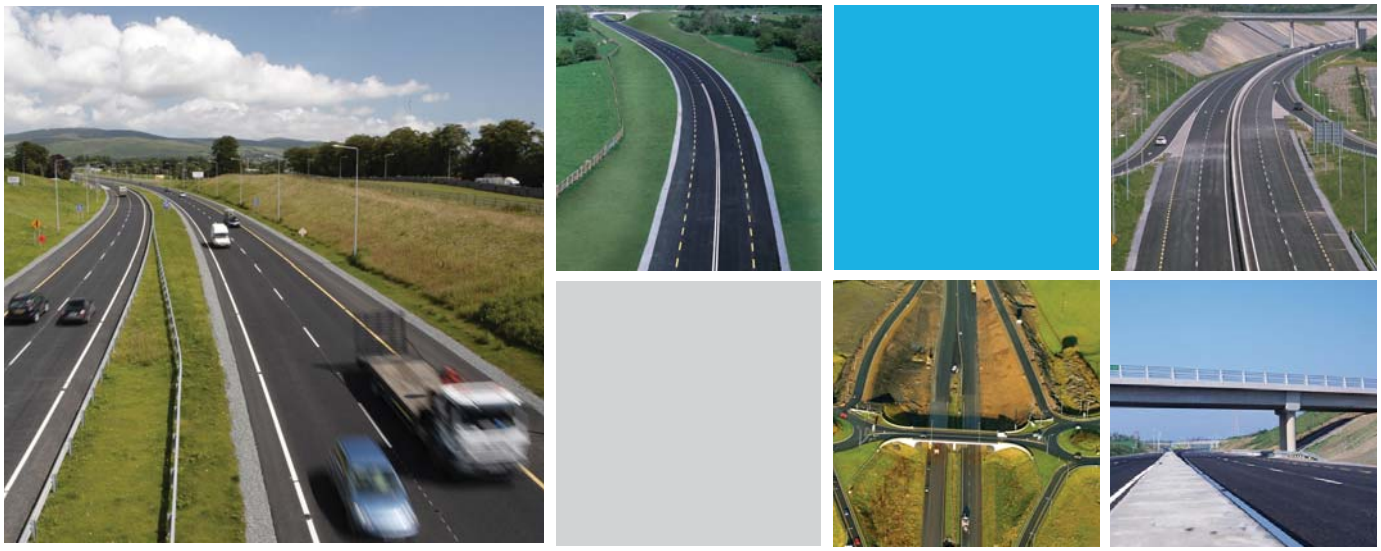
NATIONAL ROADS AUTHORITY

Project Appraisal Guidelines

Appendix 9a - Default COBA input file



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Default COBA input file		
Version	Changes made to document since previous version	Date issued
1.0	-	01.03.2008

St Martin's House, Waterloo Road, Dublin 4
Tel: 00 353 1 660 2511
Fax 00 353 1 668 0009
Email: info@nra.ie
Web: www.nra.ie

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1 Introduction

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An tÚdarás um Bóithre Náisiúnta

1 Introduction

Introduction

1.1 This document is an appendix to the NRA's Project Appraisal Guidelines and provides a default COBA input file that can be modified for use in COBA assessments. It is of particular relevance to those using the programme for the first time.

1.2 The example in this appendix should be read in conjunction with Section 5 of Appendix 7 "COBA guidance", which provides further detail on the structure of the COBA input file, and the type of information required.

1.3 It is not the intention to provide an example of best practice, as this depends on the individual scheme being appraised.

Contents

1.4 The appendix is split into the following sections:

- Section 2 – contains a default input file, and
- Section 3 – enquiries.

2 Default COBA File

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2 Default COBA File

Overview

2.1 The example COBA data file presented in this section illustrates a hypothetical “Scheme A” at preliminary design phase. The first year of the scheme is predicted to be 2010.

2.2 The data file illustrates how the default parameter values should be entered into the basic data section of the COBA input deck, and how scheme costs are entered.

Basic data

The Basic Data section of the input file comprises network wide data that either remain constant throughout the project or change in the same way from the base year value in each scheme of the project.

