

EAST AYRSHIRE COUNCIL

CABINET MEETING – 22 APRIL 2009

10 YEAR BRIDGE AND CULVERT STRENGTHENING PROGRAMME

Report by the Executive Director of Neighbourhood Services

1. PURPOSE OF REPORT

1.1 The purpose of this report is to seek the agreement of the Cabinet for :-

- (i) the 10 year Bridge and Culvert Strengthening Programme.
- (ii) the proposed programme for the construction of the new bridge in Dean Road across the Kilmarnock Water to replace the Ford and adjacent footbridge, which is in poor condition.

2. BACKGROUND

- 2.1 At its meeting on 4 June 2008 Cabinet was advised of the proposal by the Executive Director of Neighbourhood Services to bring forward a ten year bridges investment programme to address the bridge issues taking account of priorities and affordability. The structures covered by this report include bridges, culverts, retaining walls and footbridges which are maintained by the Roads Division.
- 2.2 At its meeting on 4 March 2009 Cabinet approved a 10 year Capital Investment Programme which included £8.96M for bridge and culvert strengthening works. A further sum of £1.0M was also approved for construction of a bridge over the Kilmarnock Water at Dean Road to replace the existing ford and footbridge.
- 2.3 The bridge assessments, principal inspections and general inspections that have been carried out, indicate that there is a backlog in bridge and culvert strengthening and remedial works of £16M.
- 2.4 Bridge Assessment - On the 1st of January 1999 under an EC Directive, domestic legislation was amended to allow 40 tonne vehicles already operating in mainland Europe to travel on roads in this Country. All road bridges in the UK are required to be assessed to determine their suitability to carry this new load requirement. Those which fail their load assessment are then required to be strengthened, replaced or permanently weight restricted.
- 2.5 Bridge Inspections – General and Principal Inspections are carried out on a regular basis to ensure the Council's road structures are safe and fit for purpose. The frequency of inspection is in accordance with guidance in the "Management of Highway Structures" – A Code of practice and the "Inspection Manual for Highway Structures". The inspections also provide the information needed for the preparation of programmes of remedial action.
- 2.6 General Inspections (GI), which are visual inspections only, are carried out on a two-year cycle. Over 800 structures receive a General Inspection.

2.7 Principal Inspections (PI) are a more detailed examination and are carried out every 6 years. Only those structures with a span greater than or equal to 1.8m and walls with retention greater than or equal to 1.5m receive a PI. 90 PI's have to be carried out each year to achieve the 6 year cycle.

3. 10 YEAR BRIDGE IMPROVEMENT PROGRAMME

3.1 It is proposed that the ten year budget of £8.96M for bridge and culvert strengthening shall be allocated as set out below and in Appendix A. The allocations have been made to ensure that the bridge strengthening work identified from bridge assessments and the highest priority upgrading work identified from principal and general inspections can be completed within the 10 years as well as bringing forward a programme of works for rail incursion and parapet upgrading. The bridge and culvert works have been prioritised using maintenance prioritisation methodologies approved by Cabinet at its meeting on 4 June 2008.

3.2 Interim Measures - A programme of interim measures is being implemented to manage structures that have been identified through the bridge assessment, principal and general inspection programmes as being weak or requiring upgrading. Interim measures include weight restrictions, lane restrictions, propping and / or monitoring at regular pre-determined intervals. Such measures will be put in place until upgrading works can be brought forward as part of the prioritised programme of Bridge and Culvert Strengthening. A provision of £0.15M has been made in the 10 year programme for interim works.

3.3 Bridge Assessment – The Bridge Assessment Programme is 81% complete with the remaining 19% to be completed by 2010. £0.24M has been included in the budget for the completion of the assessments.

3.4 Bridge Strengthening - This allocation is to address the strengthening of bridges that have failed the 40 tonne assessment. To date 72 bridges have been found to be weak. 31 have subsequently been strengthened. Interim measures, as outlined in 3.2 above, are being implemented for those bridges still to be strengthened. Due to the competing demands on the budget it is not proposed to bring forward schemes at present for Stair Bridge and Doon Bridge but manage these by weight limit. The estimated total cost of strengthening both the identified weak bridges and those still to be identified from assessments to be done is £3.36M. This work is programmed to be completed within the 10 year programme.

3.5 Principal and General Inspections – This allocation is to bring forward schemes identified through the Principal and General Inspection processes as requiring remedial action. Structures are assigned a Maintenance Prioritisation Ranking (MPR) and values range from 1 to 4 with 1 indicating acceptable condition and 4 indicating the condition is such that urgent remedial action is required. The cost of upgrading structures with an MPR of 4 is £1.19M and this work can be carried out within the 10 year programme. The cost of upgrading structures with an MPR value of 3 (requiring remedial action within 6 years) is estimated at £2.45M and this can also be carried out within the 10 year programme. Upgrading work to structures with a MPR value of 2 (acceptable at the moment but likely to deteriorate within 6 years) is estimated to cost £4.55M and cannot be undertaken within the 10 year programme. However, all structures will have a General Inspection every two years and where applicable a Principal Inspection every 6 years, which will identify any deterioration in the condition that may necessitate bringing forward upgrading works.

