



Llywodraeth Cymru  
Welsh Government

# **WeITAG 2017**

## **Welsh Transport Appraisal Guidance**



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## INTRODUCTION

### WHAT IS WELTAG?

WelTAG is the name given to the **Welsh Transport Appraisal Guidance** produced by the Welsh Government for use in the development, appraisal and evaluation of any proposed transport intervention. It is a framework for thinking about proposed changes to the transport system and is compatible with the sustainable development principle and guidance on the development of business cases as set out in the Welsh Government's Five Case Model for Public Sector Business Cases.

The WelTAG process is designed to provide a framework for structuring the thinking around the problem being tackled; identifying possible solutions, refining the design of those options so as to maximise their benefits and minimise any adverse impacts and to consider the wide range of possible consequences of implementing proposed solutions. It should be applied to all transport interventions regardless of their cost as it will help in the design of better and more effective interventions. It will also assist in the sharing of understanding as to how a proposed transport intervention is expected to achieve the desired objectives and deliver its anticipated benefits.

### WHAT IS THE WELTAG PROCESS?

WelTAG is based on the ROAMEF (Rationale, Objectives, Appraisal, Monitoring Evaluation, Feedback) cycle shown in Figure 1 overleaf. It covers the whole of a project lifecycle which runs from the initial identification of an issue that needs addressing to the evaluation of the measures implemented to address that issue.

The ROAMEF cycle starts with a statement of the **rationale** for the project. This identifies the need for an intervention in the transport system and the development of a set of clear **objectives**. The **appraisal** stage considers the social and cultural, environmental and economic impacts of the scheme and provides an assessment of how well the project alternatives achieve these objectives. This stage guides the development of those alternatives and the selection of the final scheme chosen for implementation. The **monitoring** phase covers the tracking of the performance of the project during and after implementation and the **evaluation** phase uses this information to consider what is working and why. **Feedback** is vital; it may lead to modifications of the current project and provides lessons for the development of future schemes.

