MORE
Multimodal Optimisation of Roadspace in Europe

Deliverable 4.8

Appraisal tool for assessing and prioritising road design options

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Contents

1 Aim of the tool

MORE is a comprehensive study of the allocation of space to different uses in urban roads. The project has two main hypotheses:

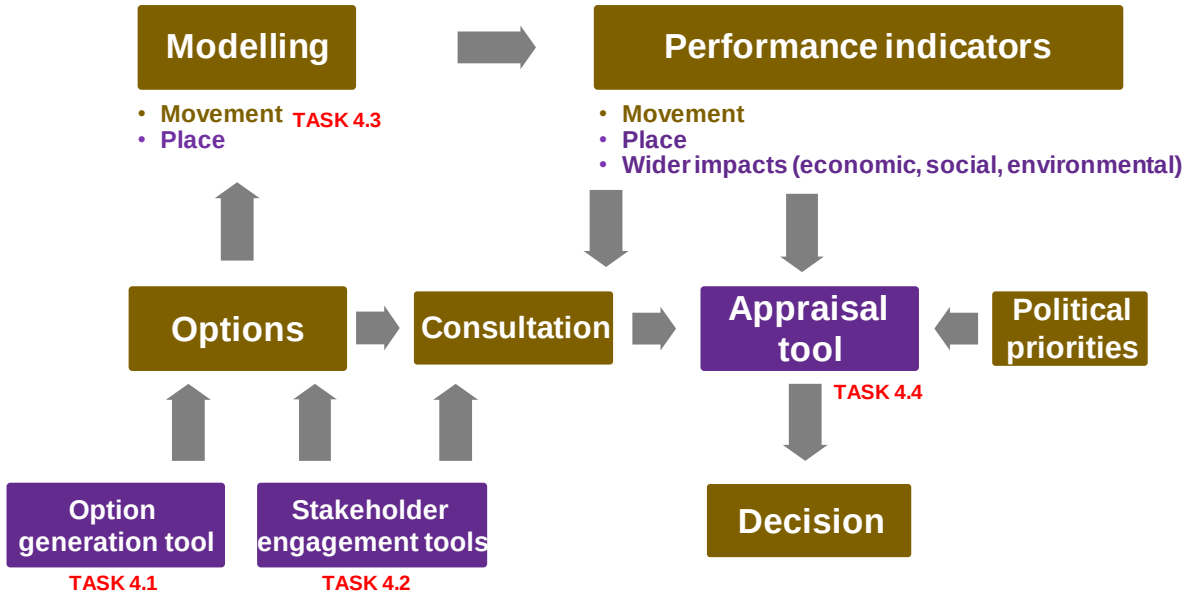
- Urban roads have a wide variety of **users**, each with different needs, and using the road in various ways. Road **uses** can be related to two functions of the road, one which is usually acknowledged (movement) and another which tends to be forgotten ("place"). The place function includes vehicle-based activities (e.g. parking, loading) and people-based activities (e.g. waiting for buses, window shopping, sitting).

- Road uses have positive and negative impacts not only on the respective road users but also on the wider economic, social, and environmental context, affecting the area next to the road and in some cases the whole city or even the whole planet. There are **policy objectives** attached to these impacts, although they are not always explicitly recognized in plans.

MORE addresses these ideas by providing insights on policy interventions that change road designs in order to better satisfy the needs of all users while optimizing, as far as possible, the efficiency, equity, and environmental sustainability of the road system. Most of the possible interventions reallocate space from one type of use to another, either permanently, or temporarily, depending on time of day or on road conditions.

Currently, the process of roadspace allocation has several gaps. The usual steps of this process are shown in the brown boxes and text in Figure 1. The process starts with a set of options for road designs. These options are presented to the public for consultation and modelled. However, there are no structured methods to identify these options. In most cases, it is not clear how the options were identified. In addition, the modelling tends to focus only on the movement of the different modes of transport, producing indicators of the performance of the options in terms of movement (for example, speeds, travel time, or delays) and sometimes a few local environmental impacts like air pollution. A decision is then taken based on political priorities, the performance indicators, and the results of the public consultation. Again, there are no methods to assess these elements and compare the merits of the different options.

Figure 1: Option Appraisal Tool within the roadspace allocation process and MORE Work Package 4



MORE has improved the various steps of this process, as shown in the purple boxes of Figure 1. The first improvement (Task 4.1) was to develop a tool to generate options for road (re)design in a systematic way. Task 4.2 developed tools to assist stakeholders to generate further design options and contribute to consultation. Task 4.3 added functionalities to existing modelling tools, by incorporating place activities and assessing wider impacts of road designs. Task 4.4 (the object of this deliverable) developed a tool to appraise options for road (re)design.

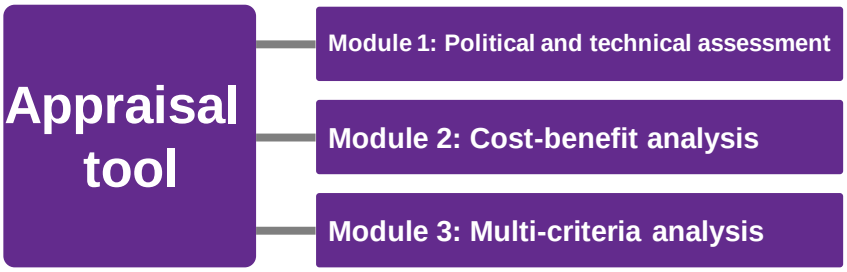
Appraisal is the comparative assessment of the positive and negative forecasted impacts of different options for a project. Appraisal is a standard practice in the case of large projects to build new transport infrastructure (e.g. new motorways, railways, or bridges), but less common in the case of smaller projects to modify small parts of the urban transport network. There are currently no tools for the comprehensive appraisal of roadspace allocation in urban roads.

The main aim of appraisal is to judge the overall efficiency of an option versus another, i.e. how the positive impacts balance against the negative impacts, for each option. However, projects also have an equity dimension, because positive and negative impacts may affect different people. This is particularly important in the case of projects for roadspace reallocation because, by definition, these projects make some road users better off at the expense of other users.

The aim of the MORE Option Appraisal Tool is to assist transport and urban planners to compare different options for roadspace allocation through road design, taking into account the needs of all road users and a range of policy objectives. The tool consists of three independent modules, as shown in Figure 2.

- Module 1: Political and Technical Assessment - Impacts are measured in terms of how they conform to political priorities, legal standards, and best practice.
- Module 2: Cost-Benefit Analysis - Impacts are monetised, where possible
- Module 3: Multi-Criteria Analysis - Different assessors assign different priorities to different impacts.

Figure 2: The MORE Option Appraisal Tool



The main intended users of the tools are transport and urban practitioners in local governments or in consultancy companies. However, the tool is freely available and can be used by researchers, non-governmental organisations, businesses, or the general public, as it does not require closed-access information about the specified roads.

The tool is available from https://discovery.ucl.ac.uk/id/eprint/10144317

Section 2 of this deliverable is an outline of the structure of the two tools. Section 3 describes how the tools work in more detail. Sections 4 and 5 describe how the tools were trialled in the MORE case studies (London, Lisbon, Budapest, Malmö, and Constanta) and refinements to the tool made after the trials. Section 6 lists exploitation and dissemination activities.

2 Structure of the tool

The tool comprises two initial sections, one with information about the tool and another with general inputs, followed by the three assessment modules. The three assessment modules have the same structure: an information page, an input page, and an output page. Table 1 below shows the inputs asked from the tool user and the outputs returned by the tool.

Table 1: MORE Appraisal Tool structure: Inputs and outputs

	Input	Output
General inputs	• General information about the road segment, area, and the options for road design • Performance indicators for the movement and place functions of the road and for economic, social, and environmental impacts	
Political and Technical Assessment module	Levels of political priority attached to each road use and impact	• For each performance indicator: the best option and the options that violate political priorities or design/ legal standards • Synthesis of the information on all performance indicators.
Cost-Benefit Analysis module	Monetary unit value of each performance indicator	• Total monetary value of each performance indicator (where available), for each option • Overall net benefit and benefit-cost ratio of each option
Multi-Criteria Analysis module	• Scale of each performance indicator (i.e. the best and worst value). • Priorities assigned by each assessor to each indicator.	For each assessor: • Rank position and overall score of each option • Partial scores for cost, movement, place, economic, social, and environmental indicators

3 How to use the tools

3.1 Front pages

The tool is an Excel application. Figure 3 shows the front page of the tool. The tabs for each page are coloured according to the section/module: front (no colour), general inputs (yellow) Political and Technical module (green), Cost-Benefit Analysis module (red) and Multi-Criteria Analysis module (blue).

