Department for Transport

Structures Fund Economic Tool

User Guide

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Contents

1. Introduction

Background

1.1 The Structures Fund Economic Tool (the Tool) has been developed to assess the Value for Money (VfM) of schemes seeking funding from the Structures Fund. The Structures Fund was announced in 2025 to inject cash into repairing run down bridges, decaying flyovers and worn out tunnels across the country. The Tool is to be used by scheme promoters as part of their applications to the Fund.

1.2 The Tool can be used to estimate the key impacts of schemes including the costs and the benefits related to removing the need for diversion routes, leading to reduced journey times and vehicle operating costs, changes in vehicle kms and the resulting external impacts on decongestion, infrastructure maintenance, noise, air quality, greenhouse gas user emissions and indirect tax revenues. The Tool also monetises the impacts of capital carbon from the infrastructure. The Tool provides a proportionate method for assessing and monetising these impacts, culminating in the calculation of the Present Value of Benefits (PVB), Present Value of Costs (PVC), Net Present Value (NPV) and Benefit Cost Ratio (BCR).

1.3 This User Guide sets out how the Tool has been structured and provides details of what data are required for each input sheet in the Tool. It also details what is included in the output sheets of the Tool and provides some use case examples.

What schemes can the Tool be used for?

1.4 The Tool can be used to assess the impact of diversion routes i.e. where the condition of assets restricts access for some or all vehicle types, and therefore travellers are required to use an alternative route. Scheme impacts beyond this would need to be assessed using other tools or a qualitative assessment.

1.5 The Tool assumes that all traffic using the route without diversion would switch to use the diversion route once restrictions come in (for the specified vehicle types). Use of the Tool is therefore best suited in a rural context where there is more likely to be a single diversion route. In urban settings there will likely be multiple alternative route options available when restrictions come in, and so the Tool may not capture these impacts robustly.

1.6 The Tool allows for up to three restriction scenarios to be input. This is to recognise that while initially the restrictions may only apply to a single vehicle type or for a limited number of days in a year, without intervention, the restrictions might need to be extended to other vehicle types or cover a larger number of days at a later date.

1.7 If the restriction brought in is a partial closure (e.g. reduction from two lanes to one in a certain direction) then assumptions would need to be made regarding the traffic flow and journey time inputs before entry to the Tool. Promoters would need to consider the likely proportion of the current demand that would switch to a diversion route, and those which would remain on the route with reduced capacity. To capture all impacts of a partial closure, multiple runs of the Tool may need to be undertaken, and the benefits and costs aggregated to obtain the overall BCR. If multiple Tool runs are used, care must be taken to avoid double-counting any costs and benefits associated with the scheme.

1.8 The Tool captures impacts to vehicular traffic disaggregating by the following vehicle types:

- Cars;

- LGVs;

- HGVs (split by articulated and rigid vehicles if known); and

- Public Service Vehicles (PSVs).

1.9 The Tool cannot be used to capture the impacts of diversions to any other modes, including rail, light rail, active mode users.

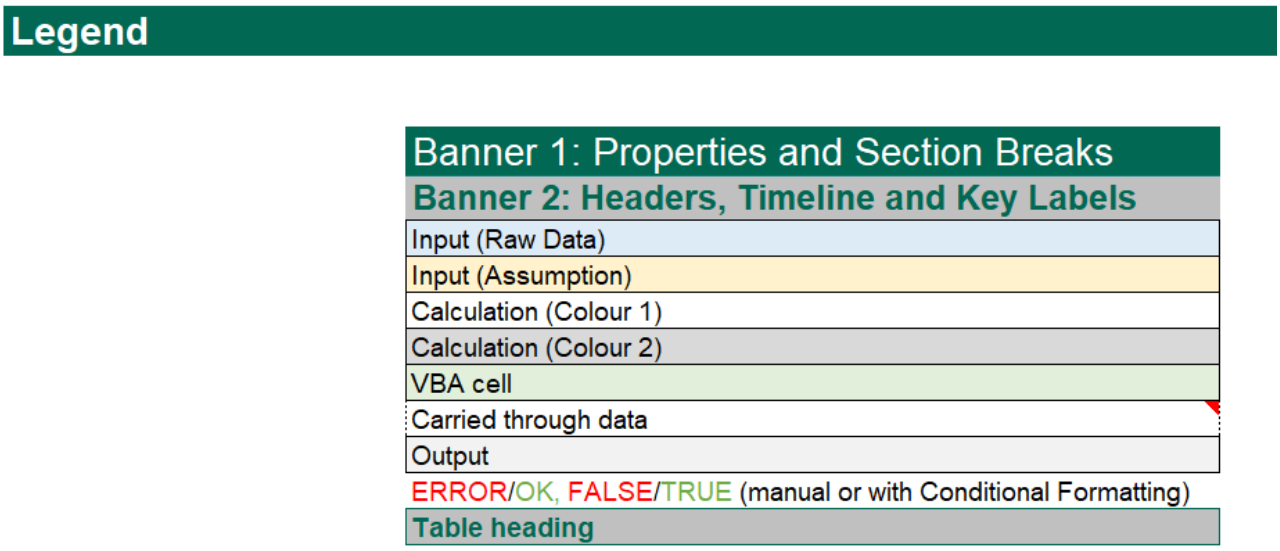
2. Format and Structure

Format of Tool

2.1 The Tool has been developed in a spreadsheet format using Microsoft Excel with the aim of being transparent and easy-to-use by scheme promoters.

2.2 The Tool has been developed in DfT's spreadsheet model template. Cells have been formatted in line with the legend on the Cover Sheet (see Figure 1 below). Throughout the input sheets there are user notes to provide guidance on the format of the inputs required, and these notes are expanded on within this User Guide.