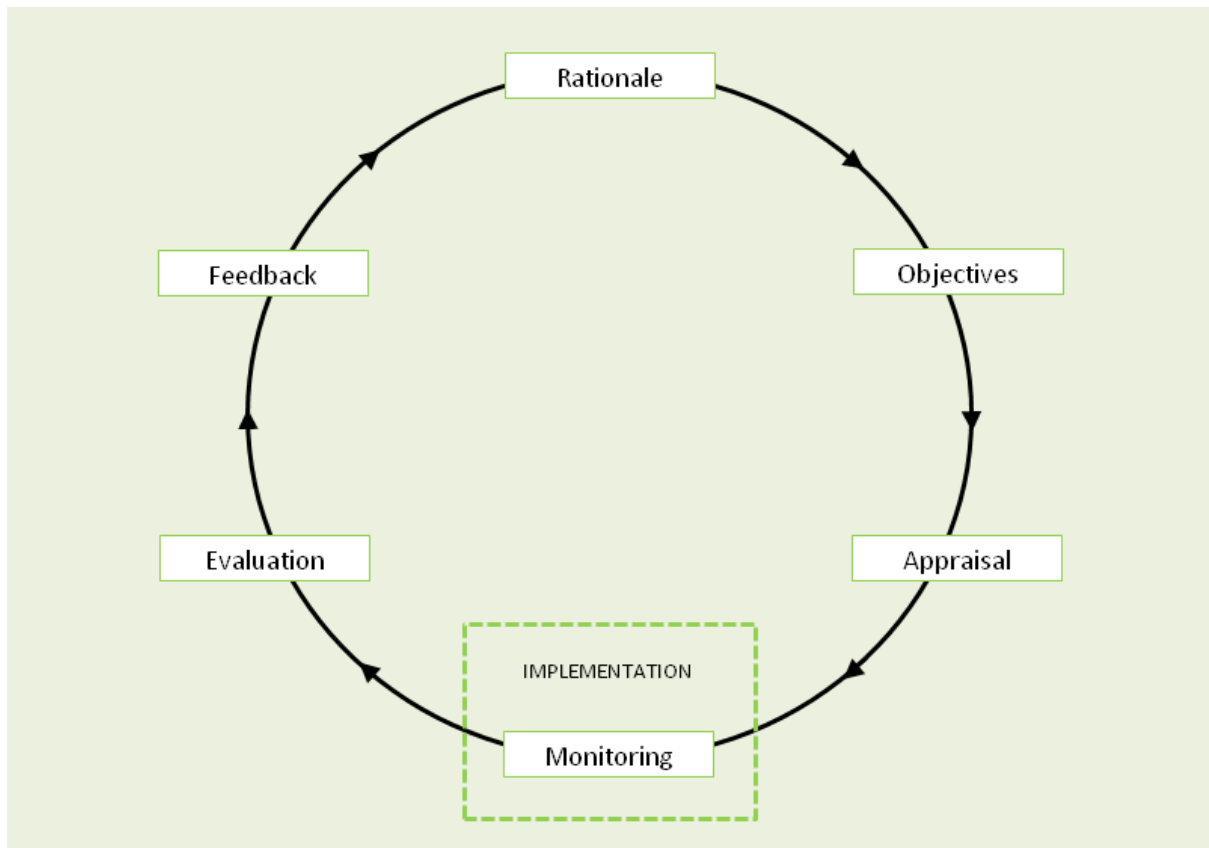


Figure 1: The ROAMEF cycle<sup>1</sup>

## WHO SHOULD USE WELTAG?

WelTAG is designed to be used by the people who have local knowledge of the particular issues that have prompted the desire to consider intervening in the transport system. These may be central or local government officers, politicians, local community groups or members of the general public. As progress is made through the WelTAG process, WelTAG users may find it helpful to engage the services of specialist transport planners and analysts to assist in the identification of possible solutions and their likely impacts, both positive and negative, if adopted.

This guidance is written for anyone interested or involved in the development of any proposed intervention in the transport system. Many of these interventions will be schemes that involve the construction of new infrastructure, such as a railway station, cycle lane or new road. Others may be the provision of a service, such as the provision of travel advice or other interventions that are revenue rather than capital expenditure. WelTAG has been designed for use in the development of transport interventions but could also be usefully applied to the development of policies and plans.

<sup>1</sup> HM Treasury – The Green Book: Appraisal and Evaluation in Central Government

## WHEN SHOULD WELTAG BE USED?

WelTAG is recommended as the starting point whenever a problem is identified with the transport system or within another area but it is affected by, or affects, the transport system. The proposed solutions may lie entirely within the transport sector or may merge with or lie within other delivery areas such as health or education. In either case, the use of WelTAG is recommended as it provides a framework for thinking through the issues relevant to the decisions which are needed. It provides a mechanism for sharing an understanding of the issues surrounding the problem under investigation and possible solutions across various sectors, not just transport.

The WelTAG process must be applied to all transport projects funded in part or in full by the Welsh Government. It is recommended that it is used in the assessment of all interventions that affect the transport system, regardless of the funding source, as the WelTAG framework will assist in the development and design of the proposed scheme.

## HOW DOES IT FIT WITH OTHER TRANSPORT APPRAISAL SYSTEMS?

The generic WelTAG process is applicable to all transport interventions, regardless of the transport modes affected. For some transport proposals which emerge from the WelTAG process, mode-specific transport appraisal guidance, such as the Governance for Railway Investment Projects (GRIP) process used by the rail industry and the Design Manual for Roads and Bridges (DMRB) guidance for highway scheme, will become relevant.

WelTAG should always be used even in these cases. WelTAG has been designed to be complementary to these other appraisal systems and will not involve the duplication of effort. Rather, the information derived during the WelTAG process can be transferred into the appraisals produced for these mode-specific projects. For example, a WelTAG appraisal may identify a rail option as the preferred solution which would then be subject to the rail industry's scheme development process. The evidence behind this decision and the data collected through the WelTAG appraisal will be relevant for the subsequent appraisal undertaken using the rail industry's GRIP guidance.

WelTAG is also complementary to the needs of other funding organisations, as well as the Welsh Government. Following the WelTAG process will provide much, if not all, of the information that is required for funding applications to other funding bodies and financial institutions.

## WELTAG RESOURCES

The WelTAG system consists of this guidance document, which sets out the WelTAG process, and an accompanying WelTAG website which provides additional aids to people undertaking a WelTAG assessment

The website contains

- links to current data sources,
- advisory notes on topics of particular relevance to WeITAG users
- responses to Frequently Asked Questions
- a library of completed WeITAG stage reports which serve as examples to illustrate the application of WeITAG to specific schemes
- contact details for the Welsh Government's WeITAG help desk

## WELTAG PRINCIPLES

### WELTAG IS AN EVIDENCE BASED PROCESS.

Well documented and robust evidence should underlie the whole of the WeITAG process.