Figure 3: MORE Option Appraisal Tool: welcome page

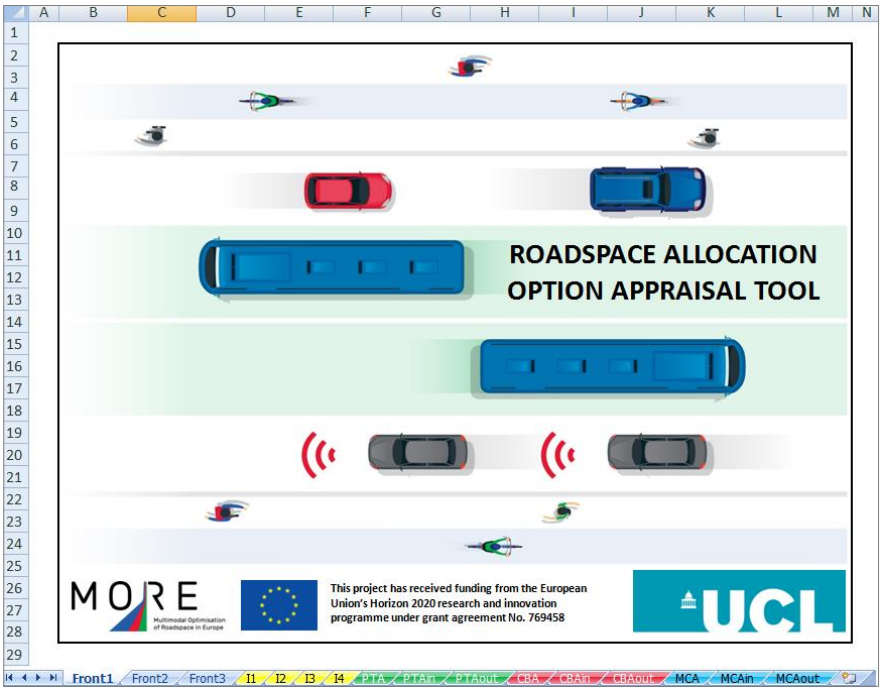
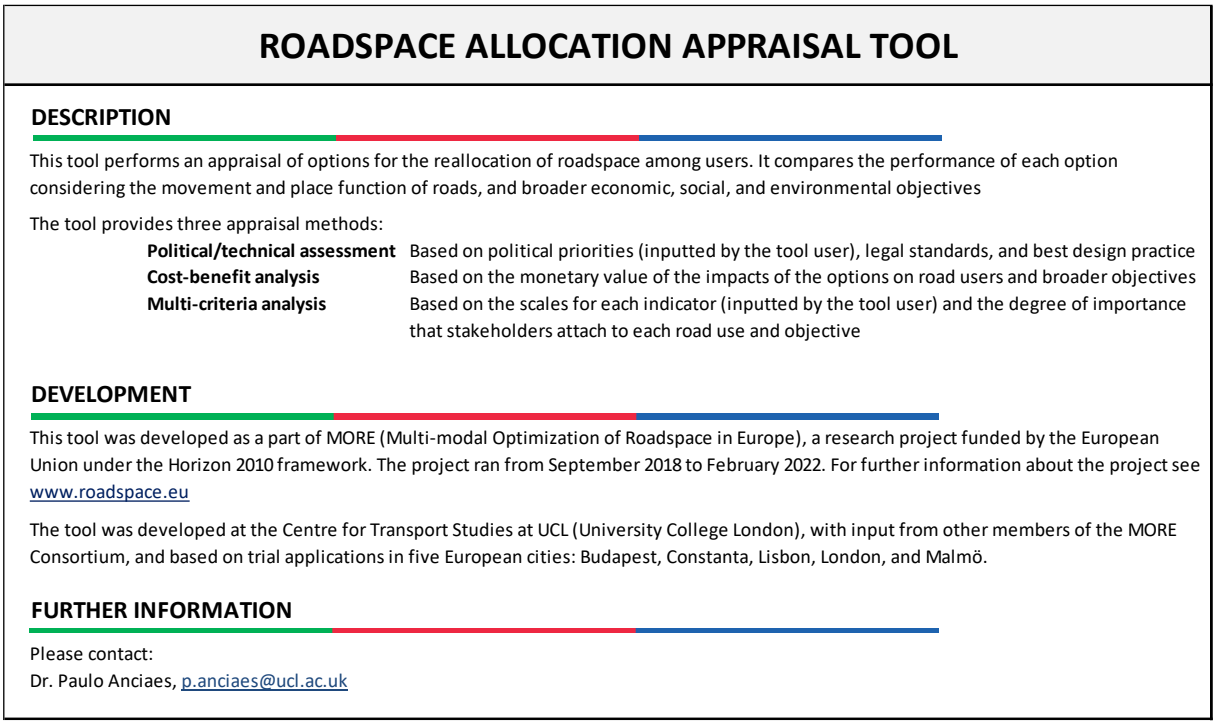


Figure 4 shows the second page (*Front2*), which contains general information about the tool. This includes:

- General description and aim of the tool and the three modules
- Context of the development of the tool (MORE project)
- Contact information

Figure 4: MORE Option Appraisal tool: general information page



ROADSPACE ALLOCATION APPRAISAL TOOL

DESCRIPTION

This tool performs an appraisal of options for the reallocation of roadspace among users. It compares the performance of each option considering the movement and place function of roads, and broader economic, social, and environmental objectives

The tool provides three appraisal methods:

Political/technical assessment	Based on political priorities (inputted by the tool user), legal standards, and best design practice
Cost-benefit analysis	Based on the monetary value of the impacts of the options on road users and broader objectives
Multi-criteria analysis	Based on the scales for each indicator (inputted by the tool user) and the degree of importance that stakeholders attach to each road use and objective

DEVELOPMENT

This tool was developed as a part of MORE (Multi-modal Optimization of Roadspace in Europe), a research project funded by the European Union under the Horizon 2010 framework. The project ran from September 2018 to February 2022. For further information about the project see www.roadspace.eu

The tool was developed at the Centre for Transport Studies at UCL (University College London), with input from other members of the MORE Consortium, and based on trial applications in five European cities: Budapest, Constanta, Lisbon, London, and Malmö.

FURTHER INFORMATION

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Figure 5 shows the third page (*Front3*), which contains general instructions on how to use the tool (more detailed instructions are provided inside each module). Three general aspects are emphasized:

- The tool can be run with minimal input data, although in many cases this will mean that the tool will not take into account other inputs and will not return some outputs.
- The tool is programmed to run with built-in values, located in hidden and locked pages. However, the user is always given the chance to define their own values, which override the built-in ones.
- Some items in the inputs pages have a ⓘ symbol. The user can click on that symbol for further information.

The tool structure is then presented, followed by a general legend (more detailed legends are provided inside each page). Cells highlighted in grey are inputs. Cells with a border are dropdown menus with the list of input values the user can choose from. The text font colour is also different for instructions (brown), error messages (purple), values copied from another cell (blue), or values calculated from other cells (red).

