- can be delivered at appropriate timescales to meet the need of a temporary solution to A83 road closure. However, this would depend in particular on the ability to secure the land or rights needed to construct the improvements without significant delay. On this aspect, the OMR at its eastern end is within land owned by the Scottish Ministers.

Relationship between MTS and LTS

3.2.30. It is noted within the Options Assessment Report that the preferred solution for the MTS must also be cognisant of the wider development of the LTS within Glen Croe. The report concludes that the OMR Interventions would be capable of being used as a diversion route by traffic during construction of any of the LTS options.

Recommendation

3.2.31. Based on the assessments undertaken, the OMR Interventions was recommended as the preferred option for the MTS.