Figure 1 Legend



Tool Structure

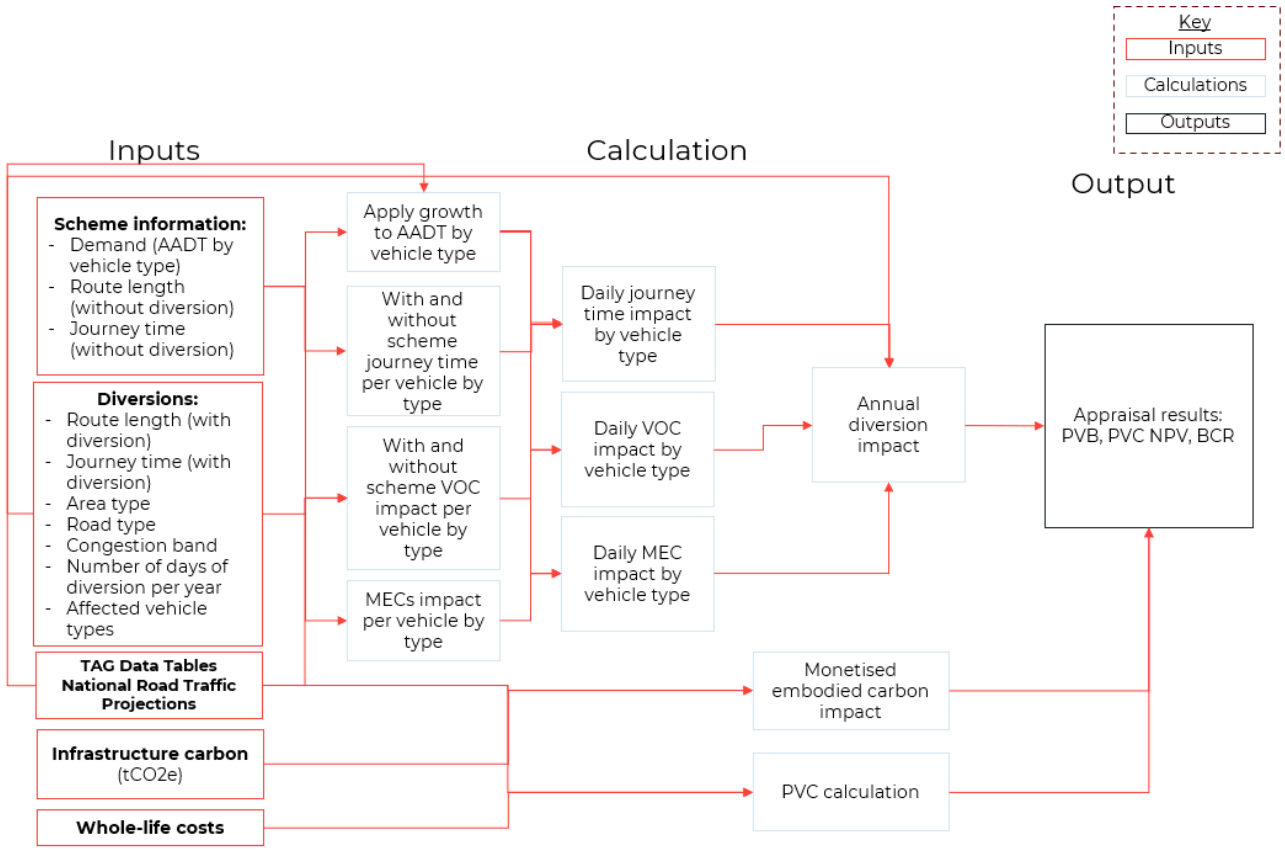
2.3 The Tool is structured such that input, calculation and output sheets are separated. There are divider pages (Inputs> >, Calculations> >, Outputs> >) to group the sheets and to ensure the integrity of the model flow. Only the input and output sheets are visible to the users, with the calculation sheets hidden as these are not intended to be edited.

2.4 The Tool is structured on each sheet such that it follows the format of how a book should be read, from left to right and from top to bottom.

2.5 To use the Tool, the required inputs on I-Scheme Details and I-Costs should be provided by the user (and I-Area Lookup used where required). Evidence can be provided by users on I-Supporting Evidence, justifying the chosen assumptions. The user should then confirm that all checks are passed (on I-Scheme Details, I-Costs and Input Checklist) before reviewing the results on O-Results and O-Summary. Chapters 3 and 5 provide more detail on the input and output sheets, and some examples of running the Tool are included in Chapter 6.

2.6 A map showing the input, calculation and output stages of the Tool is included in Figure 2. The calculation sheets are protected and not visible to users. These sheets should not be accessed/edited as this will compromise the Tool output.

Figure 2 Tool map



3. Inputs

Inputs by sheet

3.1 There are four user input sheets to the Tool:

- I-Scheme Details: The user needs to provide the details of the scheme and the diversion route;

- I-Area Lookup: The user can use this sheet to look up the area type in which the diversion route is based on the MSOA zone code;

- I-Costs: The user needs to provide details of the scheme costs including capital costs and with and without scheme maintenance and renewal costs; and

-I-Supporting Evidence: The user can provide any additional supporting information related to the scheme, diversion route, congestion band selection and assumptions used. This sheet provides space for maps and additional information to be recorded.

3.2 All inputs to the sheets I-Scheme Details and I-Costs should be provided by the user. In cases where optional inputs are not provided, default values will be applied within the Tool. Details of these default inputs are included in Table 3..

3.3 The inputs required on each sheet are detailed in the tables below.

3.4 In addition to the input sheets, the Input Checklist sheet brings together various checks on the individual input sheets. This sheet should be reviewed once all inputs have been populated to confirm that all checks are passed before the outputs are reviewed.

I-Scheme Details

3.5 I-Scheme Details is structured in two sections - Scheme Information and Diversion. This first section (Scheme Information) requires inputs related to the route that would be used if no diversion was required, and the current traffic levels on this route, scheme opening year and appraisal period. The second section (Diversion) requires

inputs related to the diversion route, including length, journey time, vehicle types impacted and the year in which the diversion(s) would be implemented.

3.6 Table 1 details the inputs required on I-Scheme Details.

Table 1 Guidance for inputs on I-Scheme Details

Input	Notes	Input Validation
Scheme Information		
Scheme name	Input the name of the scheme.	N/A
Scheme promoter	State which organisation is the promoting authority	N/A
Region	Choose the region where the scheme is located from a dropdown list. This is used for forecasting future traffic flow growth from the National Road Traffic Projections.	Selection from drop down: East Midlands Eastern England London North East North West South East South West Wales West Midlands Yorkshire & Humber
Route length (without diversion)	Input the length of the route in kilometres. This is used to calculate the change in distance due to the diversion.	Positive number
Route journey time (without diversion)	Input the travel time in minutes - this should correspond to the average time travelled on the route length specified above.	Positive number
Average speed (without diversion)	This is calculated within the Tool based on the route length and journey times input, as specified above. The user should not input this.	N/A - calculation
Scheme description	Provide a short description of the scheme, including what would be delivered with the funding from the Structures Fund and what this would mean for the transport network. Additional information can be provided on 'I-Supporting Evidence'.	N/A
Scheme opening year	Provide the scheme opening year if funding were received.	2026-2031, input as yyyy
Appraisal period	The appraisal period should cover the asset life of the scheme. By default, this is set to 60-years after scheme opening, and this is the maximum value which can be input. If a shorter appraisal period is used then a supporting rationale should be provided.	Integer between 15 and 60
Traffic flow year	Select the year for which traffic flow data is provided. It is expected that traffic flow data from recent years is used to ensure that the traffic flow inputs are from a post-COVID-19 year. If traffic data comes from an earlier year, users will need to make an adjustment to scale the demand up (e.g. to 2023 demand levels) outside of the tool (preferably based on local evidence).	Selection from drop down: 2023 2024 2025 2026
Number of vehicles on affected section	Input the total 24hr Average Annual Daily Traffic (AADT) for the scheme in the traffic flow year specified.	Positive numbers