Figure 5: MORE Option Appraisal tool: general instructions page

HOW TO USE THE TOOL

GENERAL INSTRUCTIONS

- The tool is divided into 4 modules. In the first part, the user fills in general inputs. The three analysis modules (Political/Technical Assessment, Cost-Benefit Analysis, and Multi-Criteria Analysis) use those general inputs plus additional inputs. The three analysis modules can be run independently. The first tab of each of the 3 analysis modules (PTA, *CBA* , and *MCA*) include information on the contents of the module and instructions on how to use it.
- Fill only the fields for which information is available. The tool can be run with minimal input data. However, in many cases, leaving a cell blank means that the analysis will not take into account other inputted datain the final results
- Some calculations use built-in values, located in hidden pages. These pages are locked. The tool user can define their own values, overriding the built-in values.
- Some of the items in the inputs pages have an ⓘ symbol. Hover the mouse over the red point next to the symbol for more information about the item

STRUCTURE

Click on tab name to go directly to that tab or click the module name to go to the first tab of that module

MODULE	TAB	CONTENTS
GENERAL INPUTS	I1	Inputs: Road design
	I2	Inputs: Movement function
	I3	Inputs: Place function
	I4	Inputs: Wider impacts (economic, social, environmental)
POLITICAL/TECHNICAL ASSESSMENT	PTA	Introduction: module description, inputs, outputs
	PTAin	Additional inputs: political priorities
	PTAout	Output
COST-BENEFIT ANALYSIS	CBA	Introduction: module description, inputs, outputs
	CBAin	Additiona inputs: monetary unit values
	CBAout	Output
MULTI-CRITERIA ANALYSIS	MCA	Introduction
	MCAin	Additional inputs: scales and weights of different stakeholders
	MCAout	Output

GENERAL LEGEND

INPUTS

Input

Input by choosing from dropdown menu

TEXT

brown font	*Instructions*
purple font	*Error message*
blue font	Copied from another cell or page. It can only be changed by changing the original value
red font	Calculated from another cell or page. It can only be changed by changing other cells

3.2 General inputs

The tool then asks the user to insert general inputs, i.e. information that is used in all three assessment modules. There are four pages of information to be completed.

In the first page (*I1,* Figure 6), the tool user inserts information about the road section and surrounding area and about the road design options. Instructions on how to fill in the inputs are shown at the top of the page.

In the road section and area section of the page, the inputs are:

- The name of the road section that is going to be redesigned
- Length of that section – This information is used to calculate some outputs in the assessment modules.
- City - After inserting the city, country and currency are displayed automatically, below the city. This information is used in some pages to display outputs specific to each country.
- Estimated number of residents and shops in the area around the road – This information is used to derive some outputs from unit values.
- Number of years to estimate the benefits of road design - This is used in the Cost-Benefit Analysis module.

In the road design section of the tool, the inputs are the features of the “do-nothing” option (“Option 0”) and of up to five options to redesign the road for a given time of day. The minimum number of options for the tool to work is two (Option 0 and another option).

The features the tool user can fill, for each option are:

- The option ID number and name – This is carried over to all subsequent pages
- Estimated implementation and maintenance cost
- How much road width is allocated to each road design element (on average, along the road segment). The list of design elements includes elements facilitating the movement function of the road by different modes of transport (e.g. bus lane) as well as the place function (e.g. space for parking/loading)
- Number and type of pedestrian crossing facilities provided
- Other characteristics of road design elements (e.g. number of cycle rental spaces, bus stops, loading bays, etc; existence/type of median strips and segregated cycle infrastructure)
- Provision for specific road uses (legal status of micromobility vehicles; provision for pedestrians with disabilities)

Figure 6: General inputs page: road design

GENERAL INPUTS: ROAD DESIGN

INSTRUCTIONS

- *First, fill in information about the road segment and the adjacent area. Country and currency will be filled automatically. If no information is inputted for length and number of residents, some impacts will not be calculated*
- *Then, for each option for space reallocation, insert the estimated costs, the approximate average road width allocated to each design elements along the road segment, and information about pedestrian crossings, other design elements, and specific road uses*
- *A maximum of 6 options can be compared. A minimum of 2 options is required (Option 0 and another one). Option 0 represents the "do nothing" option, i.e. no changes to the current design). All options need to have been modelled in PTV Vissim. The tool can be run several times, comparing options for different road segments, or for different times of day or different scenarios in the same road segment*
- *Fill only the cells with grey background. Do not change any of the other cells*
- *Press the ⓘ symbol for further information on some items.*

Legend

	Input
	Input by choosing from dropdown menu
x	Calculated from another cell or page. It can only be changed by changing other cells
x	*Error message*

Road segment and area

	Input	Error messages
Name of road segment		
Length (metres)		
City		
Country		
Currency		
Number of residents in adjacent area		
Number of shops in adjacent area		
Number of years to estimate benefits of road design		

Road design

		Option 0 (Do nothing)	Options for space reallocation				
			Option 1	Option 2	Option 3	Option 4	Option 5
Option ID number	ⓘ						
Option name							
Implementation cost ()	ⓘ	0					
Maintenance cost per year ()	ⓘ						
Allocated road width (metres)							
Average approximate width along the road segment. Blank spaces are treated as 0 metres							
Space for walking							
Space for place activities (stalls, benches, cafes, etc.)							
Green areas							
Lane for general traffic							
Bus lane							
Space for cycling	ⓘ						

Mixed bus-cycle lane						
Space for parking or loading						
Tram lines						
Total road width (metres)						

Pedestrian crossing facilities

Fill number of facilities along the road segment, including the extreme points of the segment. Blank spaces are treated as 0

Signalised crossings						
Two-stage or staggered signalised crossings						
Zebra (marked unsignalised crossing)						
Footbridge						
Underpass						
Pedestrian refuge						

Other design elements

Choose from dropdown menus or fill in information

Median strip *(choose from menu)*						
Type of cycle infrastructure *(choose from menu)*						
Cycle parking (number of spaces)						
Cycle rent (docks) (number of cycles)						
Cycle rent (dockless) (number of cycles)						
Car share (number of spaces)						
Bus stops (total area, in m2)						
Dedicated loading bays (number)						

Specific uses

Choose from dropdown menus

Micromobility (scooters, skates,etc.)						
Choose legal status, from menu						
Pedestrians with disabilities - provision on pavements (e.g. tactile pavement)						
Pedestrians with disabilities - provision at crossings (e.g. tactile pavement, sound)						

The following three pages ask the tool user to insert the values of performance indicators for each option, including indicators related to the movement function of the road (*I2*, Figure 7), the place function (*I3*, Figure 8) and the wider impacts of the road on economic, social, and environmental dimensions (*I4*, Figure 9). Instructions on how to fill the inputs are shown at the top of all three pages.

The page with the indicators for the movement function (Figure 7) has one row per transport mode and supports indicators for six aspects:

- Volume (i.e. how many vehicles or persons using that travel mode travel along the road section analysed)
- Average speed along that section or at the network level
- Travel time to cover that section or at the network level
- Delays (comparing with free-flow conditions)
- Reliability of travel time (i.e. how travel time varies from day to day)
- Trip quality

These aspects can be measured with different indicators. For example, volume can be measured as average flows or just with peak-time flows, among other possibilities. The user can choose the indicator to measure those aspects, from a dropdown menu in the Option 0 section. The choice is then copied over to the other options.

The list of indicators in the dropdown menus was based on the outputs of MORE Deliverable 1.2 – *Urban corridors road design: guides, objectives and performance indicators*) augmented with other indicators found in the literature.

Each indicator has a specified unit, shown to the tool user. All values inserted by the tool user under the indicator name are measured in the unit shown. The next step is to fill the values of the indicators chosen, for each transport mode and option (Figure 7 is truncated on the right side and only shows Option 0).

For Option 0 (Do nothing) the values should be based on real-world data collection (e.g. video surveys, questionnaires). For the other options, the values should come from micro-scale modelling or other estimates

Some rows can be left blank, if the mode of transport is not relevant in the road section, or if data is not available. Some columns can also be left blank.

Figure 7: General inputs page: movement function

GENERAL INPUTS: MOVEMENT FUNCTION

INSTRUCTIONS

- *Choose indicators of traffic volume, speed, travel time, delays, travel time reliability, and trip quality*
- *Then, fill in the values of those indicators for each transport mode*
- *For Option 0 (Do nothing), the values should be based on real-world data collection (e.g. video surveys, questionnaires), modeling, or other sources. For the other options, the values should come from modelling (with PTV Vissim) or other sources*
- *Data can be for the chosen road segment or the whole road network. Choose the indicator in Row 24 accordingly*
- *The cells with the indicator names in Rows 24 and 25 can be left blank. In this case, the tool will not consider any data that might be filled below those cells*
  Data cells under the indicator name can also be left blank if information is not available. In this case, the tool will not use data for the respective indicator, even if data is filled for other options
- *Fill only the cells with grey background. Do not change any of the other cells*
- *Press the ⓘ symbol for further information on some items.*

Legend

Input
Input by choosing from dropdown menu
X *Copied from another cell. It can only be changed by changing the original cell*

	Option 0 (Do nothing)	(...)
Option code		
Option name		

	Volume	Speed	Travel time	Delays	Reliability	Trip quality
Indicator *Choose from dropdown menu*						
Fill in indicator, if "Other" is chosen (after reading the note next to the ⓘ symbol) ⓘ						

Error messages

Transport mode

Insert values of the indicator chosen above, for each option. Blanks will be treated as missing data, not as 0

Pedestrians	
Cyclists	
Micromobility (scooters, skates,etc.)	
Buses	
Cars/taxis	
Motorcyclists	
Goods vehicles	

The page with the indicators for the place function (Figure 8) has a similar structure to the one for the movement function but is split into two sections: one for vehicle-based activities and one for people-based activities. In each section, there is one row per activity and columns for three aspects:

- Number of activities happening in the road section being analysed
- Duration of those activities
- Quality of the activities

These aspects can be measured with different indicators, chosen by the tool user. The user then fills the values of those indicators for each transport mode and option (Figure 8 is truncated on the right side and only shows Option 0).