The following are mandatory records, and should be entered in the order presented:

KEY001 – General title;

KEY003 – Years for this scheme – i.e. defines the first and last years in the 30-year appraisal period. COBA allows users to redefine the present value year on the same record as the first and last scheme years; however this should be set at 2002 in line with NRA Guidelines. Key003 also allows users to set a journey time year. This should be set to the same year as journey time surveys, which are required for all schemes, are undertaken to facilitate comparison between each;

KEY004 – Defining the network classification, flow period (i.e. AADT), year and month of traffic forecasts, accidents and whether or not tidality is to be modelled, and

KEY 005 – Options for traffic / economic / fuel cost growth. In the example, default low growth has been selected.

If any of these records are omitted, then the program run will be reduced to a data check only.

All other items in the Basic Data will take the NRA default values and should not be amended unless otherwise directed by the NRA.

Network

2.3 Figure 2.1 shows the network coded in the data file, with nodes and links labelled according to the convention recommended in Appendix 5. Link 1121 represents a new motorway forming a bypass in the Do-Something scenario between Nodes 107 and 112.

2.4 Links 1131 and 1052 are 2+1 Roads and provide an example of how such road types are now classified within COBA. Node 105 illustrates how a priority junction on a 2+1 Road should be coded. Finally, nodes 108, 109, 110 and 114 are all roundabouts, which have been coded to simulate delay to traffic on the existing road.