The description of each possible solution identified in a WeITAG appraisal for the transport issue under consideration will include the actual outputs delivered; the anticipated impacts on people, the environment and the economy; a narrative as to how the proposed intervention is envisaged to contribute to solving the problem being tackled, and how that conclusion was reached. Both the details of the anticipated impacts and the mechanisms by which the options will address the problem must be based on sound evidence. This will include evidence on the current state of the transport system and its wider context.

The evidence may come from both quantitative and qualitative data sources including case studies of experience elsewhere. The WeITAG website contains information on many freely available data sources, such as census data and other data available from the Welsh Government. These datasets should be investigated before any bespoke surveys are commissioned. Over time, completed WeITAG scheme evaluations will become a valuable resource for use in the design, appraisal, and prioritisation of future schemes.

### WELTAG IS A PROPORTIONATE PROCESS

The level of detail provided in the WeITAG Reports should be proportionate to the impacts under consideration. All major impacts and issues that could have a significant influence on delivery should be presented, but the level of detail in any analytical work should be proportionate to the scale and significance of the impact and sufficiently accurate for the decisions that need to be made.

A WeITAG appraisal should set out the whole range of foreseeable impacts of each of the proposed solutions. **The level of detail required for the assessment of each of these impacts should be proportionate to the likely scale and severity of each impact.**

Wherever there is a legal obligation to consider a particular impact, this must be stated in the appraisal documents. The appropriate level of assessment work must be undertaken before a final decision to implement any particular option is made.

### WELTAG IS A COLLABORATIVE PROCESS

Collaboration and Involvement are important throughout a WeITAG appraisal. At the start of the process it will assist in understanding the current situation, setting



objectives, producing a long list of possible solutions and outlining the range of likely impacts from those different solutions.

During the more detailed design and assessment of shortlisted options, consultation with the public and other stakeholders will assist in gathering evidence on the impacts of each of the proposed options and the consequences of doing nothing.

During the implementation and evaluation WeITAG stages, engagement with affected parties will assist in the gathering of evidence on the actual impacts, intended or otherwise, of the implemented solution.

## WELTAG IS A DECISION MAKING PROCESS

The WeITAG process is designed to share understanding between those involved in making the decisions and those affected by those decisions. This underlies the importance of stakeholder involvement and public consultation in the gathering of evidence of the need for an intervention, the setting of the criteria against which proposed options will be assessed, and the likely impacts of each option. Ultimately though, decisions do need to be made and the WeITAG process is designed to provide the information needed by those making these decisions.

## WELTAG IS A LEARNING PROCESS

WeITAG is not a hurdle that has to be overcome in order to achieve funding but a process that leads to the development of better solutions. Following the WeITAG process will lead to a shared understanding of the problem at hand as well as the constraints that affect the possible solutions and an appreciation of the full range of impacts of the proposed solutions.

Over time, completed WeITAG reports and their supporting data will become an invaluable resource for learning about what does and doesn't work in particular situations.

## WELTAG STAGES

### WELTAG STAGES

The WelTAG process covers the complete lifecycle of a proposed intervention in the transport system from assessment of the problem, consideration of possible solutions and scheme design, through to implementation and project evaluation.

There are five WelTAG stages; the first three stages lead up to the selection of the proposed intervention. The final two stages cover the period during and after implementation, recording what actually happens and is achieved. The five stages of the WelTAG process are:

#### **Stage One: Strategic Outline Case**

Task: Understand the problem and develop a long list of possible solutions

Action: Select short list of options

#### **Stage Two: Outline Business Case**

Task: Further investigation of the shortlisted options

Action: Select preferred option

#### **Stage Three: Full Business Case**

Task: Detailed and thorough appraisal of preferred option

Action: Proceed with preferred option or revisit an alternative

#### **Stage Four: Implementation**

Task: Deliver the preferred option

Action: Monitor impacts and make modifications if necessary

#### **Stage Five: Post implementation**

Task: On-going operation of the preferred option

Action: Evaluate the intervention and record lessons learnt

## REVIEW GROUP

The output produced at the end of each stage is a short document, known as a **WeITAG Stage Report**. The Stage Report is considered by a Review Group who review the contents of the Stage Report and decide on the actions to be taken. The Stage Report should be written in non-technical language. It should clearly present the information needed by the Review Group to assess each of the options presented, make the necessary decisions and take the actions needed at the end of that WeITAG stage.