Again, for Option 0 (Do nothing) the values should be based on real-world data collection (e.g. video surveys, questionnaires). For the other options, the values should come from micro-scale modelling or other estimates. Some rows and columns can be left blank, if information is not available.

The page with the indicators for the wider impacts (Figure 9) is split into three sections, for economic, social, and environmental impacts. The list of included impacts was based on MORE Deliverable 1.2 – *Urban corridors road design: guides, objectives and performance indicators*, plus other impacts identified in the literature.

The impacts can be measured with different indicators. The user then fills in the values of the indicators chosen, for each option. (Figure 9 is truncated on the right side and only shows Option 0).

For Option 0 (Do nothing) the values should be based on real-world data collection or other studies. For the other options, the values should come from modelling or other studies. Some rows and columns can be left blank, if information is not available.

Figure 8: General inputs: place function

GENERAL INPUTS: PLACE FUNCTION

INSTRUCTIONS

- *Choose indicators of number, duration, and quality of vehicle-based and place-based place activities along the chosen road segment*
- *Then, fill the values of those indicators for each type of activity*
- *For Option 0 (Do nothing), the values should be based on real-world data collection (e.g. video surveys, questionnaires), modeling, or other sources. For the other options, the values should come from modelling (with PTV Vissim) or other sources*
- *Data can be for the chosen road segment or the whole road network. Choose the indicator in Row 25 accordingly*
- *The cells with the indicator names in Rows 25/26 and 41/42 can be left blank.*
  In this case, the tool will not consider any data that might be filled below those cells
  Data cells under the indicator name can also be left blank if information is not available.
  In this case, the tool will not use data for the respective indicator, even if data is filled for other options
- *Fill only the cells with grey background. Do not change any of the other cells*
- *Press the ⓘ symbol for further information on some items.*

Legend

- *Input*
- *Input by choosing from dropdown menu*
- X *Copied from another cell. It can only be changed by changing the original cell*

	Option 0 (Do nothing)	(...)
Option code		
Option name		
	Number / **Duration** / **Quality**	
Vehicle-based activities ⓘ		
Indicator		
Choose from dropdown menu		
Fill in indicator, if "Other" is chosen (after reading the note next to the ⓘ symbol) ⓘ		
Activity		
Insert value of the indicator chosen above		
Cycle parking		
Cycle parking (dock)		
Cycle parking (dockless)		
Car parking		
Car/taxi stopping		
Car share		
Bus stopping		
Loading (goods vehicle)		
	Number / **Duration** / **Quality**	
People-based activities ⓘ		
Indicator		
Choose from dropdown menu		
Fill in indicator, if "Other" is chosen (after reading the note next to the ⓘ symbol) ⓘ		
Error messages		
Activity		
Insert value of the indicator chosen above		
All		
Strolling		
Sitting (street furniture)		
Sitting (outdoor cafe)		

Figure 9: General inputs: wider impacts

GENERAL INPUTS: Wider impacts

INSTRUCTIONS

- *Choose indicators for the economic, social, and environmental impacts of the different options in Column G or choose other and fill in the indicator name in Column I*
- *Then, fill the values of those indicators*
- *For Option 0 (Do nothing), the values should be based on real-world data collection (e.g. video surveys, questionnaires), modeling, or other sources. For the other options, the values should come from modelling (with PTV*
- *Data can be for the chosen road segment or the whole road network. Choose the indicator in Column G accordingly*
- *The cells with the indicator names in Column G and I can be left blank. In this case, the tool will not consider any data that might be filled to the right Data cells to the right of the indicator name can also be left blank if information is not available. In this case, the tool will not use data for the respective indicator, even if data is filled for other options*
- *Fill only the cells with grey background. Do not change any of the other cells*
- *Press the ⓘ symbol for further information on some items.*

Legend

Input

Input by choosing from dropdown menu

X *Copied from another cell. It can only be changed by changing the original cell*

	Indicator	Fill in indicator, if you chose "Other" in Column G	Error messages	Value: Option 0 (Do nothing)	(...)
Economic					
Costs of transport					
Property values					
Visits to local businesses					
Expenditure in local businesses					
Social					
Traffic safety (fatalities)					
Traffic safety (serious injuries)					
Traffic safety (slight injuries)					
Traffic safety (property damage)					
Personal security					
Physical activity					
Social interaction					
Wellbeing					
Environmental					
Air pollution (PM10)					
Air pollution (PM2.5)					
Air pollution (No2)					
Noise					
Soil and water					
Local climate					
Energy					
Co2 emissions					

3.3 Political and Technical Assessment module: how to use

The Political and Technical Assessment module opens with an introduction page (*PT0*, Figure 10), which contains a description of the module and a list of the inputs and outputs of the tool.

Figure 10: Political and Technical Assessment module: front page

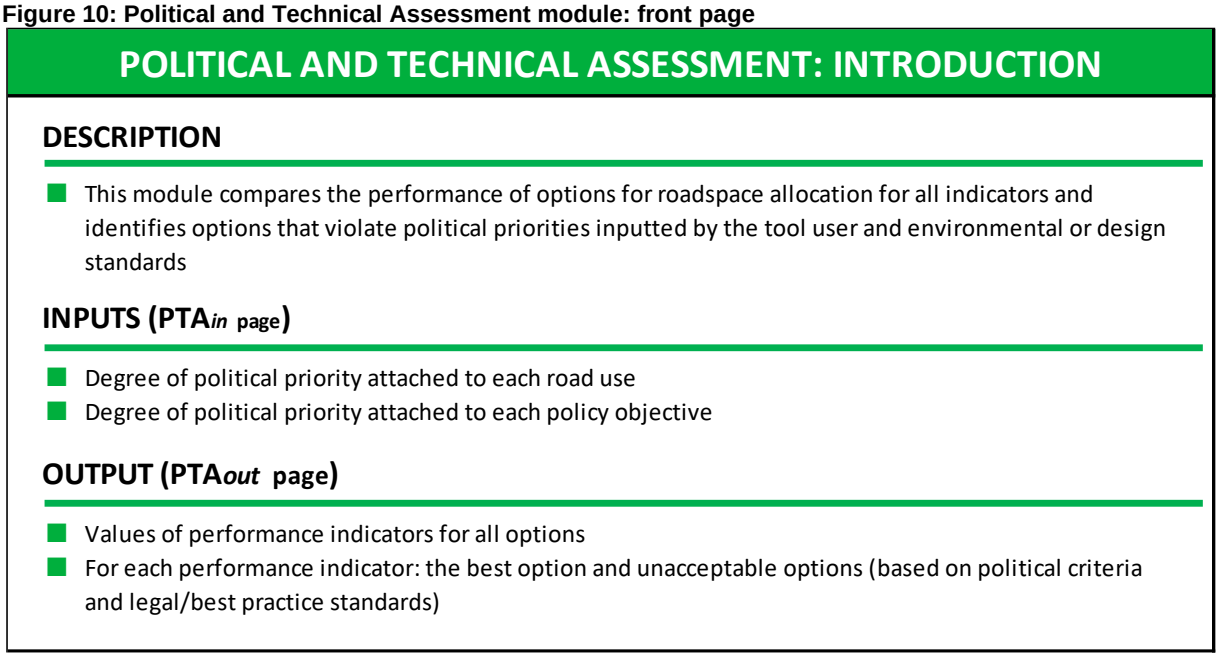

Figure 11 shows the inputs page of the module (*PTAin*). Below the general instructions, the page is divided into two sections: one on road uses (left) and another on policy objectives (right).

