

Timothy MD Glennie  
Edinburgh Tram Inquiry  
Area GC - North  
Victoria Quay  
Edinburgh  
EH6 6QQ

**Date** 30 September 2020

**Your ref**

**Our ref** JC/TMDG/300920

Dear Mr Glennie,

### Final Cost of the Edinburgh Tram Project

I refer to your letter of 16 September 2020 requesting further details of estimated revenue costs arising from borrowing and Net Present Value calculations for the associated cash flows.

I have attached the following information in response to your request:

**Appendix 1** shows the calculation of the estimated additional revenue cost of £15.3m p.a. based on the assumptions set out within the report to Council on 25 August 2011 (additional borrowing of £231m, repayment period of 30 years and interest rate of 5.1%). The repayment of borrowing is on an annuity basis with total annual payments smoothed over the 30-year borrowing period with loan repayments increasing over the lifetime of the borrowing as interest charges on outstanding debt reduce. In addition to interest and repayment charges the estimated revenue cost also includes an allocation for expenses incurred in managing the Council's loan debt portfolio.

**Appendix 2** shows the calculation of the estimated additional revenue cost of £14.3m p.a. based on the assumptions set out within paragraph 6.18 of my witness statement (additional borrowing of £246.5m, repayment period of 30 years and interest rate of 4%).

**Appendix 3** shows the Net Present Value (NPV) estimate of £291m as reported to Council in August 2011. This is based on the total cash flows of £459m (using rounded cash flows of £15.3m per annum for 30 years per Appendix 1). Net Present Value is a generic term for the sum of a stream of future cash flow values that have been discounted to re-state the cash flows at today's values. Discounting is a technique used to compare costs occurring over different periods of time on a consistent basis and a discount rate of 3.5% has been used in line with HM Treasury guidance.

As requested, **Appendix 4** provides a Net Present Value (NPV) calculation of £272m based on the total cash flows of £429m (using rounded cash flows of £14.3m per annum for 30 years per Appendix 2).

Finance, Resources Directorate

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An excel version of the appendices will be provided to allow review of all computations. If you have any questions or require further information, please let me know.

Your Sincerely



John Connarty

**Business Partnering Senior Manager**

# Appendix 1

LOANS CHARGES FORECASTS - Additional Borrowing of £231m. repayment period 30 years. interest rate 5.1%

| 29-Sep-20 |              |                   |                     |                      |             |
|-----------|--------------|-------------------|---------------------|----------------------|-------------|
| Year      | Opening Debt | Annuity Repayment | Interest %<br>5.100 | Expenses %<br>0.0554 | TOTAL       |
| 1         | 231,000,000  | 3,417,609         | 11,781,000          | 128,002              | 15,326,611  |
| 2         | 227,582,391  | 3,591,907         | 11,606,702          | 126,108              | 15,324,717  |
| 3         | 223,990,484  | 3,775,094         | 11,423,515          | 124,118              | 15,322,727  |
| 4         | 220,215,390  | 3,967,624         | 11,230,985          | 122,026              | 15,320,635  |
| 5         | 216,247,766  | 4,169,973         | 11,028,636          | 119,827              | 15,318,436  |
| 6         | 212,077,793  | 4,382,641         | 10,815,967          | 117,517              | 15,316,126  |
| 7         | 207,695,152  | 4,606,156         | 10,592,453          | 115,088              | 15,313,697  |
| 8         | 203,088,996  | 4,841,070         | 10,357,539          | 112,536              | 15,311,145  |
| 9         | 198,247,926  | 5,087,965         | 10,110,644          | 109,853              | 15,308,462  |
| 10        | 193,159,961  | 5,347,451         | 9,851,158           | 107,034              | 15,305,643  |
| 11        | 187,812,510  | 5,620,171         | 9,578,438           | 104,071              | 15,302,680  |
| 12        | 182,192,339  | 5,906,800         | 9,291,809           | 100,957              | 15,299,565  |
| 13        | 176,285,540  | 6,208,046         | 8,990,563           | 97,684               | 15,296,292  |
| 14        | 170,077,493  | 6,524,657         | 8,673,952           | 94,244               | 15,292,852  |
| 15        | 163,552,837  | 6,857,414         | 8,341,195           | 90,628               | 15,289,237  |
| 16        | 156,695,422  | 7,207,142         | 7,991,467           | 86,828               | 15,285,437  |
| 17        | 149,488,280  | 7,574,707         | 7,623,902           | 82,835               | 15,281,443  |
| 18        | 141,913,574  | 7,961,017         | 7,237,592           | 78,637               | 15,277,246  |
| 19        | 133,952,557  | 8,367,028         | 6,831,580           | 74,226               | 15,272,835  |
| 20        | 125,585,528  | 8,793,747         | 6,404,862           | 69,590               | 15,268,198  |
| 21        | 116,791,782  | 9,242,228         | 5,956,381           | 64,717               | 15,263,326  |
| 22        | 107,549,554  | 9,713,582         | 5,485,027           | 59,595               | 15,258,204  |
| 23        | 97,835,972   | 10,208,974        | 4,989,635           | 54,213               | 15,252,822  |
| 24        | 87,626,998   | 10,729,632        | 4,468,977           | 48,556               | 15,247,165  |
| 25        | 76,897,366   | 11,276,843        | 3,921,766           | 42,610               | 15,241,219  |
| 26        | 65,620,522   | 11,851,962        | 3,346,647           | 36,362               | 15,234,971  |
| 27        | 53,768,560   | 12,456,412        | 2,742,197           | 29,794               | 15,228,403  |
| 28        | 41,312,148   | 13,091,689        | 2,106,920           | 22,892               | 15,221,501  |
| 29        | 28,220,459   | 13,759,365        | 1,439,243           | 15,638               | 15,214,246  |
| 30        | 14,461,093   | 14,461,093        | 737,516             | 8,013                | 15,206,622  |
|           |              | 231,000,000       | 224,958,266         | 2,444,199            | 458,402,465 |
|           |              |                   | Annual Charge       |                      | 15,280,082  |