Input	Notes	Input Validation
(split by vehicle type if possible)	Optional - provide split of AADT by vehicle type (car, LGV, HGV, PSV) if this is known. If an input is not provided by vehicle type, the total AADT will be disaggregated within the Tool based on National Road Traffic Projections.	
Is HGV split between rigid and articulated vehicles known (OGV1/OGV2)?	Select 'yes' or 'no' from the drop down. If 'yes' is selected then the percentage split between rigid (OGV1) and articulated (OGV2) vehicles should be provided. If 'no' is selected then a default split from DfT Table RFS0110 Domestic Road Freight Activity) will be used within the Tool to disaggregate the HGV AADT into articulated and rigid vehicles.	Selection from drop down: Yes No If 'yes' is selected, input percentage between 0 - 100% for articulated vehicles (proportion of rigid vehicles is then calculated)
Infrastructure carbon emissions	Enter the emissions (tCO2e) associated with the infrastructure delivered as part of the scheme (this should not include user emissions). If this information is not immediately available, see guidance on approaches to estimating infrastructure carbon emissions in the DfT's Local Transport Quantifiable Carbon Guidance.	Positive number
Diversion		
Diversion description	Provide a short description of the diversion route which would be implemented in the absence of the scheme	N/A
Area type	Choose the area type where the diversion route is located from the drop down list. The area type is used for calculating the marginal external impacts from the change in vehicle kilometres due to the scheme. Users can look up the area type for an MSOA on the sheet I-Area Lookup	Selection from drop down: London Inner and Outer Conurbations Other Urban Rural
Road type	Choose the diversion route's road type from the drop down list. The road type is used for calculating the marginal external impacts from the change in vehicle kilometres due to the scheme.	Selection from drop down: Motorways A roads Other Roads
Congestion band	Choose the diversion route's congestion band from the drop down list. To identify the appropriate congestion band, the guidance in Appendix A of TAG Unit A5-4 should be referred to. If the congestion band is not known, select 'not provided'. The congestion band is used for calculating the decongestion element of the marginal external impacts from the change in vehicle kilometres due to the scheme. The choice of congestion band has a substantial effect on the level of decongestion impacts, so care should be taken to select the appropriate band for the diversion route.	Selection from drop down: 1 2 3 4 5 Not provided
Route length (with diversion)	Input the length of the diversion route in kilometres. This is used to calculate the change in distance due to the diversions.	Positive number
Journey time (with diversion)	Input the travel time on the diversion route in minutes - this should correspond to the average time travelled on the route length specified above	Positive number
Average speed (with diversion)	This is calculated within the Tool based on the diversion route length and journey times	N/A

Input	Notes	Input Validation
	input, as specified above. The user should not input this.	
Restrictions - up to three scenarios are allowed. Restriction #1 defines the initial diversion requirement. Optional Restrictions #2 and #3 apply only if diversion requirements change in later years and override earlier restrictions from their stated start year onwards.		
Diversion starts in	Input the year in which the diversion would start being applied.	2026 to 2090, input as yyyy
Days of year diversion in place	Specify how many days per year the diversion is expected to be applied.	Integer value between 1 and 365
Diversion applies to: Cars LGV HGV PSV	Set the flag to 1 for all vehicle types that the diversion would apply to. Set the flag to 0 if diversion would not apply to that vehicle type.	1 or 0
Inputs for Restrictions #2 and #3 are optional. Where used, these scenarios need to be specified in the same way as for Restriction #1.		

Checks

There are a number of checks included on the sheet I- Scheme Details, including:

- Checking that the average speed on the non-diversion route is between 12km/h (7mph) and 112km/h (70mph);

- Checking that if traffic flow is input by vehicle type this sums to the total AADT input;

- Checking that the average speed on the diversion route is between 12km/h (7mph) and 112km/h (70mph); and

- Checking whether the journey time and distance on the route without diversion is less than the route with diversion.

I- Area Lookup

3.7 Users can check the area type classification given for a Middle-layer Super Output Area (MSOA). Users should enter the MSOA corresponding to the majority of the diversion route. MSOA codes can be found by using ONS Census Map. After selecting an MSOA of interest on the map, the MSOA code will appear in the URL. An MSOA code can be input in cell D16 and the corresponding area type will be shown in cell D17.

I-Costs

3.8 The inputs on this sheet are related to the scheme costs, including capital costs for scheme delivery and ongoing operating, maintenance and renewal costs in the with and without scheme scenarios. Table 2 details the inputs required on I-Costs.

Table 2 Guidance for inputs on I-Costs

Input	Notes	Input Validation
Capital costs (exclusive of risk or optimism bias)	Input the capital costs, exclusive of risk or optimism bias, split by funding source (central government, local authority, private). This should be input as a time series and in nominal prices, i.e. including inflation.	Costs should be entered as positive numbers
Operating, maintenance and renewal costs without scheme	Input the OMR costs, exclusive of risk or optimism bias under the without scheme scenario. This should be input as a time series and in nominal prices, i.e. including inflation.	Costs should be entered as positive numbers
Operating, maintenance and renewal costs with scheme	Input the OMR costs, exclusive of risk or optimism bias under the with scheme scenario. This should be input as a time series and in nominal prices, i.e. including inflation.	Costs should be entered as positive numbers
Operating, maintenance and renewal costs funding source	Select whether the 'public' or 'private' sector will fund the with and without scheme OMR costs	Selection from drop down: Public Private
Optimism bias (capital costs)	Specify the level of optimism bias which would typically be applied to the costs of a scheme of this nature and this stage of development. Refer to TAG Unit A1-2 for guidance on required levels of optimism bias.	Percentage between 0% and 100%
Risk (capital costs)	Specify the risk cost percentage for the scheme (if this is available). Within the Tool the higher value of risk or optimism bias will be used within the Present Value of Cost calculation.	Percentage between 0% and 100%
Optimism bias (OMR costs) without scheme	Specify the level of optimism bias to be applied to the without scheme OMR costs.	Percentage between 0% and 100%
Optimism bias (OMR costs) with scheme	Specify the level of optimism bias to be applied to the with scheme OMR costs.	Percentage between 0% and 100%

3.9 There are a number of other assumptions/standard inputs used within the Tool which cannot be changed by users. These are shown in the table below.

Table 3 Assumptions used within the Tool

Input	Value/source
Appraisal base year	2023
TAG Data Book	TAG Data Book v2.02 (November 2025)
Discount factors	3.5% Years 0 – 30, 3.0% Years 31 – 75 (TAG Data Book A1.1.1)
Market price adjustment factor	1.19 (TAG Data Book A1.3.1)
GDP Deflator	TAG Data Book Annual Parameters
Vehicle type split (if not input by user)	National Road Traffic Projections (vehicle miles by region, road type and vehicle type)
Traffic flow growth	2022 National Rail Traffic Projections
Proportion of rigid and articulated vehicles (if not input by user)	DfT Table RS0110 (Domestic road freight activity, 2024 values)
Journey purpose split by vehicle type	Work/non-work time split (TAG Data Book A1.3.4)

Input	Value/source
Value of Time	Forecasts of vehicle values of time (all week average by vehicle type and work/non-work) (TAG Data Book A1.3.6)
Fuel Vehicle Operating Cost	Forecast fuel cost parameters (average values for each of car/LGV/HGV/PSV, using average values accounts for different fuel type splits) (TAG Data Book A1.3.12 and A1.3.13)
Non-fuel Vehicle Operating Costs	Non-fuel resource vehicle operating costs (average values for car) (TAG Data Book A1.3.14 and A1.3.15)
Carbon values	Non Traded values, £ per tonne of CO2e (central values) (TAG Data Book A3.4)
Marginal External Cost rates	Marginal External Cost rates by year and vehicle type, pence per kilometre (TAG Data Book A5.4.2.)

