

Project Appraisal Guidelines

Unit 6.6 TUBA Standard Input Files

August 2011

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TUBA Standard Input Files

Version	Date	Comments
1.0	August 2011	New Guidance

This document is available to download at www.nra.ie/publications/projectappraisal

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Attachments to this PAG Unit:

- *Sample Economics.txt*
 - *Sample Scheme Data.txt*
-

1 Introduction

- 1.1. This PAG Unit provides a default TUBA input file that can be modified for use in TUBA assessments. It is of particular relevance to those using the programme for the first time.
- 1.2. The example in this PAG Unit should be read in conjunction with *PAG Unit 6.5: Guidance on Using TUBA*, which provides further detail on the structure of the TUBA input file, and the type of information required.
- 1.3. It is not the intention of this Unit to provide an example of best practice that will apply to all schemes, as this depends on the individual scheme being appraised.

2. Economics File

- 2.1. A sample TUBA Economics file is presented overleaf, and as an attachment to this PAG Unit for a hypothetical scheme. The data reflects the current parameter values set out in *PAG Unit 6.11: National Parameter Values Sheet*.

Sample Economics File

TUBA 1.8 ECONOMIC PARAMETERS FILE

PARAMETERS

TUBA_version 1.8 the current version of TUBA
 base_year 2009 defines base year for economic parameters
 pres_val_year 2009 present value year for discounting
 RPI_base 120.6 value of RPI in base year
 av_ind_tax 19.1 % average final indirect tax rate
 carbon_values 80.67 80.67 80.67 base year carbon values in €/tonne (low high central)

MODES

*no. description

- 1 Road
- 2 Bus
- 3 Rail

VEHICLE_TYPE/SUBMODE

*no. mode new_mode P&R type description

- 1 1 N N per Car
- 2 1 N N per LGV
- 3 1 N N fre OGV1
- 4 1 N N fre OGV2
- 5 2 N N per Bus
- 6 3 N N per Light Rail
- 7 3 N N per Heavy Rail

PERSON_TYPE

*no. type(D/P) description

- 1 D Driver
- 2 P Passenger

PURPOSE

*no. type(B/C) description

- 1 B Business
- 2 C Commuting
- 3 C Other

FUEL_TYPE

*no. name

- 1 petrol
- 2 diesel

TIME_PERIODS

*no. description comments

- 1 AM Hour 8-9
- 2 AM PreHour 7-8
- 3 PM Hour 5-6
- 4 PM PreHour 4-5

CHARGES

*no. sector description

- 1 pri PT fares (private operators)
- 2 loc PT fares (LA operated)
- 3 loc LA tolls
- 4 cen National tolls
- 5 pri Private tolls
- 6 loc LA on-street parking
- 7 loc LA off-street parking
- 8 pri Private parking

DISCOUNT_RATE

[% change p.a.

*Start_yr End_yr Rate

1 30 4.00

VALUE_OF_TIME

*pence per hour(Percieved Costs)

*Vtype/submode Person_type VOT_purpose1 VOT_purpose2 VOT_purpose3 ..

1	1	3312.0	1308.0	1189.0
1	2	3312.0	1308.0	1189.0
2	1	3312.0	1308.0	1189.0
2	2	3312.0	1308.0	1189.0
3	1	3312.0	0.0	0.0
3	2	3312.0	0.0	0.0
4	1	3312.0	0.0	0.0
4	2	3312.0	0.0	0.0
5	1	3312.0	0.0	0.0
5	2	3312.0	1308.0	1189.0
6	1	3312.0	0.0	0.0
6	2	3312.0	1308.0	1189.0
7	1	3312.0	0.0	0.0
7	2	3312.0	1308.0	1189.0

VALUE_OF_TIME_GROWTH

*% change p.a.

*Start_yr End_yr VOT_Gr_purpose1 VOT_Gr_purpose2 VOT_Gr_purpose3 ..

2010	2010	1.00	0.99	0.99
2011	2011	1.00	1.016	1.016
2012	2020	1.025	1.02	1.02
2021	2050	1.02	1.016	1.016

AV_IND_TAX_CHANGES

*% change p.a.