Scheme costs

2.5 The Target Scheme Cost profile is shown in Table 2.1. The derivation of the scheme costs is presented in detail in Appendix 12 “Guidance Note on the Preparation of Scheme Costs”. Scheme Costs are to be entered, in multiples of €1,000, into COBA using Key055 – these are undiscounted values at 2002 prices.

```
GENERAL TITLE                      COBA 11 R7 EXAMPLE-LOW
PRINT PHASE DCO   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16
YEARS FOR THIS SCHEME -  FIRST      LAST  PRES-VAL                  JOURNEY TIME
                         2010      2039      2002                          2007
NTWRK CLASSIFICATION TF-PERIOD   TF-YEAR  TF-MONTH ACCIDENTS  TIDALITY
                TNB      AADT      2010                COM
OPTIONS      TRAFFIC  ECONOMIC  FUELCOST
                DEFL      DEFL      DEFL
END OF BASIC DATA ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
SCHEME TITLE                      Do Minimum Network
NODE-LINK DATA      NODE LINK LINK LINK LINK LINK LINK
                     101 1011
                     102 1011 1021
                     103 1021 1031
                     104 1031 1041
                     113 1041 1131
                     105 1131 1051 1052
                     106 1052 1061
                     107 1061 1071 1072
                     108 1072 1081 1082 1083
                     114 1082 1141 1142 1143 1144
                     109 1143 1091 1092 1093
                     110 1092 1101 1102 1103
                     123 1101
                     124 1103
                     111 1102 1122
                     112 1122
                     115 1071
                     116 1081
                     117 1083
                     118 1091
                     119 1093
                     122 1144
                     121 1142
                     120 1141
END OF NODE-LINK DATA ++++++++++++++++++++++++++++++++++++++++++++++++++++++++
FLOW ON        LINK   VMG1   VMG2   VMG3 INTO NODE
               1011   1000
               1021  44841
               1031  44841
               1041  47144
               1131  47311
               1052  64766
               1061  64766
               1072  81132
               1082  82056
               1092  82979
               1102  88589
               1122  93419
               1143  78780
               1071   6000
               1081   6231
               1083   6693
               1091   7050
               1093   9149
               1141   6981
               1142   6981
               1144   7308
               1101   7403
               1103   1208
               1051  28005
9999
RURAL ROAD LINK  C AT DES LENGTH  CWID  HILLS DOWN BEND SWID VWID JUNC VISI MAXS
           1011  1  4       0.35     8     40    0   57       2.0             64
           1021  1  4       3.66    11     20    0    8       1.0             96
           1031  1  4       1.07    15     30    0   66       0.5             96
           1041  1  4       2.22    12     40    0   54       1.0             96
           1061  2 10       1.36    15     20    0   15                       96
           1072  2 10       1.70    15     25    0   24                       96
           1082  2 10       1.29    15     20    0   39                       80
           1122  5  1       0.82    22     15    0    6                       64
           1143  2 10       0.86    15      0    0   23                       80
           1071  1  4       0.50     8     40    0   20       0.0             64
           1081  1  4       0.50     8     40    0   20       0.0             64
           1083  1  4       0.50     8     40    0   20       0.0             64
           1091  1  4       0.50     8     40    0   20       0.0             64
           1093  1  4       0.50     8     40    0   20       0.0             64
           1141  1  4       0.50     8     40    0   20       0.0             64
           1142  1  4       0.50     8     40    0   20       0.0             64
           1144  1  4       0.50     8     40    0   20       0.0             64
           1101  1  4       0.50     8     40    0   20       0.0             64
           1103  1  4       0.50     8     40    0   20       0.0             64
           1051  1  4       0.50     8     15    0    5       0.0             64
           1131 13 11       0.50    12     10    0    5       0.0             96
           1052 13 11       1.35    12     35    0    5       0.0             96
SUBURBAN   LINK    AT S/D LENGTH WIDTH  HILLS        MAX-S        INT AXS
           1092     4  1    1.59    15     30           64         1.3 3.8
           1102    10  2    0.69    15     15           64         2.9 4.0
9999
ROUNDABOUT RST RT  LINK  A-WID E-WID E-RAD F-LEN DIAM FI GSI  DCPK DCOPK GD  MXD
```

```
       108 120  1                                                    0      0 0  300
                   1072     10    11    41    30   70 50   0
                   1081      9     9    45    20   70 45   0
                   1082      7     8    70    25   70 60   0
                   1083      7     8    34    20   70 45   0
9999
ROUNDABOUT RST RT  LINK  A-WID E-WID E-RAD F-LEN DIAM FI GSI  DCPK DCOPK GD  MXD
       114 120  1                                                    0      0 0  300
                   1082     11    14    37    45   80 80   0
                   1141      4     6    50     1   80 45   0
                   1142      5     9    16     1   80 45   0
                   1143     11    12    36    45   80 50   0
                   1144      3     9    88    25   80 40   0
9999
ROUNDABOUT RST RT  LINK  A-WID E-WID E-RAD F-LEN DIAM FI GSI  DCPK DCOPK GD  MXD
       109 120  1                                                    0      0 0  300
                   1143     11    11    22    35   70 40   0
                   1091      6     6    20     1   70 45   0
                   1092     10    11    59    40   70 45   0
                   1093      6     9    41    45   70 45   0
9999
ROUNDABOUT RST RT  LINK  A-WID E-WID E-RAD F-LEN DIAM FI GSI  DCPK DCOPK GD  MXD
       110 120  1                                                    0      0 0  300