In the road uses section, the tool user chooses from dropdown menus describing the level of political priority attached to the different uses of the road:

- **Level 0**: the road use can be worse off than now, if needed
- **Level 1**: the road use should not be worse off than now
- **Level 2**: the road use should be better off than now

In the objectives section of the page, the tool user identifies, by ticking boxes, the policy objectives that are the main priority of the policy interventions to reallocate roadspace.

The lists of road uses and policy objectives included in the page are identical to the ones used in the MORE Option Generation Tools (See MORE Deliverable 4.5).

Figure 12 is an example of the outputs page of the module (*PTAout).* Below the instructions (not shown in the figure), the page is divided into two sections.

In the *Detailed Impact Analysis* section, the tool shows the value of each performance indicator for the "Do Nothing" option and the alternative options specified by the user. The

indicators are copied or calculated from the General Inputs pages. Figure 12 is truncated, not showing all transport modes (in the Link function and all activities (in the Place function).

The tool compares the values of each option with the other options and assesses the values against a built-in list of standards and best practice values and against the political criteria specified by the user in the previous page. Cells are then automatically highlighted with one of four colours:

- Best option (green)
- Not acceptable because it violates the political criteria specified by the user (yellow)
- Not acceptable because it violates legal standards or best practice (red)
- Not acceptable because it violates political criteria and legal standards or best practice (orange)

The information in the *Detailed Impact Analysis* section is synthesized above that section. This includes, for each option, the number of indicators for which that option is the best, the number of violations of political priorities, and the number of violations of standards.

Figure 11: Political and Technical Assessment module: input

POLITICAL AND TECHNICAL ASSESSMENT INPUT: POLITICAL PRIORITIES

INSTRUCTIONS

- *Indicate the degree of political priority attached to each road use and objectives of roadspace allocation*
- *Information can be copied from the inputs filled in the MORE Policy Interventions tool*

Legend

Input

Input by choosing from dropdown menu

Road uses

Choose from the dropdown menus the degree of priority of each road use

0	*Can be worse off than now, if needed*
1	*Should not be worse off than now*
2	*Should be better off than now*

Objectives

Tick the check boxes of the objectives the intervention aims to achieve

Choose any number of objectives

Roaduser	Use	Priority
Pedestrians	Walk	
	Cross the road	
	Stroll	
	Sit (street furniture)	
	Sit (outdoor café)	
Pedestrians (restricted mobility)	Walk	
	Cross the road	
Cyclists	Move	
	Park	
	Rent (dock)	
	Rent (dockless)	
Micromobility (scooters, skates,etc.)	Move	
Bus drivers	Move	
	Stop	
Bus passengers	Move	
	Wait	
Rail/metro/bus passengers	Interchange	
Car drivers	Move	
	Park	
	Stop	
Car share users	Park	
Motorcyclists	Move	
Taxi drivers (inc. ride-hailing)	Wait	
Taxi passengers (inc. ride-hailing)	Wait	
Goods vehicles	Move	
	Stop	
Emergency vehicles	Move	
	Stop	
Service vehicles	Stop	

Objective		Priority
Movement	Increase number of trips	
	Reduce travel time	
	Increase travel time reliability	
	Reduce congestion	
	Improve trip quality	
	Achieve a more sustainable modal split	
Place	Facilitate place activities (e.g. people sitting)	
	Facilitate kerbside activities (e.g. parking,	
	Improve access to local buildings	
Road operation	Improve resilience (to weather conditions)	
	Increase flexibility (to different road uses)	
Wider objectives: economic	Reduce costs of transport	
	Promote local economy	
Wider objectives: social	Improve traffic safety	
	Reduce community severance	
	Increase personal security	
	Promote physical activity/health	
	Promote social interaction	
	Promote social inclusion	
	Increase wellbeing	
Wider objectives: environment	Increase green space	
	Improve air quality	
	Reduce noise	
	Protect soil/water and reduce flood risk	
	Improve local climate	
	Reduce energy consumption	
	Improve regional/global environment	

Figure 12: Political and Technical Assessment module: output (example)

Synthesis of Impact Analysis

	Number of indicators for which option is best	Number of violations of political priorities	Number of violations of standards
Option 0 (Do nothing)	24	-	4
Option1	18	20	4
Option2	17	21	4
Option3	21	18	2
Option4			
Option5			

Detailed Impact Analysis

Performance indicator	Unit	Option 0 (Do nothing) XXX_S1_0000_2021_B_0_B0000000 *6 traffic lanes*	Option 1 XXX_S1_0000_2021_B_1_B0000000 *Widen pavements*	Option 2 XXX_S1_0000_2021_B_2_C0000000 *Add green median*	Option 3 XXX_S1_0000_2021_B_3_D0000000 *Add cycle lane*
Implementation cost	€		135,700	90,500	81,300
Maintenance cost per year	€	4,000	24,426	24,426	14,600
Link function					
Pedestrians					
Space	Width available	12.0	18.0	12.0	12.0
Volume	Flow (vehicles or pedestrians per hour)	3812	5131	5131	3100
Speed	Average speed (km/h)	4.0	5.0	5.0	5.0
Travel time	Average travel time (minutes)	30.0	24.0	24.0	24.0
Delays	Average delay (minutes/vehicle)	2.0	2.0		
Reliability					
Trip quality	% of unsatisfied users	0.09	0.45	0.1	0.04
Cyclists					
Space	Width available (dedicated space)	0.0	0.0	0.0	4.0
Volume	Flow (vehicles or pedestrians per hour)	4697	5014	5014	10013.0
Speed	Average speed (km/h)	12.0	12.0	12.0	15.0
Travel time	Average travel time (minutes)	10.0	10.0	10.0	8.0
Delays	Average delay (minutes/vehicle)	1.0			
Reliability					
Trip quality	% of unsatisfied users	0.03	0	0.0	0.7
(...)					
Place function					
Cycle parking					
Space	Number of spaces	0	0.0	0.0	10.0
Number of activities	Average number of activities/hour				
Duration	Average duration (minutes)				
Quality	Number of vehicles that could not be parked				
Cycle parking (dock)					
Space	Number of spaces	0	0.0	0.0	5.0
Number of activities	Average number of activities/hour				
Duration	Average duration (minutes)				
Quality	Number of vehicles that could not be parked				
(...)					
Wider impacts					
Economic					
Costs of transport					
Property values					
Visits to local businesses	Number of visits to local shops per day	1018	2463	2463	2500
Expenditure in local businesses	Per-visit expenditure on local shops	8	11.1	11.1	11.3
Social					
Traffic safety (fatalities)	Number of fatalities per year	6	5.2	5.1	5.1
Traffic safety (seriousinjuries)					
Traffic safety (slight injuries)					
Traffic safety (property damage)					
Community severance	UCL Severance Index	53%	36%	29%	31%
Personal security					
Physical activity					
Social interaction					
Inclusion (pedestrians with disabilit	Provision for pedestrians with disabilities	Full	Full	Full	Full
Wellbeing					
Environmental					
Green space	Area of green space (m2)	0	0	1800	0
Air pollution (PM10)					
Air pollution (PM2.5)					
Air pollution (No2)					
Noise	LAeq16h(dB(A))	60	60	58	55
Soil and water					
Local climate					
Energy					
Co2 emissions					

3.4 Cost-Benefit Analysis module: how to use

The Cost-Benefit Analysis module opens with an introduction page (*CBA*, Figure 13), which contains a description of the module and the inputs and outputs of the tool.

