
COMMITTEE:	Enterprise, Strategic Planning & Infrastructure
DATE	03 June 2014
DIRECTOR	Gordon McIntosh
TITLE OF REPORT	Structural Integrity of Non Galvanised Street Lighting Columns
REPORT NUMBER:	EPI/14/109

1 PURPOSE OF THE REPORT

This report is intended to provide Members with an overview of the implications arising from recent Structural Integrity Testing of Non Galvanised Street Lighting Columns.

2 RECOMMENDATIONS

That the Committee

- a) note the contents of this report
- b) instruct officers to continue with the testing of a further 4,469 columns identified as being at risk over the next 4 years and report back annually on the findings of the completed testing.
- c) notes that £2,000,000 of capital funding may be required, over the next 5 years, to renew the lighting columns which are expected to be identified for replacement by further testing.
- d) instruct Roads Officers to relocate funding from this years Roads Capital Budget, approved at ESP&I Committee March 2014, to manage replacement programme.
- e) to note the detrimental effect that recommendation d) will have on other areas of work presently carried out under the Roads Capital Budget.

3. FINANCIAL IMPLICATIONS

Structural Integrity Testing of the remaining “at risk” lighting columns will cost £54,000 at the current rate.

Replacement costs for those identified so far by testing are currently £2,500 per column:

94 lighting columns for immediate removal (Category 5) will cost £235,000.
110 lighting columns for scheduled removal (Category 4) will cost £275,000.

Extrapolating the existing test results to the remaining 4,881 columns identified as “at risk” indicates a requirement to renew 721 columns. These replacements are costed at £2,000 per column as the majority are 5m or 6m columns on secondary roads and consequently less expensive to replace.

332 lighting columns for immediate removal (Category 5) will cost £664,000.

389 lighting columns for scheduled removal (Category 4) will cost £778,000.

A further saving of approx 10% could be applied if all the Category 5 and Category 4 columns in a street were replaced at the same time as there would be economy of scale in carrying out the works.

A bid will be submitted for additional SALIX funding, to cover the cost of the lanterns by replacing them with more energy efficient lanterns. This would reduce the cost of each column by approximately £400 but the result of this bid will not be known until later this year.

4. SERVICE & COMMUNITY IMPACT

Aberdeen-the Smarter City

We will embrace the distinctive pride the people of Aberdeen take in their city and work with them to enhance the sense of well-being here, building strong communities which look out for, and look after one another.

We will promote Aberdeen as a great place to live, bring up a family, do business and visit.

We will ensure that Union Street regains its position as the heart of the city and move cultural activity centre-stage through re-invigorated cultural leadership.

Single Outcome Agreement - National Outcomes: 1, 5, 10, 12, 13, 14.

Public – Public interest is high in relation to Festive Lighting. Switch on Parade provides a high level of involvement with the public and local press.

Equality and Human Rights Impact Assessment (EHRIA) – Not Applicable in this instance

This report has no direct implications in relation to Equalities & Human Rights Impact Assessment.

5 MANAGEMENT OF RISK

Lack of adequate street lighting will lead to greater risk of crime and road traffic collisions. Council's reputation may be at risk along with a possible increase in the council's liability to claims for injury.