I-Supporting Evidence

3.10 Users may choose to provide evidence supporting the inputs to the Tool. This could include a map with scheme location and diversion route and any relevant evidence on the journey times, traffic flow, congestion band selection and restriction scenarios or any other relevant information that supports the choice of assumptions made within the Tool.

Input Checklist

3.11 Input Checklist brings together various inputs to ensure all values required are provided and summarises the checks on the individual input sheets. Table 4 provides descriptions of all the checks and summarises what a failed check means.

Table 4 List of input checks

Check	Description	If check not passed
Route length and journey time without diversion	Checks if the route length and journey time without diversion have been provided	Inputs not provided
Average speed	Checks if the speed calculated is between 12km/h (7mph) and 112km/h (70mph)	Check if it is expected that the average speed is not in the specified range. Check the validity of inputs provided
Scheme opening year	Checks if scheme opening year has been provided	Input not provided
Appraisal period	Checks if appraisal period has been provided	Input not provided
Traffic flow year	Checks if the traffic flow input year has been provided	Input not provided
Traffic flow	Checks if traffic flow data has been provided	Input not provided
Infrastructure carbon	Checks if infrastructure carbon has been provided	Input not provided. Confirm if no impact is expected.
Diversion route length and journey time	Checks if the route length and journey time with diversion have been provided	Inputs not provided
Average speed	Checks if the speed calculated is between 12km/h (7mph) and 112km/h (70mph)	Check if it is expected that the average speed is not in the specified range. Check the validity of inputs provided
Diversion route check - distance	Checks if the route length with diversion is shorter than the route without diversion	Check if it is expected that the length of the diversion is shorter than the route without diversion. Check the validity of inputs provided.

Check	Description	If check not passed
Diversion route check - journey time	Checks if the journey time with diversion is quicker than on the route without diversion	Check if it is expected that the diversion is quicker than the route without diversion. Check the validity of inputs provided.
Restriction #1	Checks if all inputs for restriction #1 have been provided	Inputs not provided
Diversion start date	Checks if diversion start year has been provided	Input not provided
Diversion in place	Checks if number of days diversion is in place for has been provided	Input not provided
Vehicle type selection	Checks if vehicle types affected by the restrictions have been selected	Inputs not provided
Restriction #2 Restriction #3 (Optional)	Checks if all inputs for restriction #2 have been provided if restriction scenario #2 is used. Based on the same checks as for restriction scenario #1. Restriction #2 must start later than restriction #1, and restriction #3 must start later than restriction #2.	Inputs not provided or restriction years not in chronological order. As these scenarios are optional, the checks will be passed if no inputs for these scenarios are provided. In such a scenario the 'diversion start date', 'diversion in place' and 'vehicle type selection' will show a failed check but the overall restriction #2 and restriction #3 check will be passed. These checks only need to be reviewed if more than one scenario is provided.
Capital costs	Checks if capital costs have been provided	Inputs not provided
OMR costs	Checks if operational, maintenance and renewal (OMR) costs have been provided	Inputs not provided
OMR costs provided over the whole appraisal period	Checks if the OMR costs have been entered only for years in the appraisal period, and not years outside of this range	The Tool will not use the costs input before or after the appraisal period. Check if OMR costs have been provided appropriately for the appraisal period.
Optimism bias (capital costs)	Checks if optimism bias for capital costs has been provided	Input not provided
Optimism bias (OMR costs)	Checks if optimism bias for OMR costs has been provided	Input not provided
Inputs check	Final check	If not passed, please review your inputs and confirm their validity. The Tool will produce outputs even if the final check is not passed. The user needs to ensure that failed checks are a result of the inputs used being outside of the expected ranges and that all the inputs are valid.

4. Appraisal Methodology

4.1 The table below shows the methodology employed within the Tool to monetise the impacts on:

- Journey times;

- Vehicle operating costs (fuel and non-fuel);

- External impacts on the wider network including decongestion, infrastructure maintenance, noise, air quality, greenhouse gas emissions (user emissions), indirect tax. Calculated based on the change in vehicle kilometres travelled as a result of the scheme;

- Infrastructure carbon emissions;

- Capital costs; and

- Operating maintenance and renewal costs.

4.2 The Tool calculates impacts over the appraisal period and provides the monetised results in 2023 Present Values, Market Prices. These monetised impacts are used in calculating the results of the economic appraisal including the Present Value of Benefits, Present Value of Costs, Net Present Value and Benefit Cost Ratio. These appraisal outputs are discussed in the following chapter.

Table 5 Appraisal methodology

Impact	Methodology
Traffic flow	All vehicles are assumed to switch to using the diversion route. In future years, traffic flow across all vehicle types is assumed to grow in line with traffic forecasts from National Road Traffic Projections. No demand response as a result of the need to use a diversion route has been assumed in the Tool.
Journey Times	Based on the inputs provided on I-Scheme Details, the change in average journey time on the scheme route and diversion route is calculated. This is multiplied by the traffic flow data to calculate the daily change in travel times by vehicle type. The daily impact is then monetised using the Values of Time by vehicle type. This is then annualised using the input of how many days per annum the diversion is applied. The change in average journey time is assumed to be constant across the appraisal period.