Figure 13: Cost-benefit analysis module: front

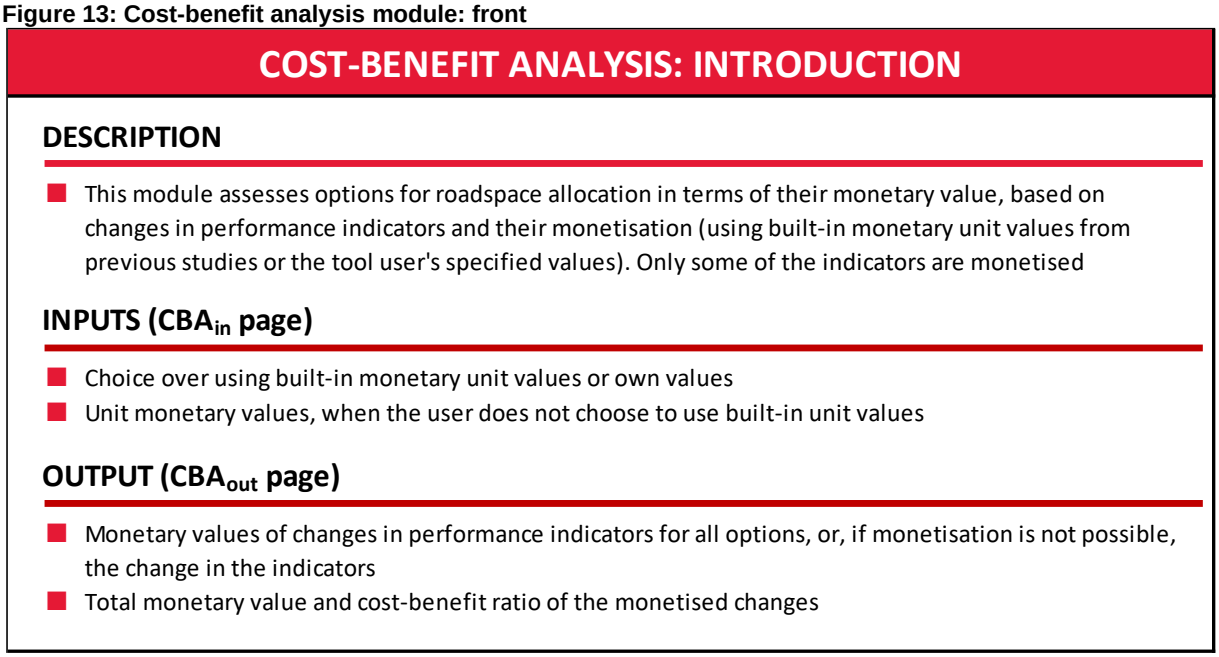

Figure 14 is the inputs page of the module (*CBAin*). Here, the tool user can choose, from dropdown menus, the data source of monetary unit values of each performance indicator of the link and place function of the road and social and environmental impacts. The menus are shown only where data sources are available.

After choosing the data source, the tool automatically fills seven columns of data, with:

- The institution that issued the documents containing the monetary unit value – for example, Figure 14 includes values from the UK Department of Transport, Swedish Road Administration, and Highways England.
- The original study from where the value was imported
- Country
- Year
- The unit the monetary value is expressed in
- The original value, as available in the document
- The value converted to the currency that applies in the chosen case study, and updated to 2021

The user can also specify their own unit and respective unit value, in the last two columns. This will override the values from external data sources previously chosen.

Figure 15 is an example of the outputs page of the module (*CBAout*). Below the instructions (not shown in the figure), the page is divided into two sections.

In the Detailed Cost-Benefit Analysis section, at the bottom, the page shows the value of each performance indicator for the "Do Nothing" option and the non-monetised and monetised changes in the indicator for each of the alternative options specified by the user. Figure 15 is truncated, not showing all transport modes (in the Link function and all activities (in the Place function).

The non-monetised changes are directly copied or calculated from user inputs in other pages. The monetised changes are calculated from the non-monetised changes and the monetary unit values specified in the previous page. Monetary changes are relative to the expected lifetime of the project, specified by the user in the *In1* page.

Above the Detailed Impact Analysis section, there is a synthesis of the outputs. This includes, for each option, the net benefit (i.e. the sum of all positive and negative monetised changes) and the benefit/cost ratio (the ratio between the positive and negative changes).

Figure 14: Cost-benefit analysis module: input

COST-BENEFIT ANALYSIS INPUT: MONETARY UNIT VALUES

INSTRUCTIONS

- *Choose from dropdown menus in Column F the data source of monetary unit values (from the tool's built-in values) OR type a new unit and respective unit value in columns O-P*
- *Monetary unit values are values that are multiplied by performance indicators to calculate the total benefit or cost associated with those indicators*
- *It is possible to choose data sources of a different country. The value is automatically converted to the currency used in the city being analysed*
- *If a new unit and unit value are specified in Columns O-P, they will override the choice made in the menus in Column F*
- *If a new unit is specified in Columns O, it needs to be compatible with the indicator previously defined in pages I2-I4. Messages will appear in Column Q reminding the user of the requirements for the unit*

Legend

Input
Input by choosing from dropdown menu
! Caution. Value obtained in a country other than the country where the road is located

	Data source	Institution (if in official	Original research	Country	Year	Monetary unit	Unit value in 2021	Monetary unit	Unit value in 2021
	Choose data source from dropdown menus below OR insert a new unit in Column O and the respective unit value in Column P							*Insert a unit in Column O (e.g. "value per minute", "value per activity", etc.) and then insert the value in Column P. This will override any choice made in Column F*	
Link function									
Value of travel time									
Pedestrians									
Cyclists									
Micromobility									
Bus passenger									
Car driver or passenger									
Motorcyclist									
Goods vehicle									
Congestion / overcrowding (multiplier of value of travel time)									
Pedestrians									
Cyclists									
Micromobility									
Bus passenger									
Car driver or passenger									
Motorcyclist									
Goods vehicle									
Delays (multiplier of value of time)									
Pedestrians									
Cyclists									
Micromobility									
Bus passenger									
Car driver or passenger									
Motorcyclist									
Goods vehicle									

Travel time reliability			
Pedestrians			
Cyclists			
Micromobility			
Bus passenger			
Car driver or passenger			
Motorcyclist			
Goods vehicle			
Design (extra value of time)			
Segregated bus lane			
Segregated cycle lane			
Non-segregated cycle lane			
Wide cycle lane			
Shared lane bus-cyclists			
Place function			
Value of parking time (bicycles)			
Value of parking time (cars)			
Value of stopping time			
Value of car share			
Value of bus stopping			
Value of loading			
Value of people-based activities			
Wider impacts			
Social			
Value of increased safety (fatalities)			
Value of increased safety (serious casualities)			
Value of increased safety (slight casualties)			
Value of increased safety (property damage)			
Value of community severance			
Value of personal security			
Value of physical activity increase			
Value of social interaction			
Value of inclusive design			
Value of wellbeing			
Environmental			
Value of green space			
Value of air pollution (PM10)			
Value of air pollution (PM2.5)			
Value of air pollution (No2)			
Value of noise			
Value of impacts on soil and water			
Value of impacts on local climate			
Value of energy consumption			
Value of Co2 emissions			

Figure 15: Cost-benefit analysis module: output

Synthesis of Cost-Benefit Analysis

	Net benefit (over 5 years)	Benefit-cost ratio
Option 0		
Option 1	-1,965,630,978	0.059
Option 2	-1,903,093,232	0.067
Option 3	-1,723,125,879	0.254
Option 4		
Option 5		

Detailed Cost-Benefit Analysis

Performanceindicator	Unit	Unit money value	Money unit	Changes				Monetised changes		
				Now (do	Option1	Option2	Option3	Option1	Option2	Option3
				XXX_S1_0000_2021_B_0_B0000000	XXX_S1_0000_2021_B_1_B0000000	XXX_S1_0000_2021_B_2_C0000000	XXX_S1_0000_2021_B_3_D0000000	XXX_S1_0000_2021_B_1_B0000000	XXX_S1_0000_2021_B_2_C0000000	XXX_S1_0000_2021_B_3_D0000000
				6 traffic lanes	*Widen pavements*	*Add green median*	*Add cycle lane*	*Widen pavements*	*Add green median*	*Add cycle lane*
Implementation cost	€	€	€	0	-135,700,000	-90,500,000	-81,300,000	-135,700,000	-90,500,000	-81,300,000
Maintenance cost per year	€	€	€	-20,000,000	-122,130,000	-122,130,000	-73,000,000	-122,130,000	-122,130,000	-73,000,000
Link function										
Pedestrians										
Space	Width available			12.0	18.0	12.0	12.0			
Volume	Flow (vehicles or pedestrians per hour)			3812.0	5131.0	5131.0	3100.0			
Speed	Average speed (km/h)			4.0	5.0	5.0	5.0			
Travel time	Average travel time (minutes)	0.25	Value per minute per passenger (work time)	30.0	24.0	24.0	24.0	63,578,492	63,578,492	-289,230,023
Delays	Average delay (minutes/vehicle)	1.60	Multiplier of travel time savings for delays	2.0	2.0			30,550,102		
Reliability										
Trip quality	% of unsatisfied users			0.09	0.45	0.1	0.04			
Cyclists										
Space	Width available (dedicated space)	Depends on type of space	Value of existence of dedicated space per minute of travel time	0m (No dedicated space)	0m (No dedicated space)	0m (No dedicated space)	4m (Segregated track)	0	0	243,973,326
Volume	Flow (vehicles or pedestrians per hour)			4697.00	5014.00	5014.00	10013.00			
Speed	Average speed (km/h)			12.00	12.00	12.00	15.00			
Travel time	Average travel time (minutes)	0.25	Value per minute per passenger (work time)	10.00	10.00	10.00	8.00	22,944,424	22,944,424	239,823,513
Delays	Average delay (minutes/vehicle)	1.41	Multiplier of travel time savings for delays	1.0						
Reliability										
Trip quality	% of unsatisfied users			0.03	0.03	0.03	0.67			

(...)