A Review Group should be appointed for each WeITAG appraisal. The size and composition of the Review Group should be set out in the first Stage Report. In many organisations the same Review Group will consider all the WeITAG appraisals being produced. Over time this Group will learn from the experience of previous appraisals. Even for small schemes a Review Group should be held as this provides an opportunity for peer review of the appraisal.

Depending on the scope of the intervention under consideration, it is recommended to designate an independent reviewer for the project. That role should be fulfilled by someone with experience or knowledge of the issues but who is not part of the programme team. Their role is to provide an impartial and independent review of the evidence and the development of the case.

Running alongside the production of the WeITAG Stage Reports is the WeITAG Impacts Assessment Report. This report contains the more detailed analysis that lies behind the material presented in the Stage Reports.

The purpose and contents of each WeITAG Stage report and the WeITAG Impacts Assessment Report is described in this chapter.

## WELTAG IMPACTS ASSESSMENT REPORT

The detailed evidence, data and analysis underlying the statements made in a WeITAG report are presented in a separate document known as the WeITAG Impacts Assessment Report. This is a live document that builds up during the five WeITAG stages. It contains the analysis underlying each stage and is written for a technical audience. It presents detailed evidence on the anticipated impacts of each option under consideration and underpins the summaries of those impacts presented in the WeITAG stage document.

Where further evidence is required in future WeITAG stages, the WeITAG Impacts Assessment Report sets out the details of the proposed methodology for collecting this evidence and then, when it has been collected, presents the results of that work. The recommendations for future work in the next stage of the appraisal process should be presented in the Stage report.

A data store must be set up to hold a copy of any data and models used in each stage in the appraisal work. This data store should be catalogued at the end of each WeITAG stage. Where Welsh Government funding or approval, is requested, a copy should be provided to the Welsh Government. This data store will allow for any data or models, such as spreadsheets, transport or environment models, which have been used to provide evidence in the problem identification or appraisal of options to be available for the evaluation work carried out in the later WeITAG Stages.

## LINK WITH FIVE CASES

The contents of each Stage Report must be presented using the structure of the Five Cases Model used by the Welsh Government and HM Treasury.

The Five Cases, as applied to transport appraisal, are described in more detail in the next chapter of this guidance. In summary the Five Cases are:

- the **strategic** case: the case for change, fit with other policies and objectives
- the **transport** case: the social and cultural, environment and economic impacts of the change including a value for money assessment
- the **delivery** case: can the scheme be delivered?
- the **financial** case: is the proposed spend affordable?
- the **commercial** case: how can the scheme be procured, is it attractive to the private sector, is it commercially viable?

The amount of detail available for each of the Five Cases will vary between the cases in the early stages of the WeITAG process, but by the end of Stage Three all the Five Cases should be complete.

During Stage One the strategic case will be almost fully developed as this sets out the need for change. The transport case will provide an initial assessment of the expected impacts of each of a long list of options for tackling the issue under consideration. At this Stage the assessment will be based predominately on currently available evidence. The delivery, commercial, and financial cases will be of a preliminary nature but must consider all the key issues which would affect the selection of options taken forward for further investigation.

By the end of Stage Two the strategic and transport cases must be virtually complete and more information provided on the delivery, commercial, and financial cases for the shortlisted options.

By the end of Stage Three, which is the full business case for the preferred option, all of the Five Cases needs to be complete.

For stages Four and Five, the appraisal work should compare actual events against anticipated impacts and report on what has actually happened in the areas covered by each of the Five Cases. The monitoring of outcomes during implementation in Stage Four will allow for adjustments to be made, if required, to realise the benefits of the intervention and mitigate any unforeseen adverse impacts. The longer term evaluation provided in Stage Five covers both the process of delivering the scheme and the outcomes achieved. This makes WelTAG a learning process and future WelTAG appraisals will benefit from the sharing of experience gained elsewhere.