## Appendix 2

LOANS CHARGES FORECASTS - Additional Borrowing of £246.5m, repayment period 30 years, interest rate 4.0%

| 29-Sep-20 |              |                   |               |            |             |
|-----------|--------------|-------------------|---------------|------------|-------------|
| Year      | Opening Debt | Annuity Repayment | Interest %    | Expenses % | TOTAL       |
|           |              |                   | 4.000         | 0.0554     |             |
| 1         | 246,500,000  | 4,395,119         | 9,860,000     | 136,591    | 14,391,710  |
| 2         | 242,104,881  | 4,570,924         | 9,684,195     | 134,155    | 14,389,275  |
| 3         | 237,533,956  | 4,753,761         | 9,501,358     | 131,623    | 14,386,742  |
| 4         | 232,780,195  | 4,943,912         | 9,311,208     | 128,988    | 14,384,108  |
| 5         | 227,836,284  | 5,141,668         | 9,113,451     | 126,249    | 14,381,368  |
| 6         | 222,694,615  | 5,347,335         | 8,907,785     | 123,400    | 14,378,519  |
| 7         | 217,347,281  | 5,561,228         | 8,693,891     | 120,437    | 14,375,556  |
| 8         | 211,786,052  | 5,783,677         | 8,471,442     | 117,355    | 14,372,475  |
| 9         | 206,002,375  | 6,015,024         | 8,240,095     | 114,150    | 14,369,270  |
| 10        | 199,987,351  | 6,255,625         | 7,999,494     | 110,817    | 14,365,937  |
| 11        | 193,731,725  | 6,505,850         | 7,749,269     | 107,351    | 14,362,470  |
| 12        | 187,225,875  | 6,766,084         | 7,489,035     | 103,746    | 14,358,865  |
| 13        | 180,459,790  | 7,036,728         | 7,218,392     | 99,997     | 14,355,116  |
| 14        | 173,423,063  | 7,318,197         | 6,936,923     | 96,097     | 14,351,217  |
| 15        | 166,104,866  | 7,610,925         | 6,644,195     | 92,042     | 14,347,162  |
| 16        | 158,493,941  | 7,915,362         | 6,339,758     | 87,825     | 14,342,944  |
| 17        | 150,578,579  | 8,231,976         | 6,023,143     | 83,439     | 14,338,558  |
| 18        | 142,346,603  | 8,561,255         | 5,693,864     | 78,877     | 14,333,997  |
| 19        | 133,785,347  | 8,903,706         | 5,351,414     | 74,133     | 14,329,253  |
| 20        | 124,881,642  | 9,259,854         | 4,995,266     | 69,200     | 14,324,319  |
| 21        | 115,621,788  | 9,630,248         | 4,624,872     | 64,068     | 14,319,188  |
| 22        | 105,991,540  | 10,015,458        | 4,239,662     | 58,732     | 14,313,852  |
| 23        | 95,976,082   | 10,416,076        | 3,839,043     | 53,182     | 14,308,302  |
| 24        | 85,560,006   | 10,832,719        | 3,422,400     | 47,411     | 14,302,530  |
| 25        | 74,727,287   | 11,266,028        | 2,989,091     | 41,408     | 14,296,527  |
| 26        | 63,461,259   | 11,716,669        | 2,538,450     | 35,165     | 14,290,285  |
| 27        | 51,744,590   | 12,185,336        | 2,069,784     | 28,673     | 14,283,792  |
| 28        | 39,559,254   | 12,672,749        | 1,582,370     | 21,921     | 14,277,040  |
| 29        | 26,886,505   | 13,179,659        | 1,075,460     | 14,898     | 14,270,018  |
| 30        | 13,706,846   | 13,706,846        | 548,274       | 7,595      | 14,262,715  |
|           |              | 246,500,000       | 181,153,583   | 2,509,526  | 430,163,109 |
|           |              |                   | Annual Charge |            | 14,338,770  |