Place function										
Cycle parking										
Space	Number of spaces			0.00	0.00	0.00	10.00			
Number of activities	Average number of activities/hour									
Duration	Average duration (minutes)	1.46	Value of parking facilities per minute							
Quality	Number of vehicles that could not be									
Cycle parking (dock)										
Space	Number of spaces			0	0	0	5			
Number of activities	Average number of activities/hour									
Duration	Average duration (minutes)									
Quality	Number of vehicles that could not be									
(...)										
Wider impacts										
Economic										
Costs of transport										
Property values										
Visits to local businesses	Number of visits to local shops per day			1018	€ 2,463.0	€ 2,463.0	€ 2,500.0			
Expenditure in local businesses	Per-visit expenditure on local shops			8.2	11.1	11.1	11.3			
Social										
Traffic safety (fatalities)	Number of fatalities per year	2,452,175	1 fatality avoided	5.6	5.2	5.1	5.1	4,904,351	6,130,438	6,130,438
Traffic safety (seriousinjuries)		273,733	1 serious casualty							
Traffic safety (slight injuries)		21,055	1 slight casualty							
Traffic safety (property damage)		19	Property damage per collision							
Community severance	UCL Severance Index	Non-linear	Monetary value associated with change in UCL	53%	36%	29%	31%	-2,736,706	43,925,054	93,463,127
Personal security										
Physical activity										
Social interaction										
Inclusion (pedestrians with disal	Provision for pedestrians with disabilities			Full	Full	Full	Full			
Wellbeing										
Environmental										
Green space	Area of green space (m2)			0	0	1800	0			
Air pollution (PM10)		2,475	PM10 health cost (£/person/ug/m3)							
Air pollution (PM2.5)		386	PM2.5 health cost (£/person/ug/m3/year)							
Air pollution (No2)		49	NO2 health cost (£/person/ug/m3/year)							
Noise	LAeq16h(dB(A))	Non-linear	Monetary value associated with change in	60	58	58	55	966,844	966,844	2,163,298
Soil and water										
Local climate										
Energy										
Co2 emissions										

3.5 Multi-Criteria Analysis module: how to use

The Multi-Criteria Analysis module opens with an introduction page (*MCA*, Figure 16), which contains a description of the module and the list of inputs and outputs of the tool.

Figure 16: Multi-criteria analysis module: front

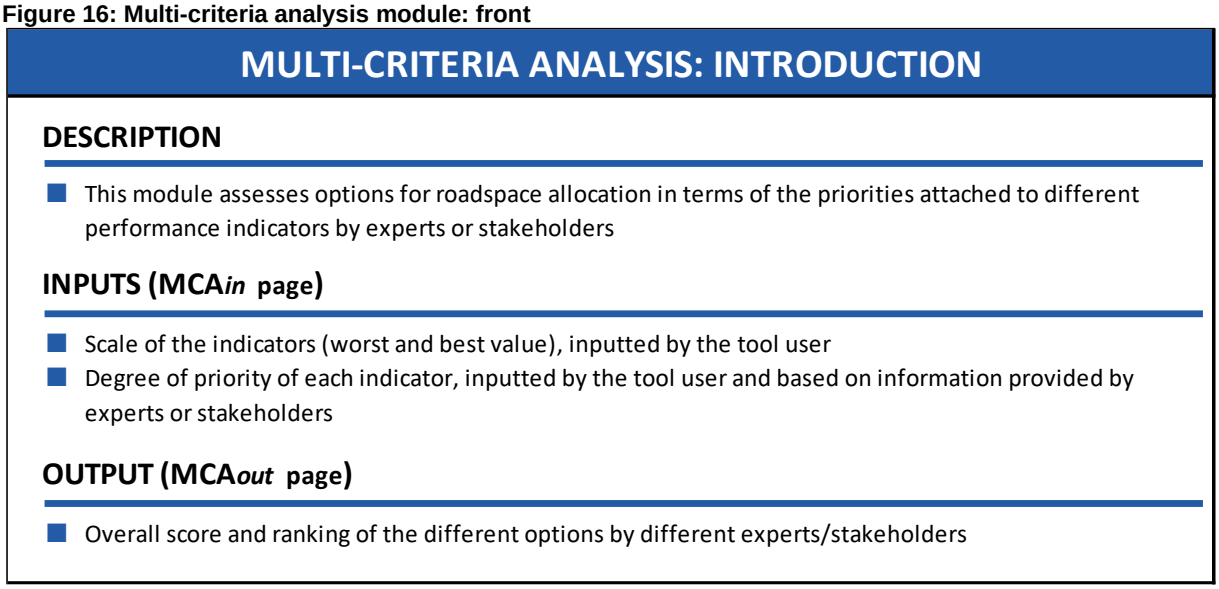

Figure 17 is the inputs page of the module (*MCAin*). The first group of columns show the level of the indicators. This is copied or calculated from other pages. Figure 17 is truncated to show only Options 0 and 1.

The tool user then indicates the worst and the best possible value for each indicator. At the right side of the page, the tool user inserts the degree of importance that each assessor attaches to each indicator. The possible values are:

- Blank: no importance
- 1:some importance,
- 2: medium importance;
- 3: highest priority

The tool supports assessment of a maximum of eight different assessors (Figure 17 is truncated to show only three).

Figure 18 is an example of the output page of the module (*MCAout*). Below the instructions, the page shows the ranking of each option for each assessor, based on the estimated scores of all options. The best option for each assessor is highlighted in green. The figure is truncated to show the results of three assessors only.

The tables below the ranking show the estimated score of each option for each assessor, overall and for groups of indicators: cost, link, place, economic impacts, social impacts, and environmental impacts. The scores are expressed in a percentage scale and are averages of scores of individual indicators. These individual scores are calculated from the inputs in the previous page, i.e. the scale of each indicator and its value for each option. The calculations are stored in a hidden page.

Figure 17: Multi-criteria analysis module: input

MULTI-CRITERIA ANALYSIS INPUTS: SCALE AND WEIGHTS

INSTRUCTIONS

- *Choose the worst and the best possible value for each indicator in columns O-P. In some cases, the indicator has a natural best/worst value which is already inserted in the cell and cannot be changed*
- *Then insert the name of each assessor and choose from the dropdown menus the degree of importance the assessors*

Legend

Input
Input by choosing from dropdown menu
x *Value copied from the Inputs page. It cannot be changed in this page*
x *Value calculated from the Inputs pages. It cannot be changed in this page*
x *Error message*

Performanceindicators	Level of the indicator				Scale			Degree of importance			
	These values are copied or calculated from the I1-I4 pages							*Insert name of each assessor in row 19 and then choose level of importance of each indicator from the dropdown menus*			
								Assessor 1	Assessor 2	Assessor 3	(...)
	Unit	Current value	Option 1	(...)	Worst possible	Best possible	Error messages				
Implementation cost	1,000 €										
Maintenance cost per year	1,000 €										
Link function											
Pedestrians											
Space											
Volume											
Speed											
Travel time											
Delays											
Reliability											
Trip quality											
Cyclists											
Space											
Volume											
Speed											
Travel time											
Delays											
Reliability											
Trip quality											
(...)											