6 REPORT

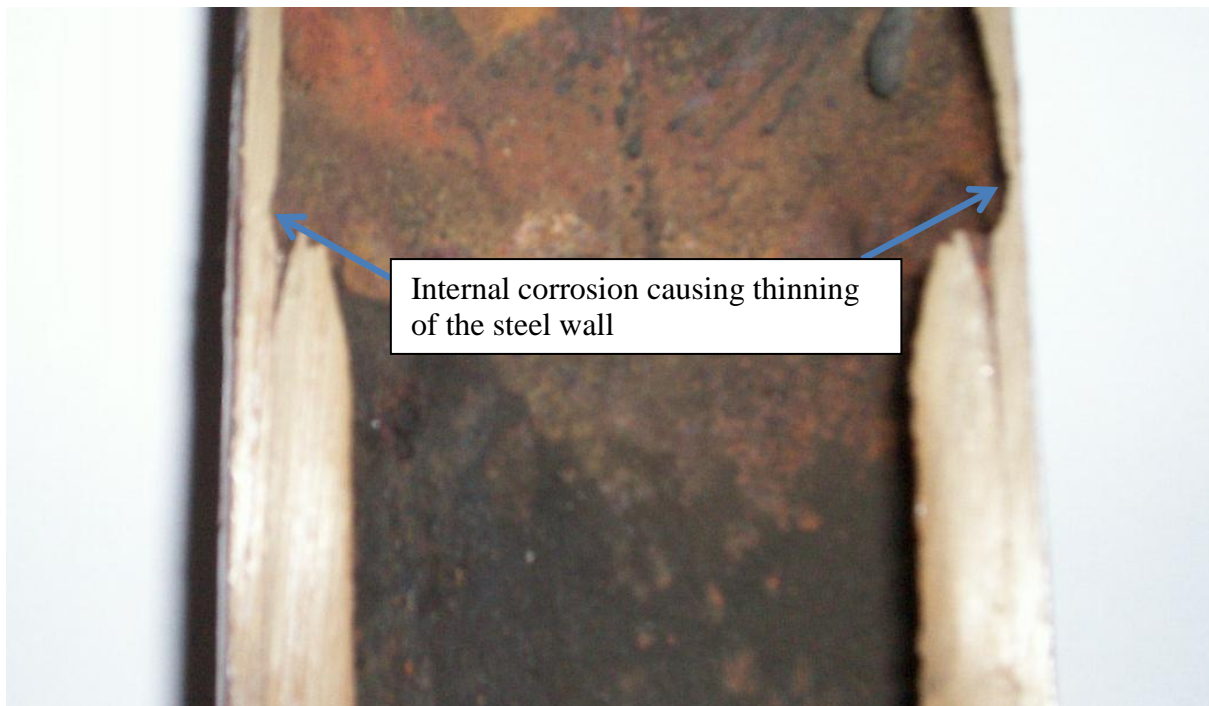
Background:

Testing of lighting columns, historically, was carried out by a combination of visual inspection and "sounding" with a hammer. This was deemed to no longer be acceptable following the failure of a column with no apparent visible corrosion on the outside of the column.

Test methods have advanced with developments in technology meaning that the testing is more accurate and consistent. A specialist company was employed to carry out magnetic induction testing which can accurately determine the reduction in thickness of the steel walls of the lighting columns.

Initially, 1,382 of the higher columns from 8m to 12m have been tested as these would have the greater consequences if one was to fall. A further 412 columns of this height will be tested in May.

The photograph below indicates a typical example of a cross-section taken from one of the failed lighting columns which showed no external signs of corrosion but has rusted from the interior and lost approximately 50% of the thickness of the column wall.



Test Results

The tested columns are categorized from 1 to 5 and the categories of immediate concern are categories 5 and 4 which are:

5) > 50% loss of cross sectional area – Recommended immediate removal

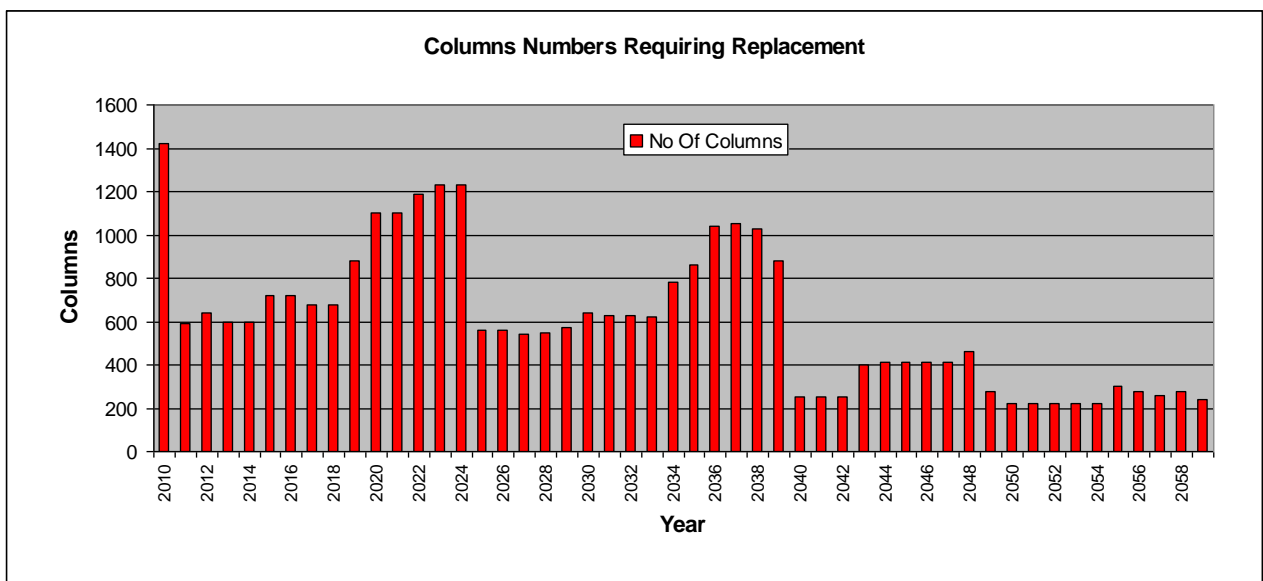
4) 25 – 50% loss of cross sectional area – Recommended schedule for removal as soon as practicable.