## STAGE ONE: STRATEGIC OUTLINE CASE

### PURPOSE OF THE STRATEGIC OUTLINE CASE STAGE

The purpose of the Strategic Outline Case is to understand the issue of concern, explore its context and to present a wide list of possible solutions, with sufficient clarity and depth for the review group to be able to decide whether there are any possible solutions within the transport sector that are worth pursuing and to select a short list of options for more detailed consideration.

There should always be a Stage One WelTAG report produced as it provides the opportunity to understand the issues of concern, and to investigate a wide range of possible solutions. The Stage One report should follow the principle of proportionate appraisal; it need not be a lengthy exercise but it is vital that the problem at hand is reviewed and the understanding gained is shared amongst stakeholders and decision makers.

It provides the opportunity to review whether there are non-transport solutions or solutions that would operate across sectors. If these are identified then people with skills and experience in these areas should be involved in the WelTAG process.

### CONTENTS OF THE STRATEGIC OUTLINE CASE

A clear evidence based description of the issue that needs addressing and the problems that are manifesting now or will in the future if no action is taken.

An analysis of the factors that are contributing to the problem is required, as this will assist in the development of possible solutions. This analysis should be narrative based, supported by evidence, and present the mechanism by which the factors identified are contributing to the issue under consideration. Links between transport and other sectors should also be explored.

The objectives for any proposed solution should be stated clearly. These are the objectives against which the proposed solutions will be judged. These objectives will come from:

- general national objectives set by the Welsh Government such as those included in the Well-being of Future Generations (Wales) Act 2015
- general objectives for the transport system as set out in the Wales Transport Strategy
- more focussed objectives developed for the particular issue under consideration.

A long list of options that could address the problem identified.

For each option:

- a description of the option
- an explanation of the mechanisms by which the option would address the problem, prevent the problem from getting worse or occurring in the first place
- the likely social and cultural, environmental and economic impacts of each option, with sufficient detail to rule out options and to allow for the selection of a short list of options for further consideration (the transport case).
- Key issues and potential 'deal breakers' under the headings of the delivery, financial and commercial case

Recommendations on the options that should be taken forward to WeITAG Stage Two appraisal based on:

- their ability to solve the problem
- their ability to meet the objectives set
- their short and longer term impacts
- their deliverability
- their robustness to uncertainty

A clear explanation should be provided of the reasons for these recommendations. This will assist the review group in deciding upon the shortlist of options.

Recommendations on the methods to be used to improve the evidence base in the Stage Two work should be presented in the delivery case. This involves identifying areas where more evidence is required and the proposed ways of achieving this evidence. This could include further analysis of existing data, evidence from case studies elsewhere, the collection of primary data and the use of computer models.

Following the principle of proportion appraisal the analysis does not need to be of exhaustive detail at this stage but should identify the key impacts and issues that would affect the selection of options for further consideration in Stage Two.

The full details of the analysis work will be presented in the WeITAG Impacts Assessment Report. Sufficient detail should be provided here for an independent reviewer to confirm the claims made in the Stage Report on the current problem, the contributory factors and the level and scale of the anticipated impacts of each option. The Stage Report should make use of visualisation tools such as graphs and tables to assist the readers of the Stage Report to understand the merits and impacts of each option and the key differences between them.

The significance and scale of the impacts of each option should be presented using a seven-point scale, as follows:

- Large beneficial (+++);
- Moderate beneficial (++);
- Slight beneficial (+);
- Neutral (0);
- Slight adverse (-);
- Moderate adverse (- -);
- Large adverse (- - -).

Where an impact has not been analysed yet, this should be made clear by using NYA (not yet analysed). Care must be taken to present all of the impacts which would affect the decision as to which options are taken forward to the next WeITAG stage.

Colouring the cells in the table, using green for beneficial impacts and red for adverse impacts, and varying the colour from dark to light to indicate the scale of the impact will assist in the visual presentation of this data.

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## ACTIONS AT END OF STRATEGIC OUTLINE CASE STAGE

Decide whether there are any deliverable transport options that can address the identified problem.

Select a short list of options to be taken forward to Stage Two, (the Outline Business Case), based on their ability to solve the problem, their fit with objectives, their impacts, their deliverability and robustness under uncertainty.

Agree the impacts to be considered during Stage Two including the methods to be used to provide additional evidence where required.

Identify any legislative requirements that are relevant to and need to be met during the Outline Business Case stage.

Document the decisions of the Stage One Review Group, and the basis for these decisions.