Figure 18: Multi-criteria analysis module: output

MULTI-CRITERIA ANALYSIS: OUTPUT

INSTRUCTIONS

- *This page contains the output of the multi-criteria analysis module. No further user input is needed.*
- *The page shows the ranking of each option for each assessor*
- *It also shows the overall score of each option for each assessor and scores for different groups of impacts*
- *The scores are copied from a hidden page, which contains all the calculations.*

Legend

- *Best option*
- x *Value copied from hidden page. It cannot be changed in this page*
- x *Value calculated from other cells*

Multi-criteria analysis of options for roadspace reallocation

		Option 0 (Do nothing)	Option 1	Option 2	Option 3
		XXX_S1_0000_2021_B_0_B0000000	XXX_S1_0000_2021_B_1_B0000000	XXX_S1_0000_2021_B_2_C0000000	XXX_S1_0000_2021_B_3_D0000000
		6 traffic lanes	*Widen pavements*	*Add green median*	*Add cycle lane*
Overall ranking					
Average		**1.7**	**4.3**	**3.3**	**1.7**
Assessor 1	*Mr.A*	1	4	3	2
Assessor 2	*Ms.B*	3	5	4	1
Assessor 3	*Mr.C*	1	4	3	2
(..)					
Overall score					
Average		**26%**	**19%**	**21%**	**28%**
Assessor 1	*Mr.A*	30%	21%	24%	25%
Assessor 2	*Ms.B*	12%	9%	11%	26%
Assessor 3	*Mr.C*	37%	26%	30%	32%
(..)					
Cost score					
Average		**50%**	**33%**	**39%**	**40%**
Assessor 1	*Mr.A*	50%	33%	39%	40%
Assessor 2	*Ms.B*				
Assessor 3	*Mr.C*	50%	33%	39%	40%
(..)					
Link score					
Average		**37%**	**26%**	**32%**	**46%**
Assessor 1	*Mr.A*	38%	28%	32%	32%
Assessor 2	*Ms.B*	39%	26%	35%	75%
Assessor 3	*Mr.C*	35%	25%	28%	31%
(..)					
Place score					
Average		**7%**	**7%**	**7%**	**13%**
Assessor 1	*Mr.A*	5%	5%	5%	7%
Assessor 2	*Ms.B*	5%	5%	5%	14%
Assessor 3	*Mr.C*	13%	13%	13%	18%
(..)					
Economic score					
Average					
Assessor 1	*Mr.A*				
Assessor 2	*Ms.B*				
Assessor 3	*Mr.C*				
(..)					
Social score					
Average					
Assessor 1	*Mr.A*				
Assessor 2	*Ms.B*				
Assessor 3	*Mr.C*				
(..)					
Environmental score					
Average					
Assessor 1	*Mr.A*				
Assessor 2	*Ms.B*				
Assessor 3	*Mr.C*				
(..)					

4 How the tools were trialled in the MORE cities

The tool was trialled by practitioners, in the ‘Stress Sections’ of the five cities that are part of the MORE project: Budapest, Constanta, Lisbon, London, and Malmö. This trial had two objectives:

- To allow the cities to compare the merits of the road design options that were generated and modelled with the help of other tools developed within the project. The appraisal tool was therefore the end of the roadspace allocation process shown in Figure 1 of this report.
- To gather feedback about the tool

The inputs for the tool were obtained directly from the modelling work developed in WP4 that was applied as a part of WP5.

Support was provided by the tool developers to the city practitioners during the trials, as specified in MORE Task 4.5.

Figure 19 shows an extract of the application of the tool in Malmö (a part of the Political and Technical Assessment output page.

Figure 19: Extract of application of appraisal tool in Malmö (PTAout page).

Synthesis of Impact Analysis

	Number of indicators for which option is best		Number of violations
Option 0 (Do	9		0
Option1	15		1
Option2	14		0
Option3	14		2
Option4	18		1

Detailed Impact Analysis

Performance indic		Unit	Option 0 (Do nothing)	Option 1	Option 2	Option 3	Option 4
			0	_2021_B_0_ABCD0000	_2021_B_0_FHKJ0000	MAL_S4_0010_2021_B_0_LMQR0000	_2021_B_0_ABCD0000
Implementation cos		SEK		3000000	4000000	2000000	3000000
Maintenance cost p		SEK	560000	620000	640000	600000	620000
Link function							
Pedestrians							
Space	Width available		8.0	10.0	6.0	7.0	10.0
Volume	Peak-time flow (vehicles or pedestrians per hour)						
Speed	Average speed (km/h) at network level						
Travel time	Average travel time at network level (minutes)						
Delays	Average delay (minutes/vehicle) at network level						
Reliability	Variance of travel time (network level)						
Trip quality							
Cyclists							
Space	Width available (dedicated space)		5.0	4.0	8.5	2.0	4.0
Volume	Peak-time flow (vehicles or pedestrians per hour)						
Speed	Average speed (km/h) at network level						
Travel time	Average travel time at network level (minutes)						
Delays	Average delay (minutes/vehicle) at network level						
Reliability	Variance of travel time (network level)						
Trip quality							
Micromobility							
Space	Dedicated space (yes/no)		No	No	No	No	No
Volume	Peak-time flow (vehicles or pedestrians per hour)						
Speed	Average speed (km/h) at network level						
Travel time	Average travel time at network level (minutes)						
Delays	Average delay (minutes/vehicle) at network level						
Reliability	Variance of travel time (network level)						
Trip quality							
Buses							
Space	Width available (dedicated space)		7.0	0.0	7.0	2.0	0.0
Volume	Peak-time flow (vehicles or pedestrians per hour)		18	19	19.0	19.0	19.0
Speed	Average speed (km/h) at network level		29.3	28.7	28.6	29.8	28.8
Travel time	Average travel time at network level (minutes)		2.7	2.8	2.8	2.7	2.8
Delays	Average delay (minutes/vehicle) at network level		0.6	0.6	0.7	0.4	0.6
Reliability	Variance of travel time (network level)		4.1	4.3	5.0	10.4	3.0
Trip quality							
Cars/taxis							
Space	Width available		14.0	16.0	12.5	23	16
Volume	Peak-time flow (vehicles or pedestrians per hour)		717	729	732	734	731
Speed	Average speed (km/h) at network level		33.3	33.9	33.6	32.6	33.8
Travel time	Average travel time at network level (minutes)		5.3	5.2	5.2	5.4	5.2
Delays	Average delay (minutes/vehicle) at network level		0.4	0.7	0.5	0.5	0.7
Reliability	Variance of travel time (network level)		167.4	110.5	109.4	115.8	109.4
Trip quality							
Motorcyclists							
Space	Width available		14.0	16.0	12.5	22.5	16.0
Volume	Peak-time flow (vehicles or pedestrians per hour)						
Speed	Average speed (km/h) at network level						
Travel time	Average travel time at network level (minutes)						
Delays	Average delay (minutes/vehicle) at network level						
Reliability	Variance of travel time (network level)						
Trip quality							
Goods vehicles							
Space	Width available		14.0	16.0	12.5	22.5	16.0
Volume	Peak-time flow (vehicles or pedestrians per hour)		35	35	36	35	36
Speed	Average speed (km/h) at network level		32.5	33.0	32.9	33.0	32.9
Travel time	Average travel time at network level (minutes)		5.3	5.1	5.2	5.2	5.2
Delays	Average delay (minutes/vehicle) at network level		0.5	0.7	0.5	0.5	0.7
Reliability	Variance of travel time (network level)		291.0	116.6	146.9	148.1	96.0
Trip quality							

(…)

5 Tool refinement

Preliminary results of the tool application in the five MORE cities were used to refine the tool, correcting formulas that yielded errors and other issues. A questionnaire was also sent to the cities after the trial requesting feedback on the general use of the tools and on specific issues about the tool components. Minor issues were fixed in the final version of the tool.

6 Exploitation and dissemination

The tool will be available online in the UCL website, accompanied by a user guide.

The tool will also be integrated into the Street Planning and Design course of the Masters programme in Transport at University College London.

The tool was presented at two international conferences (European Transport Conference 2021 and Living and Walking in Cities 2021), attended mostly by transport practitioners working in local governments and consultancy projects. The presentations provided an opportunity to demonstrate the potentialities of the tool to its intended users.