TR22 Category	CMT Class	Average LSU's	Recommendation	TR22 - Priority Score Impact
2U	5	>-50	Immediate removal or making safe the unit	No Change
1U	4	-25 to -50	Schedule for Removal/Replacement as soon as practicable or in accordance with Operating Authorities Action Matrix	No Change
2G	3	-17 to -24	Re-test within 2 years	Minus 2 from score
3G	2	-11 to -16	Re-test within 3 years	Minus 3 from score
6G	1	0 to -10	Re-test within 6 years	Minus 6 from score

1,382 lighting columns were tested. The test results revealed that, of the columns tested, 94 should be removed immediately (Category 5) and 110 should be scheduled for removal (Category 4). Extrapolating the results for all 6,263 columns at risk of failure would indicate a total of 426 lighting columns would be Category 5 and 499 lighting columns would be Category 4. While not exact, this is a good indicator of the expected results. A list of the Category 5 and Category 4 lighting columns identified by the recent testing is included as Appendix A.

Roads Asset Management Plan (RAMP)

The graph below is abstracted from the present RAMP and indicates the end of the design life of the existing lighting columns in Aberdeen City. It is apparent from this graph that there was a peak of columns reaching the end of their design life in 2010 and there will be a further peak from 2019 to 2024. No additional funding was available to address the peak in 2010 and the current column failures indicated by the testing is a good reflection of this. Further replacements are to be expected during the upcoming peak from 2019 to 2024.



Revenue Budget Column Replacements

Some individual column replacements are carried out from the Revenue budget annually but these are generally the result of Road Traffic Collisions for which the driver cannot be traced or columns which have been identified visibly as being severely corroded. The existing pressures on the Revenue budget mean that the number of these is limited to approximately 50 per year.

Options

- 1) Remove all columns identified for immediate removal and replace them during future years as the capital budget will allow. Many of the columns are in clusters so this would leave large areas unlit with the subsequent reduction in safety making this option undesirable.
- 2) Modify the current year's £300,000 Capital Lighting Programme approved at the EP&I committee on 13 March 2014 and reallocate the funding to replace the Category 5 columns identified for immediate replacement and as many Category 4 columns as this budget will allow. Some of the schemes identified in this year's Capital Lighting Programme were included in the programme because they were visually unsound, making the cancellation of the entire Capital Lighting Programme undesirable. This may mean that some individual Category 5 columns may have to wait until further funding is available before being replaced possibly leaving some gaps in the street lighting network.
- 3) Re-evaluate road resurfacing schemes to allocate additional funding into lighting column replacement schemes. This will have a detrimental effect on the good progress being made with Road Resurfacing, Footway Resurfacing, Tree Removals or Traffic Signal Upgrades as these would be the areas of work subject to cut back to cover the cost of the column replacements.
- 4) Additional funding to the value of £2,000,000 to be sourced to cover the cost of the column replacements over the next 5 years, to address the immediate problem.
- 5) Bid to be made to the Corporate Asset Group for funding for the period 2019 to 2024 to address the next peak in lighting columns reaching the end of their design life.

7 REPORT AUTHOR DETAILS

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