

Appendix J – Determination of CapEX

For Option 1 and Option 2, CapEx costs have been determined to inform the economic appraisal. The costs associated with these options will be significantly influenced by how they are implemented. This project has identified two implemented methods, which are:

- Implementation method A: National legislation change; and
- Implementation method B: Change in existing statutory legislation.

The base costs associated with each option are required to consider costs associated with maintenance, design, construction and Road Authority administration and legal costs. These costs have been determined using Manual for Contract Highways Works (MCHW), Spon's Architects' and Builders' Price Book (SPONS) 2020 including inflation and assumptions determined from research-based analysis.

Due to uncertainty regarding legislative costs, these have not been determined, however, it is envisaged that these would be higher under Implementation method A. Under Implementation method B it is envisaged that a wider review of speed limit signage would be required resulting in a greater number of speed limit alterations being required. The assumptions considered for each option have been listed below.

The CapEx costs that have been calculated for a 60-year period and are presented in Table J-1 and Table J-2 below.

Implementation Method A Capex Cost Assumptions

Do Something Option 1

Construction Cost

Costs have been determined based upon amending signage at speed limit terminal arrangements at the edges of settlements and altering speed limits on road links in rural environments. Key elements of determining this cost estimate include:

- Speed limit terminal arrangement:
 - Determined base cost for typical terminal speed limit arrangement; and
 - 25% of all roads in/out settlements in Scotland will require terminal signs to be amended.
- Speed limits on A and B class single carriageways which have speed limits less than the current national speed limit:
 - Determined base cost for typical single carriageway speed limit per kilometre length of road; and

- Based on the sample section on the A85 between Oban and Tyndrum, it has been determined that 13% of A and B class single carriageways have speed limits less than the current national speed limit that will require to be reviewed. It is assumed that 20% of this road length will require to be amended. C and Unclassified Roads have not been included in the assessment.

It is assumed that the total construction costs for this option would occur over 2 years.

Design Cost

Based upon an evaluation of professional services time, typical design costs have been determined for each:

- Speed limit terminal arrangement; and
- Speed limits on A and B class single carriageways which have speed limits less than the current national speed limit.

These costs have been aggregated by the number of occurrences identified within the construction costs.

Design costs would be incurred the year prior to construction.

Road Authority Cost

Based upon an evaluation of professional services time, typical road authority costs have been determined for each:

- Speed limit terminal arrangement; and
- Speed limits on A and B class single carriageways which have speed limits less than the current national speed limit.

These costs have been aggregated by the number of occurrences identified within the construction costs.

Road Authority costs would be incurred the year prior to construction.

Do Something Option 2

Construction Cost

Costs associated with this would be as per Option 1, with the addition of costs related to potential alterations to dual-carriageways and motorway signage.

To determine the costs associated with dual-carriageways and motorways, a typical base cost per kilometre length of road for speed limit signage has been established.

Reflecting that a relatively small proportion of the dual-carriageway and motorway network is subject to speed limits below national speed limits it has been assumed that 5% of these road lengths will require signing alterations.

It is assumed that the total construction costs for this option would occur over 5 years.



Design Cost

Costs associated with this would be as per Option 1, with the addition of costs related to potential alterations to dual-carriageways and motorway signage.

Based upon an evaluation of professional services time, dual carriageways and motorways design costs have been determined and aggregated up by the number of occurrences identified within the construction costs.

Design costs would be incurred the year prior to construction.

Road Authority Cost

Costs associated with this would be as per Option 1, with the addition of costs related to potential alterations to dual-carriageways and motorway signage.

Based upon an evaluation of professional services time, dual carriageways and motorways road authority costs have been determined and aggregated up by the number of occurrences identified within the construction costs.

Road Authority costs would be incurred the year prior to construction.

Implementation Method B CapEx Cost Assumptions

Do Something Option 1

Construction Cost

Costs have been determined based upon amending signage at speed limit terminal arrangements at the edges of settlements and altering speed limits on road links in rural environments. Key elements of determining this cost estimate include:

- Speed limit terminal arrangement:
 - Determined base cost for typical terminal speed limit arrangement; and
 - 80% of all roads in/out settlements in Scotland will require terminal signs to be amended.
- Speed limits on A and B class single carriageways which have speed limits less than the current national speed limit:
 - Determined base cost for typical single carriageway speed limit per kilometre length of road; and
 - Based on the sample section on the A85 between Oban and Tyndrum, it has been determined that 13% of the A and B class single-carriageways have speed limits less than the current national speed limit will require speed limits to be reviewed. It is assumed that 20% of this road length will require to be amended. C and Unclassified Roads have not been included in the assessment.

It is assumed that the total construction costs for this option would occur over 2 years.



Design Cost

- As per implementation Method A

Road Authority Cost

- As per implementation Method A

Do Something Option 2

Construction Cost

- As per implementation Method A

Design Cost

- As per implementation Method A

Road Authority Cost

- As per implementation Method A

Table J-1 – Do Something – Option 1 CAPEX Costs

Implementation Method	Cost Type	Cost	Assumptions
Implementation method A	Construction Cost	£10,239,230.04	Assumed the construction costs over 2 years.
Implementation method A	Design Cost	£1,785,747.86	Assumed the design costs over 2 years.
Implementation method A	Road Authority Cost	£640,343.93	Assumed the road authority costs over 2 years.
Total 60-year cost		£12,665,321.83	
Implementation method B	Construction Cost	£30,611,323.89	Assumed the construction costs over 5 years.
Implementation method B	Design Cost	£5,714,393.14	Assumed the design costs over 5 years.

Implementation method B	Road Authority Cost	£2,049,100.57	Assumed the road authority costs over 5 years.
Total 60-year cost		£38,374,817.61	

Table J-2 – Do Something – Option 2 CAPEX and O&M Costs

Implementation Method	Cost Type	Cost	Assumptions
Implementation method A	Construction Cost	£10,413,089.02	Assumed the construction costs over 2 years.
Implementation method A	Design Cost	£1,785,747.86	Assumed the design costs over 2 years.
Implementation method A	Road Authority Cost	£640,343.93	Assumed the road authority costs over 2 years.
Total 60-year cost		£12,839,180.8	
Implementation method B	Construction Cost	£30,785,182.86	Assumed the construction costs over 5 years.
Implementation method B	Design Cost	£5,714,393.14	Assumed the design costs over 5 years.
Implementation method B	Road Authority Cost	£2,049,100.57	Assumed the road authority costs over 5 years.
Total 60-year cost		£38,548,676.57	