## Appendix 3

### NPV Calculation - Additional Borrowing of £231m @ 5.1%

| Rate | 3.5%         |              |
|------|--------------|--------------|
| Year | Cash £m      | NPV £m       |
|      | 15.3         | 1.0000       |
| 1    | 15.3         | 1.0350       |
| 2    | 15.3         | 1.0712       |
| 3    | 15.3         | 1.1087       |
| 4    | 15.3         | 1.1475       |
| 5    | 15.3         | 1.1877       |
| 6    | 15.3         | 1.2293       |
| 7    | 15.3         | 1.2723       |
| 8    | 15.3         | 1.3168       |
| 9    | 15.3         | 1.3629       |
| 10   | 15.3         | 1.4106       |
| 11   | 15.3         | 1.4600       |
| 12   | 15.3         | 1.5111       |
| 13   | 15.3         | 1.5640       |
| 14   | 15.3         | 1.6187       |
| 15   | 15.3         | 1.6753       |
| 16   | 15.3         | 1.7340       |
| 17   | 15.3         | 1.7947       |
| 18   | 15.3         | 1.8575       |
| 19   | 15.3         | 1.9225       |
| 20   | 15.3         | 1.9898       |
| 21   | 15.3         | 2.0594       |
| 22   | 15.3         | 2.1315       |
| 23   | 15.3         | 2.2061       |
| 24   | 15.3         | 2.2833       |
| 25   | 15.3         | 2.3632       |
| 26   | 15.3         | 2.4460       |
| 27   | 15.3         | 2.5316       |
| 28   | 15.3         | 2.6202       |
| 29   | 15.3         | 2.7119       |
|      | <b>459.0</b> | <b>291.2</b> |

## Appendix 4

### NPV Calculation - Additional Borrowing of £246.5m at 4%

| Rate | 3.5%         |        |              |
|------|--------------|--------|--------------|
| Year | Cash £m      |        | NPV £m       |
|      | 14.3         | 1.0000 | 14.3         |
| 1    | 14.3         | 1.0350 | 13.8         |
| 2    | 14.3         | 1.0712 | 13.3         |
| 3    | 14.3         | 1.1087 | 12.9         |
| 4    | 14.3         | 1.1475 | 12.5         |
| 5    | 14.3         | 1.1877 | 12.0         |
| 6    | 14.3         | 1.2293 | 11.6         |
| 7    | 14.3         | 1.2723 | 11.2         |
| 8    | 14.3         | 1.3168 | 10.9         |
| 9    | 14.3         | 1.3629 | 10.5         |
| 10   | 14.3         | 1.4106 | 10.1         |
| 11   | 14.3         | 1.4600 | 9.8          |
| 12   | 14.3         | 1.5111 | 9.5          |
| 13   | 14.3         | 1.5640 | 9.1          |
| 14   | 14.3         | 1.6187 | 8.8          |
| 15   | 14.3         | 1.6753 | 8.5          |
| 16   | 14.3         | 1.7340 | 8.2          |
| 17   | 14.3         | 1.7947 | 8.0          |
| 18   | 14.3         | 1.8575 | 7.7          |
| 19   | 14.3         | 1.9225 | 7.4          |
| 20   | 14.3         | 1.9898 | 7.2          |
| 21   | 14.3         | 2.0594 | 6.9          |
| 22   | 14.3         | 2.1315 | 6.7          |
| 23   | 14.3         | 2.2061 | 6.5          |
| 24   | 14.3         | 2.2833 | 6.3          |
| 25   | 14.3         | 2.3632 | 6.1          |
| 26   | 14.3         | 2.4460 | 5.8          |
| 27   | 14.3         | 2.5316 | 5.6          |
| 28   | 14.3         | 2.6202 | 5.5          |
| 29   | 14.3         | 2.7119 | 5.3          |
|      | <b>429.0</b> |        | <b>272.2</b> |