## STAGE 2: OUTLINE BUSINESS CASE

### PURPOSE OF THE OUTLINE BUSINESS CASE STAGE

The purpose of the outline business case is to examine in greater detail the short list of options for tackling the problem under consideration.

WeITAG Stage Two is the time at which the mechanisms by which the proposed option will lead to the desired outcomes should be explored in more detail and expressed clearly. This enables the appraisal team to consider how the proposed solution will lead to the desired outcome and use this understanding to refine the design of the option and identify any key dependencies and constraints.

The Stage Two report sets out for the Review Group how each of the proposed options will meet the stated objectives, the anticipated impacts of each option and the ways in which the context of the scheme will affect the achievement of those objectives. It should also consider the robustness of the proposed option to meet its objectives using sensitivity testing and scenario analysis. Key risks and dependencies should be presented.

The Outline Business Case stage provides the evidence required for the Review Group to select a preferred option to take forward to WeITAG Stage Three. The Stage Two report therefore needs to state clearly the issues which will be pertinent to the choice of the preferred option. This includes presenting evidence on the significant impacts on particular groups of people or areas, dependencies and key risks which could affect the achievement of the anticipated outcomes.

### CONTENTS OF THE OUTLINE BUSINESS CASE

The strategic case re-states the problem that needs to be addressed. The Outline Business Case reviews any relevant changes that may have occurred in the transport system and its wider context since the completion of Stage One, and it updates the Strategic Case.

It describes each of the short listed options and how each would meet the objectives set out in Stage One. This involves a description of the mechanisms involved in going from the delivery of the option to the experiencing of the anticipated impacts.

A Five Cases assessment is presented for each of the short listed options, with a separate presentation of the transport, delivery, financial and commercial case for each option. The transport case should summarise the key social and cultural, environment and economic impacts of each solution that are relevant to the decisions taken at the end of Stage Two. The supporting evidence and details of the

appraisal methodologies used to examine these impacts must be provided in the WeITAG Impacts Assessment Report.

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#### ACTIONS AT END OF OUTLINE BUSINESS CASE STAGE

Determine whether there are any transport options that can address the identified problem(s) and can be delivered

Select a preferred option to be taken forward to the Full Business Case stage

Agree the methods to be used to provide additional evidence where required for the Stage Three (Full Business Case) assessment.

Identify any legislative requirements that need to be met during the Stage Three (Full Business Case) assessment.

Document the decisions of the Stage Two Review Group, and the basis for these decisions.

## STAGE 3: FULL BUSINESS CASE

### PURPOSE OF THE FULL BUSINESS CASE STAGE

The purpose of the Full Business Case is to make a full and detailed assessment of the preferred option to inform a decision as to whether or not to proceed to implementation.

The detailed design and appraisal work should be used to refine the design and to inform any complementary measures that are needed in order to more fully realise the benefits of the proposal and to help mitigate any adverse impacts.

The completion of a Full Business Case will provide much of the information needed for applications to funding organisations and any mode-specific appraisal procedures.

Knowing the full specification of the scheme, the details of the anticipated impacts and the narrative as to how the proposed intervention will meet the objectives and its likely impacts, will assist in the planning of the monitoring and evaluation which will be carried out in WeITAG Stages Four and Five.

The monitoring and evaluation plan should be written during Stage Three and presented in the delivery case. It should identify the requirement for the collection of any 'before' data which needs to be carried out in advance of the project's implementation. It will also allow for determining the budget required to cover the cost of conducting the monitoring and evaluation work. This should be included in the costs of the intervention and arrangements made to ensure that these funds will be available when required for the short and long term post opening evaluation.

### CONTENTS OF THE FULL BUSINESS CASE

A Full Business Case should be presented for the preferred option. Each dimension of the Five Cases should be completed, with a level of detail proportionate to scale and/or significance of the impacts and the associated risks. Issues affecting the deliverability of options, the realisation of the anticipated benefits and the mitigation of adverse impacts must be covered.

### ACTIONS AT END OF FULL BUSINESS CASE STAGE

Determine whether a transport option exists that can address the identified problem and can be delivered within technical and financial constraints.

Select the preferred option for procurement. Alternatively, decide not to continue with any options or select an alternative option identified at Stage Two to take forward to a Stage Three Assessment.