*Start_yr End_yr Growth

2003	2050	0.00
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CHARGE_TAX_RATES

*charge final intermediate

1	0.0	0.0
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0

CHARGE_TAX_RATES_CHANGES

*% change p.a.

*Start_yr End_yr charge final intermediate

2003	2080	1	0.0	0.0
2003	2080	2	0.0	0.0
2003	2080	3	0.0	0.0
2003	2080	4	0.0	0.0
2003	2080	5	0.0	0.0
2003	2080	6	0.0	0.0
2003	2080	7	0.0	0.0
2003	2080	8	0.0	0.0

FUEL_COST

*Average Irish price in 2009 (base year), 115.0 petrol, 105.0 diesel

*Excise duty 57.76% for petrol and 48.92% for diesel as of January 2010

*type resource(p/lit) duty(p/lit) VAT(%) carbon_grammes/litre

1	64.3	37.2	21.0	627.57
2	61.8	30.2	21.0	717.15

FUEL_COST_CHANGES

*% change p.a.

*Start_yr End_yr fuel_type resource duty VAT Carb_Den_change

2010	2030	1	1.01	0.00	0.00	0.00
2010	2030	2	1.01	0.00	0.00	0.00
2031	2080	1	0.00	0.00	0.00	0.00
2031	2080	2	0.00	0.00	0.00	0.00

CARBON_VALUE_CHANGES

*relative (%p.a.) or absolute (£p.a.) growth; either absolute or relative may be defined, not both

*same growth applies to low, central and high carbon values

*Start_yr End_yr Rel.(%) Abs.(£/tonne/year)

FLEET

*2009 Split

*veh_type %petrol %diesel

1	77.6	22.4
2	15.0	85.0
3	15.0	85.0
4	0.0	100.0
5	0.0	100.0
6	0.0	0.0
7	0.0	100.0

FLEET_CHANGES

*% p.a.

*Start_yr End_yr veh_type %change_petrol

2003	2003	1	-0.20
2004	2004	1	-0.50
2005	2005	1	-0.80
2006	2006	1	-1.50
2007	2007	1	-1.60
2008	2008	1	-2.00
2009	2009	1	-2.40
2010	2010	1	-2.40
2011	2025	1	-1.27
2026	2040	1	0.00

FUEL_CONSUMPTION

*defined in litre/km

*veh_type fuel_type a_fuel b_fuel c_fuel d_fuel cut-off_speed(km/h)

1	1	0.1605	-0.00269	0.182333E-04	0.000000E+00	140
1	2	0.1605	-0.00269	0.182333E-04	0.000000E+00	140
2	1	0.2177	-0.00352	0.282586E-04	0.000000E+00	140
2	2	0.2177	-0.00352	0.282586E-04	0.000000E+00	140
3	1	0.4448	-0.00718	0.521836E-04	0.000000E+00	96
3	2	0.4448	-0.00718	0.521836E-04	0.000000E+00	96
4	2	0.9029	-0.01401	0.955405E-04	0.000000E+00	96
5	2	0.7247	-0.01136	0.716045E-04	0.000000E+00	96
6	2	0.7247	-0.01136	0.716045E-04	0.000000E+00	96
7	2	0.7247	-0.01136	0.716045E-04	0.000000E+00	96

FUEL EFFICIENCY

*% p.a.

*Start_yr End_yr veh_type fuel_type change

2009	2024	1	1	0.98
2009	2024	1	2	0.98
2025	2050	1	1	0.00
2025	2050	1	2	0.00
2009	2050	2	1	0.00
2009	2050	2	2	0.00
2009	2050	3	1	0.00
2009	2050	3	2	0.00
2009	2050	4	2	0.00
2009	2050	5	2	0.00
2009	2050	6	2	0.00
2009	2050	7	2	0.00

NON_FUEL_VOC

*veh_type a_nonfuel_wrk b_nonfuel_wrk a_nonfuel_nw b_nonfuel_nw

1	6.388	36.783	6.388	36.783
2	11.413	65.599	0.000	0.000
3	10.623	417.431	0.000	0.000
4	20.666	804.625	0.000	0.000
5	48.198	1098.877	0.000	0.000
6	0.000	0.000	0.000	0.000
7	48.198	1098.877	0.000	0.000

NON_FUEL_VOC_CHANGES

*% p.a.