3.6 Rail Incursions – Over 30 sites have been identified adjacent to railways where there is a risk of vehicle incursion onto the railway line. It is proposed to allocate £0.79M over ten years to bring forward a prioritised programme of mitigation works at the rail incursion sites.

3.7 Bridge Parapets - Bridge parapets are regularly damaged by passing vehicles. The Bridge Assessment Programme, Principal and General Inspections have also shown that many parapets are sub-standard in terms of modern day vehicle containment requirements. The full extent of the upgrading that will be needed is to be assessed. A sum of £0.78M has been allocated to bring forward a prioritised programme of parapet upgrading work.

4.0 ADDITIONAL SCHEMES

4.1 Kilmarnock Water Bridge at Dean Road – It is proposed to carry out Preliminary and Final Design work on this scheme in 2009-10. This will include topographical survey, hydrological investigation, ground investigation and option appraisal with estimated costs. Final design including tender preparation will be progressed following acceptance of the preferred option from the preliminary design. It is anticipated that construction of the new bridge will commence in the financial year 2010-11.

5. CONCLUSIONS

5.1 A ten year bridge improvement programme totalling £8.96M has been developed for bridge and culvert strengthening (identified from assessments and general and principal inspections), rail incursions measures and bridge parapet upgrading.

5.2 Interim measures and actions are being implemented to manage structures that have been identified through the bridge assessment and principal and general inspection programmes as being weak or requiring remedial measures.

5.3 The 10 year Bridge and Culvert Strengthening Programme will continue to be monitored and updated as results of bridge assessments and principal and general inspections come forward.

6.0 FINANCIAL IMPLICATIONS

6.1 The proposed programme of works will be funded from the 10 year Bridge Strengthening and Culvert Replacement allocation from the 10 year Roads and Transportation Capital budget, previously approved.

6.2 While a funding gap exists between the allocated £8.96M over 10 years and £16M identified backlog of bridge and culvert works, the structures are being managed to minimise risk of failure. Funding for structures which deteriorate further during the life of the 10 year programme will require to be identified if and when such situations arise.

6.3 A budget of £1.0M has been provided in the 10 year programme for the construction of the new bridge in Dean Road across the Kilmarnock Water. An allocation of £50,000 has been set aside in 2009-10 to commence design works and site investigation.

7.0 LEGAL IMPLICATIONS

7.1 Under the Roads (Scotland) Act 1984, Roads Authorities have a duty to manage and maintain public roads. This duty includes the proper maintenance of all structures carrying or supporting the road.

8.0 PERSONNEL IMPLICATIONS

8.1 There are no personnel implications

9.0 POLICY IMPLICATIONS

9.1 The proposed programmes are in accordance with the Council's Local Transport Strategy objectives in terms of reversing the decline in the condition of the bridge stock and completing the assessment and strengthening of those structures to cope with EC Standards.

10.0 COMMUNITY PLANNING IMPLICATIONS

10.1 The 10 year Bridge and Culvert Strengthening Programmes will provide benefits to communities throughout East Ayrshire by maintaining access to employment and educational opportunities and improving safety.

11.0 RISK MANAGEMENT IMPLICATIONS

11.1 A delay in the delivery of the 10 year programme will expose the Council to potential risks with regard to the deteriorating condition of the bridge stock which could result in structure failure and service loss. The Dean Ford presents an ongoing maintenance issue as well as safety implications to road users when the ford is icy or over topping. The content of this report has previously been considered by the Corporate Management Team.

12.0 RECOMMENDATION

12.1 It is recommended that the Cabinet:-

- (i) approve the 10 year Bridge and Culvert Strengthening Programme
- (ii) approve the proposed programme for the construction of the new bridge in Dean Road across the Kilmarnock Water which will replace the Ford and adjacent footbridge which is in poor condition.

William Stafford
Executive Director of Neighbourhood Services

8/4/09
WS/KO/AEI

LIST OF BACKGROUND PAPERS

1. Bridges, Traffic, Transportation and Road Safety Programmes 2008-09
Cabinet – 4 June 2008
2. Roads and Transportation Capital Investment Programme 2009/10 – 2018/19
Cabinet - 4 March 2009

For further information on this report please contact Keith Orton, Acting Chief engineer, Roads Division, Design and Transportation (Tel:- 01563 555734).

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