



## 2. FINANCIAL IMPLICATIONS

### **Capital**

It is estimated that capital funding of £70,000 is required to implement the necessary improvements. This does not at this stage include any legal costs that may be incurred.

### **Revenue**

Annual inspection and monitoring costs for the improved system are estimated at £1500.

In addition because the new fixings and ropes have a limited service life it is recommended that a rolling programme of fixings and rope renewal is established from year 5 following the improvement works. The estimated cost of this programme is £5000 per annum.

No external source of funding has been identified.

## 4. SERVICE & COMMUNITY IMPACT

The use of the ropes for displays of banners and festive lights helps to enhance the environment of Union Street and promote the City as a tourist and business centre.

The display of festive lights is a well established tradition.

## 5. OTHER IMPLICATIONS

- a) There is a risk that one or more of the building owners will object to the proposals. The advice received from the City Solicitor is that individual agreements will be required with each building owner before alterations can be made to the fixings to the building facades.
- b) As the proposed means of securing the wire ropes to the buildings will be visually more prominent than the existing fixings so there is a risk that listed building consent could be refused.
- c) Without the necessary improvements there is the ongoing risk that use of the ropes could be stopped at very short notice on health and safety grounds.

## 6. REPORT

This report refers to article 35 of the minute of the meeting of the Resources Management Committee of 26 August 2008.

Wire rope support systems attached to building facades and spanning Union Street have been used for decades to support both festive lights and banners. The anchorages and ropes have been renewed several times during the period for various reasons, including new lighting displays in 1995, new ropes and turnbuckles in 2001 (due to a ban on the use of bulldog clips), the need to replace expanding anchors with resin anchors etc. However some concerns have remained about the load carrying capacity of the system, with particular regard to the forces applied by each rope to the individual granite facing block, to which it is attached with a single resin anchor. There is a danger that the facing blocks could be dislodged and fall onto the footpath.

Following the approval of the Resources Management Committee a remote monitoring system was installed to measure the service loads on the cables for both festive lights and banners. Wind pressure is the most significant loading effect and although loads of up to only 1.1 Tonne were actually recorded in the ropes, the most severe design wind speeds were not experienced during the monitoring period. Projections from the data collected would indicate that a maximum loading of 2 Tonne per rope is realistic for a 50 year return period and that this figure should be used for designing the improvements to the system.

Some improvements to the ropes, turnbuckles and shackles are required to bring them all up to 2 Tonne SWL. However as described above the unknown factor in the overall capacity of the system is the pull out capacity of the individual granite facing blocks, to which each rope end is anchored. Some of these blocks have moved in the past under loading and it is not possible to safely assess their pull out capacity.

In order to improve the capacity of the fixings to the buildings it is proposed to replace the existing arrangement by firstly attaching stainless steel 'T' sections vertically to the building facades at each rope system location. The Ts will have multiple fixings to the buildings – i.e. instead of relying on one facing block to resist the pull of the cable several blocks will now carry the load, significantly increasing the robustness of the system. The ropes will then be attached directly to the T section with shackles.

Completion of the proposed improvements will provide a robust support system with a SWL for each rope of 2 Tonne. The remote monitoring of the improved system will continue and can be used to ensure that any adjustments or re-rigging operations do not unintentionally overstress the system. The monitoring system will also be used to check that all ropes are at the correct level of pre-tension.

Until such time as the improvements are carried out the remote monitoring system will be used in conjunction with inspections and weather forecasts to risk manage the existing support system.

## 7. REPORT AUTHOR DETAILS

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## 8. BACKGROUND PAPERS

None