                   1092     10    11    59    40   70 45   0
                   1101      6     6    20     1   70 45   0
                   1102     10    11    59    40   70 45   0
                   1103      6     9    41    45   70 45   0
MAJORMINOR RST JT  LINK L-WID R-WID L-VIS R-VIS C-WID T-WID         S V      MXD
       105 120  2                                                    0 1      300
                   1131     0     0     0     0     0  15.0
                   1051   3.0   2.5   250   140     0     0
                   1052     0  3.75     0   160     0  15.0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       108  F            1072   1081   1082   1083
                 1072       0   2599  35011   2678
                 1081    1530      0   1537    118
                 1082   35632   2658      0   2738
                 1083    1710    128   1717      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       109  F            1143   1091   1092   1093
                 1143       0   2746  32912   3478
                 1091    1663      0   1741    184
                 1092   34635   3024      0   3830
                 1093    2233    195   2337      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       114  F            1082   1141   1142   1143   1144
                 1082       0   2829   2829  32421   2944
                 1141    1679      0    140   1602    145
                 1142    1679    140      0   1602    145
                 1143   31636   2634   2634      0   2740
                 1144    1771    147    147   1689      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       110  F            1092   1101   1102   1103
                 1092       0   2892  34610   3988
                 1101    1690      0   1804    208
                 1102   36540   3260      0   4495
                 1103    2366    211   2526      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       105  F            1131   1051   1052
                 1131       0   4000  19655
                 1051    1272      0  12733
                 1052   22383  10000      0
9999
LOCAL LINK ACC  LINK TYPE  RATE    YEAR1 NYRS   NO    NO   NO   NO   NO
                1021   4            1998    5    4     1    0    0    0
                1031   4            1998    5    0     1    0    2    2
                1041   4            1998    5    1     0    1    3    1
                1131  11            1998    5    1     3    2    0    0
                1052  11            1998    5    4     1    1    6    4
                1061  10            1998    5    0     0    0    1    1
                1072  10            1998    5    2     2    5    3    8
                1082  10            1998    5    4     2    3    2    1
                1092   4            1998    5    4     4    3    2    3
                1102  10            1998    5    4     0    2    2    2
                1143  10            1998    5    3     1    2    1    3
9999
END OF SCHEME DATA ============================================================
SCHEME TITLE                    Do Something Network - CONTRACT 1
LINKS TO BE ADDED            LINK JOINS NODE TO NODE
                             1121        107     112

END OF NODE-LINK DATA ++++++++++++++++++++++++++++++++++++++++++++++++++++++++
COSTS  YEAR       CAPITAL-COST   CONSTR-DELAY   MAINT-CAPITL    MAINT-DELAY
       2006           92852
       2007           77290
```

```
       2008            74360
       2009            19383
       2010             1735
9999
FLOW ON        LINK   VMG1   VMG2   VMG3 INTO NODE
               1011   1000
               1021  44841
               1031  44841
               1041  47144
               1131  47311
               1052  64766
               1061  64766
               1072  27713
               1082  28638
               1092  29560
               1102  35170
               1122  40000
               1121  53419
               1143  25361
               1071   6000
               1081   6231
               1083   6722
               1091   7049
               1093   9149
               1141   6981
               1142   6981
               1144   7308
               1101   7049
               1103   9149
               1051  28005
9999
RURAL ROAD LINK  C AT DES LENGTH  CWID  HILLS DOWN BEND SWID VWID JUNC VISI MAXS
           1121  5  1       5.95    15     10    0   15                       113
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       108  F            1072   1081   1082   1083
                  1072       0   2018   9483   2079
                  1081    1425      0   1444    316
                  1082    9960   2147      0   2212
                  1083    1595    344   1616      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       109  F            1143   1091   1092   1093
                  1143       0   1901   8118   2408
                  1091    1446      0   1652    490
                  1092    9200   2462      0   3118
                  1093    1977    529   2259      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       114  F            1082   1141   1142   1143   1144
                  1082       0   2143   2143   7798   2230
                  1141    1541      0    361   1314    376
                  1142    1541    361      0   1314    376
                  1143    7497   1788   1788      0   1861
                  1144    1601    382    382   1390      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       110  F            1092   1101   1102   1103
                  1092       0   2013   9761   2710
                  1101    1516      0   1768    491
                  1102   11240   2705      0   3640
                  1103    2212    532   2581      0
9999
TURNF NODE F/P   FROM    TO 1   TO 2   TO 3   TO 4   TO 5   TO 6  INFL AMPI PMPI
       105  F            1131   1051   1052
                  1131       0   4000  19655
                  1051    1272      0  12733
                  1052   22383  10000      0
9999
END OF SCHEME DATA ============================================================
FINISH
```