*Start_yr	End_yr	veh_type	gnf
2009	2080	1	0.000
2009	2080	2	0.000
2009	2080	3	0.000
2009	2080	4	0.000
2009	2080	5	0.000

NON_FUEL_TAX_RATES

*%

*submode	final	intermediate
1	21.0	0.0
2	21.0	0.0
3	21.0	0.0
4	21.0	0.0
5	21.0	0.0
6	21.0	0.0
7	21.0	0.0

NON_FUEL_TAX_RATES_CHANGES

*% change p.a.

*Start_yr	End_yr	Submode	final	intermediate
2010	2010	1	5.0	6.5
2011	2080	1	0.0	0.0
2010	2010	2	7.9	10.3
2011	2080	2	0.0	0.0
2010	2010	3	7.9	10.3
2011	2080	3	0.0	0.0
2010	2010	4	7.9	10.3
2011	2080	4	0.0	0.0
2010	2010	5	7.9	10.3
2011	2080	5	0.0	0.0
2010	2010	6	7.9	10.3
2011	2080	6	0.0	0.0
2010	2010	7	0.0	0.0
2011	2080	7	0.0	0.0
2010	2010	8	7.9	10.3
2011	2080	8	0.0	0.0

DEFAULT_PURPOSE_SPLIT

*Vtype/submode	purpose	Period1	Period2	Period3	Period4	Period5
1	1	12	12	12	12	
1	2	43	43	43	43	
1	3	45	45	45	45	
2	1	40	40	40	40	
2	2	45	45	45	45	
2	3	15	15	15	15	
3	1	76	76	76	76	
3	2	17	17	17	17	
3	3	7	7	7	7	
4	1	80	80	80	80	
4	2	13	13	13	13	
4	3	7	7	7	7	
5	1	10	10	10	10	
5	2	19	19	19	19	
5	3	71	71	71	71	
6	1	10	10	10	10	
6	2	19	19	19	19	

6	3	71	71	71	71
7	1	10	10	10	10
7	2	19	19	19	19
7	3	71	71	71	71

DEFAULT_PERSON_FACTORS

*Vtype/submode	purpose	person_type	FactorPer1	FactorPer2..
1	1	1	1	1
1	1	2	0.26	0.26
1	2	1	1	1
1	2	2	0.23	0.23
1	3	1	1	1
1	3	2	0.68	0.68
2	1	1	1	1
2	1	2	0.38	0.38
2	2	1	1	1
2	2	2	0.40	0.40
2	3	1	1	1
2	3	2	0.48	0.48
3	1	1	1	1
3	1	2	0.09	0.09
3	2	1	1	1
3	2	2	0.24	0.24
3	3	1	1	1
3	3	2	0.27	0.27
4	1	1	1	1
4	1	2	0.03	0.03
4	2	1	1	1
4	2	2	0.08	0.08
4	3	1	1	1
4	3	2	0.16	0.16
5	1	1	1	1
5	1	2	0.35	0.35
5	2	1	1	1
5	2	2	1.50	1.50
5	3	1	1	1
5	3	2	8.35	8.35

DEFAULT_PERSON_FACTORS_CHANGE

*% change p.a.

*Start_yr	End_yr	Submode	Purpose	Person_type	ChangePer1	ChangePer2	ChangePer3	ChangePer4	ChangePer5
2003	2080	1	1	2	0.00	0.00	0.00	0.00	
2003	2080	1	2	2	0.00	0.00	0.00	0.00	

PREPARATION&SUPERVISION

* total preparation (by stage) and supervision costs as % of land and construction costs

*Mode	*Prep:SI	Prep:PC	Prep:PR	Prep:OP	Prep:WC	Super
1	12.0	9.0	9.0	6.0	2.0	5.0
2	12.0	9.0	9.0	6.0	2.0	5.0