Impact	Methodology
Vehicle Operating Costs (VOC)	Fuel and non-fuel VOC are calculated separately for the scheme and the diversion route as they are dependent on the average speed (which may differ by route). Both fuel and non-fuel VOC per kilometre travelled are calculated using the parameters sourced from the TAG Data Book. The fuel and non-fuel VOC are then calculated by multiplying this cost per kilometre by the change in distance travelled between the scheme and the diversion route. The difference in daily VOC is calculated by vehicle type, and this is then annualised using the inputs of how many days per annum the diversion is applied.
External impacts	This captures the impacts of the change in vehicle kilometres travelled on the wider highway network. The daily increase in kilometres travelled is calculated based on the difference in route length between the scheme and the diversion route, and multiplying this by the daily traffic flow by vehicle type. The change in vehicle kilometres by vehicle type is multiplied by the marginal external cost rates by area type, road type (input on I-Scheme Details), vehicle type and congestion band, to monetise the impact on decongestion, infrastructure maintenance, accidents, air quality, noise, greenhouse gases and indirect taxation. This is then annualised using the inputs of how many days per annum the diversion is applied. The decongestion impacts are highly dependent on the congestion band selected on I-Scheme Details. Care should be taken to ensure the appropriate congestion band is used, referring to the guidance in TAG Unit A5-4.
Infrastructure carbon	Carbon emissions embodied in the infrastructure is an input provided by the user. These emissions in tonnes of CO2 equivalent (tCO2e) are assumed to follow the same time profile as the years in which the capital costs are incurred. These emissions are monetised using carbon values sourced from the TAG Data Book. For guidance on approaches to estimating infrastructure carbon emissions, refer to the DfT's Local Transport Quantifiable Carbon Guidance.
Capital costs	This is the expected capital costs related to the delivery of the scheme. These costs are input inclusive of inflation but excluding any adjustment for risk or optimism bias. Within the Tool, optimism bias and risk levels are compared and the larger applied to the scheme costs. These costs are then adjusted to a 2023 price base using the GDP Deflator, discounted to 2023 and adjusted to market prices. Costs to the private sector are subtracted from the Present Value of Benefits. Costs to the public sector form the Present Value of Costs.
Operational, Maintenance and Renewal (OMR) costs	The Tool compares the OMR costs for the with and without scheme scenarios. These costs are input inclusive of inflation but excluding any adjustment for optimism bias. Within the Tool optimism bias is applied and these costs are adjusted to a 2023 price base using the GDP Deflator, discounted to 2023 and adjusted to market prices. Costs to the private sector are subtracted from the Present Value of Benefits. Costs to the public sector form the Present Value of Costs.

5. Outputs

5.1 There are two output sheets in the Tool:

- O-Results; and

- O-Summary.

O-Results

5.2 O-Results presents each of the impacts and costs in 2023 Present Values, Market Prices over the appraisal period. The summary presents the:

- Present Value Benefits (PVB);

- Present Value Costs (PVC);

- Net Present Value (NPV = PVB - PVC); and

- Benefit to Cost Ratio (BCR = PVB / PVC).

5.3 Additionally, a message is provided telling the user whether the Inputs Checklist has been passed. If any of the checks have failed, the following message will appear: "Inputs check not passed, please review your inputs and confirm their validity before reviewing results". This means that some of the inputs may be missing or inputs provided are outside the expected ranges. In such cases, the user should review the inputs and ensure that the inputs provided are complete and valid. The Tool will produce economic appraisal results based on the inputs provided even if this message appears.

5.4 Figure 3 shows an example output from O-Results.

Figure 3 Example output on O-Results

Economic Appraisal Results

Benefits		
Journey Times	215,411,778	£, 2023 PV
Vehicle Operating Costs	31,152,453	£, 2023 PV
External Impacts		
Decongestion	88,525,037	£, 2023 PV
Accidents	13,689,765	£, 2023 PV
Local Air Quality	666,398	£, 2023 PV
Noise	2,817,743	£, 2023 PV
Greenhouse Gases	9,906,278	£, 2023 PV
Indirect Taxation	- 1,759,944	£, 2023 PV
Infrastructure Carbon	- 1,229,642	£, 2023 PV
Private sector capital costs	-	£, 2023 PV
Private sector operating, maintenance and renewal (OMR) costs	-	£, 2023 PV
Present Value Benefits	**359,179,866**	**£, 2023 PV**
Costs		
Local Authority capital costs	-	£, 2023 PV
Central Government capital costs	68,757,214	£, 2023 PV
Infrastructure maintenance (external impacts)	- 2,215,762	£, 2023 PV
Public sector operating, maintenance and renewal (OMR) costs	- 2,525,467	£, 2023 PV
Present Value Costs	**64,015,984**	**£, 2023 PV**
Benefit Cost Ratio		
Net Present Value	**295,163,882**	**£, 2023 PV**
Benefit Cost Ratio	**5.6**	

O-Summary

5.5 This sheet provides a description of the appraised scheme and headline results of the economic appraisal, bringing together the key inputs and outputs.

5.6 Figure 4 shows an example output on O-Summary.

Figure 4 Example output on O-Summary

Summary

	Constant	Unit
Scheme Details		
Scheme name	Bridge Name	text
Scheme promoter	Local Authority Name	text
Scheme description	Scheme looks at replacement of an existing bridge. The structural damage of the existing structure is expected to lead to the need for introducing gradual usage restrictions.	text
Route length (without diversion)	5	km
Journey time (without diversion)	10	min
Daily number of vehicles on affected section	10,000	Average Annual Daily Traffic (AADT)
Cars	7,500	AADT
LGV	1,800	AADT
HGV	400	AADT
PSV	300	AADT
Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Route length (with diversion)	9	km
Journey time (with diversion)	18	min
Capital Cost	50,000,000	£, nominal prices excluding risk
Change in Operating, Maintenance and Renewal Costs	-13,970,891	£, nominal prices excluding risk
Economic Appraisal Results		
Present Value Benefits	359,179,866	£, 2023 PV
Present Value Costs	64,015,984	£, 2023 PV
Net Present Value	295,163,882	£, 2023 PV
Benefit Cost Ratio	5.6	

6. Running the Tool

6.1 This section presents an example use case of the Tool, showing how inputs should be provided and the results viewed.

6.2 To use the Tool, the required inputs on I-Scheme Details and I-Costs should be provided by the user. The user should then confirm that all checks are passed (on I-Scheme Details and Input Checklist) before then reviewing the results on O-Results and O-Summary.

Example 1

6.3 The Tool is being used to assess the costs and benefits of the replacement of a bridge on a rural A road. Without investment, the bridge will become unusable to LGV and HGV vehicles, and there will be a requirement to use a diversion route. It is forecast that the restriction would need to come into force in 2031. Under the scenario where the bridge is replaced, this would happen in 2030 and the lifetime of the replacement asset would be 60-years.

6.4 Currently 2,000 LGVs use the bridge each day, and 1,000 HGVs. The split of HGVs been articulated and rigid vehicles is not known, and neither is the congestion band of the diversion route. Without the diversion in place, the route length is 5km and takes 15min on average. With the diversion, the route length will be 10km and will take 22min on average. Once implemented, the diversion would be in place for 365 days per year.

6.5 The replacement of the bridge would result in 3,000 tCO2e infrastructure carbon emissions.

6.6 Figure 5 and Figure 6 show the completed I-Scheme Details for this example scheme.

Figure 5 Example 1 I-Scheme Details (scheme information)

Scheme Information

Scheme name	Bridge Name	text
Scheme promoter	Local Authority Name	text
Region	North West	selection
Route length (without diversion)	5	km
Journey time (without diversion)	15	min
Average speed (without diversion)	20	km/h
Average speed check	*Average speed check passed*	check
Scheme description	Scheme looks at replacement of an existing bridge. The structural damage of the existing structure is expected to lead to the need for introducing usage restrictions for LGVs and HGVs.	text
Scheme opening year	2030	yyyy
Appraisal period	60	years
Reason for different appraisal period duration		text
Traffic flow year	2026	selection
Daily number of vehicles on affected section	3,000	24h Average Annual Daily Traffic (AADT)
Cars	0	24h AADT
LGV	2,000	24h AADT
HGV	1,000	24h AADT
PSV	0	24h AADT
Input check	*Demand inputs match*	check
Is HGV split between articulated and rigid vehicles known (OGV2/OGV1)?	No	selection
Articulated vehicles		%
Rigid vehicles		%
Infrastructure carbon emissions	3,000	tCO2e

Figure 6 Example 1 I-Scheme Details (diversion)

Diversion

Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Area type	Rural	selection
Road type	A roads	selection
Congestion band	Not provided	selection
Route length (with diversion)	10	kms
Journey time (with diversion)	22	mins
Average speed (with diversion)	27	km/h
Average speed check (with diversion)	*Average speed check passed*	check
Diversion route check	*Diversion route check passed*	check

Specify restrictions - Restriction #1 defines the initial diversion requirement. Optional Restrictions #2 and #3 apply only if diversion requirements change in later years and override ea
Where required, further evidence regarding restrictions can be provided in 'I-Supporting Evidence'.