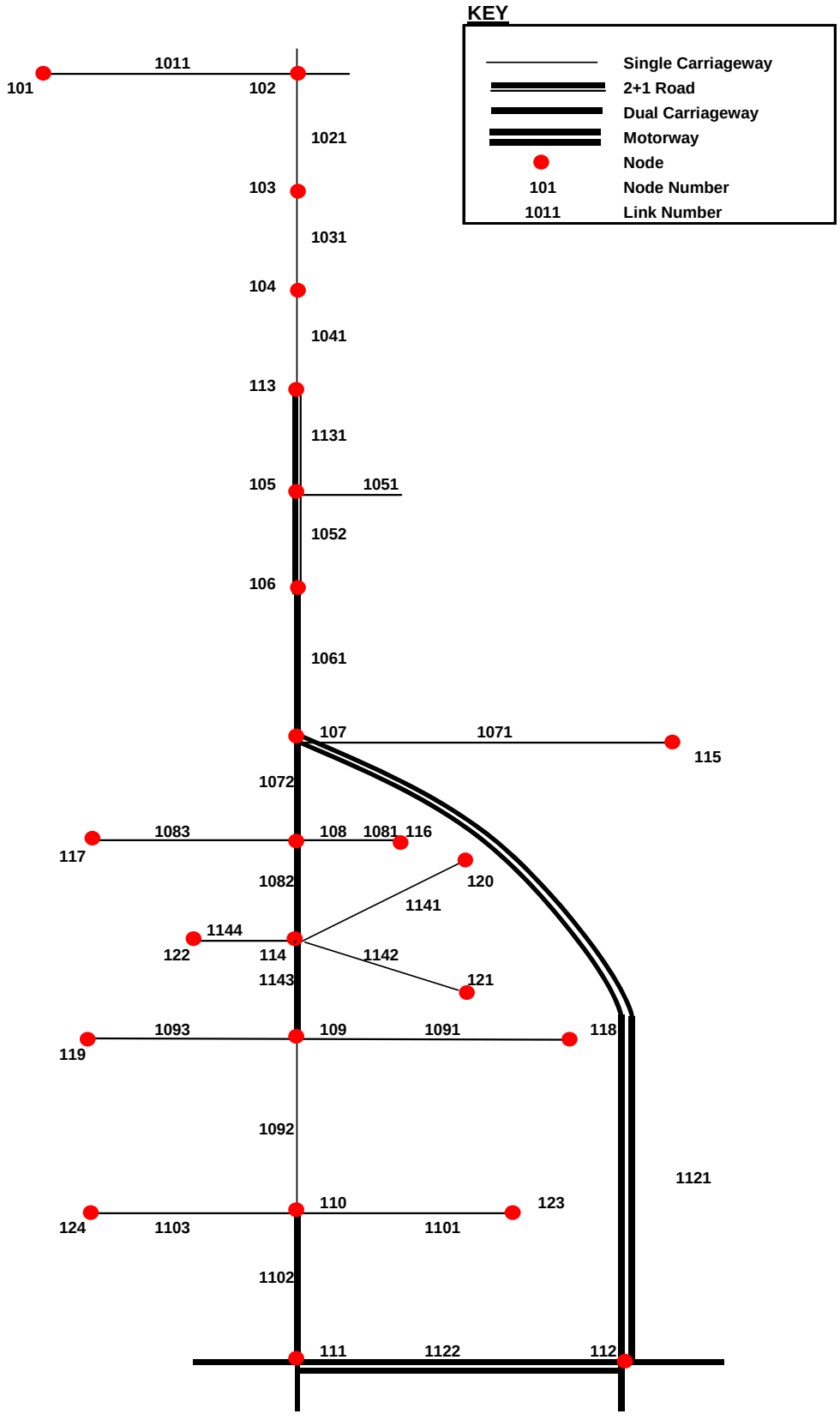

Figure 2.1 – COBA network

Target Cost 1 Scenario

Year	Main Contract Construction (€m)	Main Contract Supervision (€m)	Archaeology (all phases) (€m)	Advance works (€m)	Residual Network (€m)	Land & Property (€m)	Planning and Design (€m)	**COSTS TO INPUT INTO COBA (€ '000s)**
2002 (and before)	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2003	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2004	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2005	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2006	€ 17.3	€ 2.0	€ 4.2	€ 4.3	€ -	€ 59.1	€ 5.9	€ 92,852
2007	€ 69.4	€ 2.0	€ -	€ -	€ -	€ -	€ 5.9	€ 77,290
2008	€ 69.4	€ 2.0	€ -	€ -	€ -	€ -	€ 2.9	€ 74,360
2009	€ 17.3	€ 2.0	€ -	€ -	€ -	€ -	€ -	€ 19,383
2010	€ -	€ -	€ -	€ -	€ 1.7	€ -	€ -	€ 1,735
2011	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2012	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2013	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2014	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2015	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2016	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2017	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
2018	€ -	€ -	€ -	€ -	€ -	€ -	€ -	€ -
	€ 173.5	€ 8.1	€ 4.2	€ 4.3	€ 1.7	€ 59.1	€ 14.6	

Table 2.1 – Target scheme cost (*refer to Appendix 12 for full derivation of items in this table*)

3 Enquiries

3

National Roads Authority
An tÚdarás um Bóithre Náisiúnta

3 Enquiries

All enquiries should be directed to:

Transport Economist
National Roads Authority
St Martin's House
Waterloo Road
Dublin