3. Scheme Data File

3.1. A sample TUBA Scheme Data file is presented overleaf, and as an attachment to this PAG Unit for a hypothetical scheme. The following describes the data within the sample file:

- The scheme is called “M57 Improvements”. The scheme is being assessed for a first scheme year of 2011. The assessment is being undertaken in 2010;
- In this example benefits have been derived from the AM and PM peak periods only however up to 32 time slices can be used;
- The below example contains input matrices for vehicle demand (V), travel time (T) and distance (D) however charge (Cn) and passenger trip (P) matrices can also be included if required;
- The matrix formats can be found in Appendix C of the TUBA User Manual;
- Other examples of scheme input files can be found below.
<http://www2.dft.gov.uk/pgr/economics/software/tuba/>

Sample Scheme Data File

SCHEME SPECIFIC PARAMETERS

PARAMETERS

TUBA_version 1.8
 run_name M57 Improvements
 do_min_name Do Nothing
 do_som_name Do Something
 first_yr 2011
 horizon_yr 2041
 modelled_yrs 2011 2041
 detail Yes
 current_yr 2010
 print_warn All
 P&R_car_speed 65.0
 zones_as_sectors No

TIME_SLICES

*no.	duration(min)	annualisation	period	description
1	60	253	1	0800-0900
2	60	253	2	0700-0800
3	60	253	3	1700-1800
4	60	253	4	1600-1700

SCHEMES_DM

*Mode 1st Construction year Opening_yr Stage

DO_MIN_COSTS

*Type Mode Funding Cost Price RPI

DO_MIN_PROFILE

*Year Mode %Const %Land %Prep %Super %Maint %Op %Grant %Dev

DO_MIN_DELAY_COSTS

* Construction Maintenance
 *Year Mode Consumer Business Freight Consumer Business Freight

SCHEMES_DS

*Mode 1st Construction year Opening_yr Stage
 1 2010 2011 OP
 2 2010 2011 OP

DO_SOM_COSTS

*Market (M) or Factor (F) costs to be specified

*Type Mode Funding Cost Price RPI
 C 1 loc 20000.0 M 118.10
 S 1 loc 500.0 M 118.10
 P 1 loc 150.0 M 118.10

*Design costs put down to preparation

DO_SOM_PROFILE

*Year Mode %Const %Land %Prep %Super %Maint %Op %Grant %Dev
 2010 1 45.9 0.0 100.0 50.0 0.0 0.0 0.0 0.0
 2011 1 54.1 0.0 0.0 50.0 0.0 0.0 0.0 0.0

DO_SOM_DELAY_COSTS

* Construction Maintenance
 *Year Mode Consumer Business Freight Consumer Business Freight

BENEFIT_CHANGE

*% change p.a.

*Start_yr End_yr Submode ChangePer1 ChangePer2 ChangePer3 ChangePer4 ChangePer5

USER_CLASSES

*no. Veh/submode purpose person_type
 1 1 0 0
 2 2 0 0
 3 3 0 0
 4 4 0 0
 5 5 0 0

INPUT_MATRICES

*no.	userclasses	timeslice	type	format	scenario	year	factor	filename
1	1-5	1-4	V	3	0	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Min Trips.dat
2	1-5	1-4	V	3	1	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Some Trips.dat
3	1-5	1-4	T	3	0	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Min Journey Time.dat
4	1-5	1-4	T	3	1	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Some Journey Time.dat
5	1-5	1-4	D	3	0	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Min Dist.dat
6	1-5	1-4	D	3	1	2011	1.00000	F:\Projects\Task M57\Analysis\TUBA\2011 Do-Some Dist.dat
7	1-5	1-4	V	3	0	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Min High Trips.dat
8	1-5	1-4	V	3	1	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Some High Trips.dat
9	1-5	1-4	T	3	0	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Min High Journey Time.dat
10	1-5	1-4	T	3	1	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Some High Journey Time.dat
11	1-5	1-4	D	3	0	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Min High Dist.dat
12	1-5	1-4	D	3	1	2041	1.00000	F:\Projects\Task M57\Analysis\TUBA\2041 Do-Some High Dist.dat

SECTORS

*mode Sector_file_name