Restriction #1 (Required)

Diversion starts in	2031	yyyy
Days of year diversion in place	365	days
Diversion applies to:		
Cars	☐	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☐	0 or 1

Restriction #2 (Optional)

Replaces the previous restriction and starts in		yyyy
Days of year diversion in place		days
Diversion applies to:		
Cars		0 or 1
LGV		0 or 1
HGV		0 or 1
PSV		0 or 1

Restriction #3 (Optional)

Replaces the previous restriction and starts in		yyyy
Days of year diversion in place		days
Diversion applies to:		
Cars		0 or 1
LGV		0 or 1
HGV		0 or 1
PSV		0 or 1

6.7 The cost of the bridge replacement would be £25m (nominal values), and the costs would be incurred between 2026/27 and 2029/30. This cost does not include an allowance for risk. Risk is currently estimated to be 25% of the scheme costs. As advised by TAG A1-2, optimism bias of 55% should be used for a scheme at this stage of development.

6.8 Currently, it costs £0.4m per year to maintain the bridge. Once the asset has been replaced, these annual costs are forecast to reduce to £0.1m per year. Inflation has been applied to those values before inputting the nominal values in the Tool for the appraisal period. The optimism bias of 10% has been applied to the OMR costs based on local evidence.

6.9 Once all inputs have been populated, the Input Checklist sheet can be reviewed to ensure all inputs are as expected/required. Figure 7 shows the Input Checklist sheet.

Figure 7 Example 1 Input Checklist

Scheme Information (Inputs)

	Check
Route length and journey time without diversion	☑
Average speed	Average speed check passed
Scheme opening year	☑
Appraisal period	☑
Traffic flow year	☑
Traffic flow	☑
Infrastructure carbon	☑
Diversion route length and journey time	☑
Average speed	Average speed check passed
Diversion route check - distance	☑
Diversion route check - journey time	☑
Restriction #1	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Restriction #2 (Optional)	☑
Diversion start date	☐
Diversion in place	☐
Vehicle type selection	☐
Restriction #3 (Optional)	☑
Diversion start date	☐
Diversion in place	☐
Vehicle type selection	☐
Capital costs	☑
OMR costs	☑
OMR costs provided over the whole appraisal period	☑
Optimism bias (Capital costs)	☑
Optimism bias (OMR costs)	☑
Inputs check	☑

6.10 Following completion of the input sheets and ensuring the checks are met, the results can be viewed on O-Results and O-Summary. Figure 8 and Figure 9 show the output sheets for this example scheme.

Figure 8 Example 1 O-Results

Economic Appraisal Results

Benefits		
Journey Times	113,459,609	£, 2023 PV
Vehicle Operating Costs	35,695,968	£, 2023 PV
External Impacts		
Decongestion	16,875,979	£, 2023 PV
Accidents	5,142,103	£, 2023 PV
Local Air Quality	314,879	£, 2023 PV
Noise	1,369,912	£, 2023 PV
Greenhouse Gases	13,567,320	£, 2023 PV
Indirect Taxation	- 6,050,356	£, 2023 PV
Infrastructure Carbon	- 921,922	£, 2023 PV
Private sector capital costs	-	£, 2023 PV
Private sector operating, maintenance and renewal (OMR) costs	-	£, 2023 PV
Present Value Benefits	**179,453,492**	**£, 2023 PV**
Costs		
Local Authority capital costs	-	£, 2023 PV
Central Government capital costs	34,366,188	£, 2023 PV
Infrastructure maintenance (external impacts)	- 6,257,825	£, 2023 PV
Public sector operating, maintenance and renewal (OMR) costs	- 7,184,632	£, 2023 PV
Present Value Costs	**20,923,732**	**£, 2023 PV**
Benefit Cost Ratio		
Net Present Value	**158,529,760**	**£, 2023 PV**
Benefit Cost Ratio	**8.6**	

Figure 9 Example 1 O-Summary

Summary

	Constant	Unit
Scheme Details		
Scheme name	Bridge Name	text
Scheme promoter	Local Authority Name	text
Scheme description	Scheme looks at replacement of an existing bridge. The structural damage of the existing structure is expected to lead to the need for introducing usage restrictions for LGVs and HGVs.	text
Route length (without diversion)	5	km
Journey time (without diversion)	15	min
Daily number of vehicles on affected section	3,000	Average Annual Daily Traffic (AADT)
Cars	0	AADT
LGV	2,000	AADT
HGV	1,000	AADT
PSV	0	AADT
Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Route length (with diversion)	10	km
Journey time (with diversion)	22	min
Capital Cost	25,000,000	£, nominal prices excluding risk
Change in Operating, Maintenance and Renewal Costs	-40,970,805	£, nominal prices excluding risk
Economic Appraisal Results		
Present Value Benefits	179,453,492	£, 2023 PV
Present Value Costs	20,923,732	£, 2023 PV
Net Present Value	158,529,760	£, 2023 PV
Benefit Cost Ratio	8.6	

Example 2

6.11 The Tool is being used to assess the costs and benefits of the diversion related to a failing retaining wall on a rural B road. Without investment, it is expected that the road will become unusable to all vehicles due to infrequent landslips, and there will be a requirement to use a diversion route. While it is expected that the diversion will only be needed for 10 days starting in 2026, this will increase to 30 days in 2035 and 50 days in 2045. Under the scenario where the retaining wall is replaced, this would happen in 2030 and the lifetime of the replacement asset would be 60-years.

6.12 Currently 1,000 vehicles use the road per day but the split between vehicle types is unknown. The current volume to capacity ratio is known to not exceed 0.25, suggesting the route falls into the congestion band 1 category. Without the diversion in place, the route length is 15km and takes 25min on average. With the diversion, the route length will be 35km and will take 60min on average.

