CABINET MEMBER DECISION

<u>Decision:</u> To give authority to obtain competitive tenders for the following work to the Wharf Road car park in Grantham:

a) the removal of existing waterproof and protective deck coatings;
b) inspection and repair of concrete structural elements;
c) provision of new waterproof membrane incorporating additional movement joints and improved deck profiling to assist drainage.

(1) Details of Decision:

This decision relates to the ongoing deterioration of the waterproofing membrane at the Wharf Road car park in Grantham on levels 3 and 4. The Council therefore needs to go out to tender for this essential remedial work.

The multi-storey car park at Wharf Road, Grantham was constructed in 1983 as part of the town centre redevelopment project carried out by Wm Morrisons plc.

The car park is still owned by Wm Morrisons but is leased to SKDC on a 40-year full repair and maintenance lease which expires in 2023.

(2) Reasons for decision and details of alternative options considered:

<u>Construction Defects and Previous Works</u>

A total of 275 car parking spaces are accommodated on four levels with the top two levels (numbers 3 and 4) fully exposed to the elements.

The car park construction comprises a pre-cast, pre-stressed reinforced concrete frame with a thin concrete screed topping laid to falls, and two layers of asphalt as the final waterproofing and surfacing membrane.

Asphalt has a limited lifespan of about 10 years in such exposed circumstances however, and by the early 1990's the material was quite clearly exhibiting significant signs of failure. This was particularly noticeable at joints between individual reinforced deck beams and at the ends of ramps, resulting in the leakage of surface water through the deck onto the two enclosed decks below.

In addition to the obvious inconvenience to users of lower parking decks, a more serious consequence of water ingress is the potential deterioration of structural concrete elements.

Surface water on the car park decks is often heavily contaminated with road salts and chemicals, especially as a result of winter road gritting programmes, and has been shown to aggressively attack concrete materials leading eventually to corrosion of reinforcement and loss of strength.

As a result, in 1997 a new elastomeric coloured protective coating was applied to the entire asphalt surface. The material used had a crack-bridging capability sufficient to accommodate deck movements confirmed by the original design specification and should have provided adequate protection for about ten years. However, movement in the car park decks has clearly increased as evidenced by the large cracks of over 10mm width that have appeared in various places.

Water ingress is again a problem and advice has, therefore, been sought from a specialist contractor to establish the full extent of the problem and the cost and specification of more long-lasting remedial works.

Investigation and Proposed Works

Following a limited core sampling exercise to investigate the failed car park decking, the following conclusions have been confirmed:-

1. Excess movement between individual concrete deck beams is likely to be caused by weakening (due to water ingress) of welded steel joints.
2. Original deck asphalt material is of variable thickness and does not appear to incorporate an isolating membrane. This would allow greater movement between surfacing and the structural deck and hence reduce cracking.
3. The structural concrete screed is in poor condition and there is evidence of water ingress over a considerable period of time.
4. Continued water penetration of the deck membrane has caused some delamination between the skid-resistant surface layer and the basecoat beneath. The basecoat when exposed has no skid-resistance and when wet poses a high risk to moving vehicles. If the situation deteriorates much further, consideration will have to be given to the closure of significant areas of the car park.

The proposed solution to the problems identified, sufficient to reinstate a durable watertight deck coating, are summarised below:-

1. Complete removal of the existing waterproof membrane.
2. Removal of asphalt decking in strips over each structural joint and inspect joint welds and repair as necessary.
3. Identification and repair of any defective concrete materials.
4. Installation of "soft" joints to accommodate future movement between all structural elements.
5. Provision of reinforced resin-impregnated bands to span all joints as in 4 above.
6. Provision of integrated multi-layer proprietary waterproofing system with minimum 10-year guarantee.

Alternatives Considered

The existing car park surfacing cannot be repaired successfully and, as structural movement has exceeded that which was originally anticipated by the suppliers, the possibility of a warranty or latent defect action are minimal if non-existent.

As an alternative to a replacement coating, as proposed, consideration could be given to the entire removal of all coatings and the asphalt sub-strata and replacement with a new asphalt surfacing. The limited capability of this material to accommodate movement in the structure has previously been exposed however, and its use is not therefore recommended.

Timescale

Installation of a new car park surface membrane has to be undertaken during fine dry weather conditions and the work must be completed before the onset of winter conditions.

Subject to obtaining tenders from a limited number of specialist contractors it is proposed that works take place during October and early November ready for returning the car park to full use before Christmas. The top two levels of the car park will have to be closed to the public for the duration of the work.

Costs

Based upon budget costings already obtained, the estimated total cost of the necessary repairs is as follows:-

Structural Investigations	£10,000
Full Replacement of Membrane	£140,000
SKDC Staff Costs	£7,000
TOTAL	**£157,000**

Summary

Ongoing and worsening failures in the existing car park surfacing membrane must be arrested to prevent water ingress, deterioration in the concrete structure and delamination of membrane materials.

Proposals have been obtained from a specialist contractor for a replacement waterproof membrane and for essential repairs to the structural deck below.

The estimated total cost of the works is £157,000.

Conflicts of Interest

(Any conflict of interest declared by any other Cabinet Member consulted in relation to the decision to be recorded).

None declared.

Dispensation

(Any dispensation granted by the Standards Committee in respect of any declared conflict of interest to be noted).

N/A

Decision taken by:

Name: Councillor Ray Auger
Portfolio: ENVIRONMENT

Date of Decision: 31st AUGUST 2004

Date of Publication of Record of Decision: 1st SEPTEMBER 2004

Date decision effective (i.e. 5 days after the date of publication of record of decision unless subject to call-in by a Chairman or 3 members of the Environment Development and Scrutiny Panel):

9th SEPTEMBER 2004