6.13 The replacement of the retaining wall would result in 1,500 tCO2e infrastructure carbon emissions.

6.14 Figure 10 and Figure 11 show the completed I-Scheme Details for this example scheme.

Figure 10 Example 2 I-Scheme Details (scheme information)

Scheme Information

Scheme name	Road Name	text
Scheme promoter	Local Authority Name	text
Region	South East	selection
Route length (without diversion)	15	km
Journey time (without diversion)	25	min
Average speed (without diversion)	36	km/h
Average speed check	*Average speed check passed*	check
Scheme description	Scheme looks at replacement of a failing retaining wall. Without investment, it is expected that the road will become unusable to all vehicles due to infrequent landslips	text
Scheme opening year	2030	yyyy
Appraisal period	60	years
Reason for different appraisal period duration		text
Traffic flow year	2026	selection
Daily number of vehicles on affected section	1,000	24h Average Annual Daily Traffic (AADT)
Cars		24h AADT
LGV		24h AADT
HGV		24h AADT
PSV		24h AADT
Input check	Demand by vehicle type not provided	check
Is HGV split between articulated and rigid vehicles known (OGV2/OGV1)?	No	selection
Articulated vehicles		%
Rigid vehicles		%
Infrastructure carbon emissions	1,500	tCO2e

Figure 11 Example 2 I-Scheme Details (diversion)

Diversion

Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Area type	Rural	selection
Road type	Other Rds	selection
Congestion band	1	selection
Route length (with diversion)	35	kms
Journey time (with diversion)	60	mins
Average speed (with diversion)	35	km/h
Average speed check (with diversion)	*Average speed check passed*	check
Diversion route check	*Diversion route check passed*	check

Specify restrictions - Restriction #1 defines the initial diversion requirement. Optional Restrictions #2 and #3 apply only if diversion requirements change in later years and override ea
Where required, further evidence regarding restrictions can be provided in 'I-Supporting Evidence'.

Restriction #1 (Required)

Diversion starts in	2026	yyyy
Days of year diversion in place	10	days
Diversion applies to:		
Cars	☑	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☑	0 or 1

Restriction #2 (Optional)

Replaces the previous restriction and starts in	2035	yyyy
Days of year diversion in place	30	days
Diversion applies to:		
Cars	☑	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☑	0 or 1

Restriction #3 (Optional)

Replaces the previous restriction and starts in	2045	yyyy
Days of year diversion in place	50	days
Diversion applies to:		
Cars	☑	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☑	0 or 1

6.15 The cost of the replacement would be £5m (nominal values), and the costs would be incurred in 2029/30. This cost does not include an allowance for risk. Risk is currently estimated to be 60% of the scheme costs as there is a high level of uncertainty in the cost estimates. This is higher than optimism bias estimates recommended by TAG.

6.16 Currently, it costs £50,000 per year to maintain the retaining wall. Once the asset has been replaced, these annual costs are forecast to increase to £75,000 per year. The optimism bias of 40% has been applied to the OMR costs as there is high degree of variability and uncertainty in these figures. Before inputting the OMR costs for the whole appraisal period, the costs have been adjusted for inflation.

6.17 Once all inputs have been populated, the Input Checklist sheet can be reviewed to ensure all inputs are as expected/required. Figure 12 shows the populated Input Checklist sheet.

Figure 12 Example 2 Input Checklist

Scheme Information (Inputs)

	Check
Route length and journey time without diversion	☑
Average speed	Average speed check passed
Scheme opening year	☑
Appraisal period	☑
Traffic flow year	☑
Traffic flow	☑
Infrastructure carbon	☑
Diversion route length and journey time	☑
Average speed	Average speed check passed
Diversion route check - distance	☑
Diversion route check - journey time	☑
Restriction #1	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Restriction #2 (Optional)	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Restriction #3 (Optional)	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Capital costs	☑
OMR costs	☑
OMR costs provided over the whole appraisal period	☑
Optimism bias (Capital costs)	☑
Optimism bias (OMR costs)	☑
Inputs check	☑

6.18 Following completion of the input sheets and ensuring the checks are met, the results can be viewed on O-Results and O-Summary. Figure 13 and Figure 14 show the output sheets for this example scheme.

Figure 13 Example 2 O-Results

Economic Appraisal Results

Benefits		
Journey Times	15,337,921	£, 2023 PV
Vehicle Operating Costs	1,965,950	£, 2023 PV
External Impacts		
Decongestion	245,198	£, 2023 PV
Accidents	356,760	£, 2023 PV
Local Air Quality	16,716	£, 2023 PV
Noise	56,998	£, 2023 PV
Greenhouse Gases	553,100	£, 2023 PV
Indirect Taxation	160,965	£, 2023 PV
Infrastructure Carbon	- 448,943	£, 2023 PV
Private sector capital costs	-	£, 2023 PV
Private sector operating, maintenance and renewal (OMR) costs	-	£, 2023 PV
Present Value Benefits	**18,244,664**	**£, 2023 PV**
Costs		
Local Authority capital costs	-	£, 2023 PV
Central Government capital costs	6,612,062	£, 2023 PV
Infrastructure maintenance (external impacts)	- 250,172	£, 2023 PV
Public sector operating, maintenance and renewal (OMR) costs	762,007	£, 2023 PV
Present Value Costs	**7,123,896**	**£, 2023 PV**
Benefit Cost Ratio		
Net Present Value	**11,120,768**	**£, 2023 PV**
Benefit Cost Ratio	**2.6**	

Figure 14 Example 2 O-Summary

Summary

	Constant	Unit
Scheme Details		
Scheme name	Road Name	text
Scheme promoter	Local Authority Name	text
Scheme description	Scheme looks at replacement of a failing retaining wall. Without investment, it is expected that the road will become unusable to all vehicles due to infrequent landslips	text
Route length (without diversion)	15	km
Journey time (without diversion)	25	min
Daily number of vehicles on affected section	1,000	Average Annual Daily Traffic (AADT)
Cars		AADT
LGV		AADT
HGV		AADT
PSV		AADT
Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Route length (with diversion)	35	km
Journey time (with diversion)	60	min
Capital Cost	5,000,000	£, nominal prices excluding risk
Change in Operating, Maintenance and Renewal Costs	3,414,236	£, nominal prices excluding risk
Economic Appraisal Results		
Present Value Benefits	18,244,664	£, 2023 PV
Present Value Costs	7,123,896	£, 2023 PV
Net Present Value	11,120,768	£, 2023 PV
Benefit Cost Ratio	2.6	

Example 3

6.19 The Tool is being used to assess the costs and benefits of the diversion related to replacement of a bridge on an A Road in an urban area. Without investment, it is expected that the bridge will become unusable to vehicles, and there will be a requirement to use a diversion route.

6.20 It is expected that initially, the bridge will only be closed to HGVs, starting in 2030 for 365 days. The restrictions will also start applying to PSVs and LGVs in 2040 and cars in 2060.

6.21 Under the scenario where the bridge is replaced, this would happen in 2031 and the lifetime of the replacement asset would be 60-years.

6.22 Traffic survey data from 2023 suggests that 10,000 vehicles use the bridge per day and the congestion band is not known. However, the split between vehicle types is

known: 7,500 cars, 400 HGVs (40% articulated and 60% rigid), 1,800 LGVs and 300 PSVs.

6.23 Without the diversion in place, the route length is 5km and takes 10min on average. With the diversion, the route length will be 9km and will take 18min on average.

6.24 The replacement of a bridge would result in 4,000 tCO2e infrastructure carbon emissions.

6.25 Figure 15 and Figure 16 show the completed I-Scheme Details for this example scheme.

Figure 15 Example 3 I-Scheme Details (scheme information)

Scheme Information

Scheme name	Bridge Name	text
Scheme promoter	Local Authority Name	text
Region	Yorkshire & Humber	selection
Route length (without diversion)	5	km
Journey time (without diversion)	10	min
Average speed (without diversion)	30	km/h
Average speed check	*Average speed check passed*	check
Scheme description	Scheme looks at replacement of an existing bridge. The structural damage of the existing structure is expected to lead to the need for introducing gradual usage restrictions.	text
Scheme opening year	2031	yyyy
Appraisal period	60	years
Reason for different appraisal period duration		text
Traffic flow year	2023	selection
Daily number of vehicles on affected section	10,000	24h Average Annual Daily Traffic (AADT)
Cars	7,500	24h AADT
LGV	1,800	24h AADT
HGV	400	24h AADT
PSV	300	24h AADT
Input check	*Demand inputs match*	check
Is HGV split between articulated and rigid vehicles known (OGV2/OGV1)?	Yes	selection
Articulated vehicles	40%	%
Rigid vehicles	60%	%
Infrastructure carbon emissions	4,000	tCO2e

Figure 16 Example 3 I-Scheme Details (diversion)

Diversion

Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Area type	Other Urban	selection
Road type	A roads	selection
Congestion band	Not provided	selection
Route length (with diversion)	9	kms
Journey time (with diversion)	18	mins
Average speed (with diversion)	30	km/h
Average speed check (with diversion)	*Average speed check passed*	check
Diversion route check	*Diversion route check passed*	check

Specify restrictions - Restriction #1 defines the initial diversion requirement. Optional Restrictions #2 and #3 apply only if diversion requirements change in later years and override ea
Where required, further evidence regarding restrictions can be provided in 'I-Supporting Evidence'.

Restriction #1 (Required)

Diversion starts in	2030	yyyy
Days of year diversion in place	365	days
Diversion applies to:		
Cars	☐	0 or 1
LGV	☐	0 or 1
HGV	☑	0 or 1
PSV	☐	0 or 1

Restriction #2 (Optional)

Replaces the previous restriction and starts in	2040	yyyy
Days of year diversion in place	365	days
Diversion applies to:		
Cars	☐	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☑	0 or 1

Restriction #3 (Optional)

Replaces the previous restriction and starts in	2060	yyyy
Days of year diversion in place	365	days
Diversion applies to:		
Cars	☑	0 or 1
LGV	☑	0 or 1
HGV	☑	0 or 1
PSV	☑	0 or 1

6.26 The cost of the bridge replacement would be £50m (nominal values), and the costs would be incurred between 2027/28 and 2029/30. This cost does not include an allowance for risk. Risk is currently estimated to be 55% of the scheme costs, which is at a similar level to the recommended optimism bias at this stage of scheme development.

6.27 Currently, it costs £0.3m per year to maintain the bridge. Once the asset has been replaced, these annual costs are forecast to reduce to £0.2m per year. The optimism bias of 20% has been applied to the OMR costs based on local evidence. The OMR costs have been adjusted for inflation before inputting for the appraisal period.

6.28 Once all inputs have been populated, the Input Checklist sheet can be reviewed to ensure all inputs are as expected/required. Figure 17 shows the populated Input Checklist sheet.

Figure 17 Example 3 Input Checklist

Scheme Information (Inputs)

	Check
Route length and journey time without diversion	☑
Average speed	Average speed check passed
Scheme opening year	☑
Appraisal period	☑
Traffic flow year	☑
Traffic flow	☑
Infrastructure carbon	☑
Diversion route length and journey time	☑
Average speed	Average speed check passed
Diversion route check - distance	☑
Diversion route check - journey time	☑
Restriction #1	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Restriction #2 (Optional)	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Restriction #3 (Optional)	☑
Diversion start date	☑
Diversion in place	☑
Vehicle type selection	☑
Capital costs	☑
OMR costs	☑
OMR costs provided over the whole appraisal period	☑
Optimism bias (Capital costs)	☑
Optimism bias (OMR costs)	☑
Inputs check	☑

6.29 Following completion of the input sheets and ensuring the checks are met, the results can be viewed on O-Results and O-Summary. Figure 18 and Figure 19 show the output sheets for this example scheme.

Figure 18 Example 3 O-Results

Economic Appraisal Results

Benefits		
Journey Times	215,411,778	£, 2023 PV
Vehicle Operating Costs	31,152,453	£, 2023 PV
External Impacts		
Decongestion	88,525,037	£, 2023 PV
Accidents	13,689,765	£, 2023 PV
Local Air Quality	666,398	£, 2023 PV
Noise	2,817,743	£, 2023 PV
Greenhouse Gases	9,906,278	£, 2023 PV
Indirect Taxation	- 1,759,944	£, 2023 PV
Infrastructure Carbon	- 1,229,642	£, 2023 PV
Private sector capital costs	-	£, 2023 PV
Private sector operating, maintenance and renewal (OMR) costs	-	£, 2023 PV
Present Value Benefits	**359,179,866**	**£, 2023 PV**
Costs		
Local Authority capital costs	-	£, 2023 PV
Central Government capital costs	68,757,214	£, 2023 PV
Infrastructure maintenance (external impacts)	- 2,215,762	£, 2023 PV
Public sector operating, maintenance and renewal (OMR) costs	- 2,525,467	£, 2023 PV
Present Value Costs	**64,015,984**	**£, 2023 PV**
Benefit Cost Ratio		
Net Present Value	**295,163,882**	**£, 2023 PV**
Benefit Cost Ratio	**5.6**	

Figure 19 Example 3 O-Summary

Summary

	Constant	Unit
Scheme Details		
Scheme name	Bridge Name	text
Scheme promoter	Local Authority Name	text
Scheme description	Scheme looks at replacement of an existing bridge. The structural damage of the existing structure is expected to lead to the need for introducing gradual usage restrictions.	text
Route length (without diversion)	5	km
Journey time (without diversion)	10	min
Daily number of vehicles on affected section	10,000	Average Annual Daily Traffic (AADT)
Cars	7,500	AADT
LGV	1,800	AADT
HGV	400	AADT
PSV	300	AADT
Diversion description	The diversion will have to use an alternative route via X, increasing distance travelled and journey times, and contributing to increased congestion.	text
Route length (with diversion)	9	km
Journey time (with diversion)	18	min
Capital Cost	50,000,000	£, nominal prices excluding risk
Change in Operating, Maintenance and Renewal Costs	-13,970,891	£, nominal prices excluding risk
Economic Appraisal Results		
Present Value Benefits	359,179,866	£, 2023 PV
Present Value Costs	64,015,984	£, 2023 PV
Net Present Value	295,163,882	£, 2023 PV
Benefit Cost Ratio	5.6	