Agree the monitoring and evaluation plan and describe the methods that will be used to provide the evidence required during and post-implementation. Procure any required 'before' studies. Make arrangements for the future funding of the monitoring and evaluation work.

Document the decisions of the Stage Three Review Group, and the basis for these decisions.

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## FULL AND FINAL BUSINESS CASE

In many cases, the final business case will have been prepared using an estimated cost. After the procurement exercise, a final price and set of defined deliverables will be available. The full business case should be updated to reflect the final agreed project price, scope and deliverables. This document is known as the 'full and final business case' and should be used in the evaluation work carried out in Stages 4 and 5.

## STAGE 4: IMPLEMENTATION

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### PURPOSE

The purpose of the Stage Four work is to record what is actually delivered, the wider content at the time at which the scheme is delivered and to record the impacts that actually occur during implementation.

This allows for an immediate alert if there are any unintended adverse impacts during implementation and can assist in the realisation of any benefits. It also acts as a record of what is actually delivered which is required in the Stage Five evaluation work.

The aim of WeITAG Stages Four and Five is to record what happens so that lessons can be learnt. It may lead to alterations to the current scheme and will form valuable evidence for use in future WeITAG appraisals.

Records should be kept of the impacts during implementation as these will be required to evaluate both the process of implementation and the outcomes. External events which could affect the evaluation should be recorded as they occur, such as adverse weather events, changes in legislation, the outcomes regarding key risks identified in the Full Business Case and any changes made to the scheme during implementation.

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The evaluations in WeITAG Stages Four and Five should consider the areas covered in each of the five cases in the Stage Three Full Business Case. This means that it

will consider both the process of delivering the scheme and the impacts of the scheme itself.

The structure of the Stage Four report should follow the Five Cases. There should be a summary chapter at the beginning of the report that displays the evaluation using a logic map. A logic map should have at least four elements as illustrated in this example for a new bus lane:

Context: number of bus passengers, cyclists and car trips along the corridor before implementation; changes in bus/rail fares, fuel prices and (town centre) car park charges.

Inputs: cost of delivering the bus lanes e.g. labour and equipment.

Outputs: location of bus lane, length of bus lane.

Outcomes: actual change in bus journey times, any change in car journey times, change in number and percentage of trips made by bus, cycle and car along the corridor.

A summary of any relevant events that occurred during implementation and any changes in the context, such as changes in fuel prices, adverse weather events which will assist in the evaluation of the process of implementation and the scheme itself in the Stage Five report

The report then follows each of the five cases and presents a comparison of the outturn events with those anticipated in the Stage Three report. The report should also consider the impact of any changes between the predicted context and impacts of the scheme and the actual context and impacts when the scheme was implemented.

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## ACTIONS AT END OF STAGE

The 'before' studies should be completed in good time so as to record the situation as it was before implementation. Unless a significant time has elapsed since the writing of the Full Business Case this information should already have been collected for use in the Stage 3 Full Business Case and will be available in the WelTAG Impacts Assessment Report and the accompanying data bureau.

If the observed impacts differ from the anticipated impacts then an interim Stage Four report should be produced to record this, and to offer ways of maximising any unintended benefits or to mitigate any unintended adverse impacts. The final Stage Four report will record an immediate post opening evaluation recording the actual outputs delivered and the initial impacts. This should cover the first six months of operation and be completed within 12 months post opening or completing of the intervention.

## STAGE 5: POST IMPLEMENTATION

### PURPOSE

Monitoring and evaluation of the intervention is invaluable for:

- accountability in the use of public funds
- learning what works and what hasn't work

The main purpose of Stage Five is to record what actually happened, to compare this against the anticipated impacts, to learn lessons and to share this learning with those involved in the development of future interventions in the transport system.

If unanticipated issues arise, the Stage Five work can be used to inform measures to mitigate unforeseen adverse impacts or to build upon unforeseen benefits.

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The WelTAG Stage Five report will be the permanent record of what was achieved and the report on the lessons learnt. It covers both the process of delivering the scheme and the impacts of the scheme itself.

There should be a summary chapter at the beginning of the report that sets out the key findings of the evaluation work and the lessons learnt. The longer term evaluation of the project should be summarised using a logic map.

A summary of any relevant events that occurred during and after implementation and any changes in the context, such as changes in fuel prices, adverse weather events, which will assist in the evaluation of the process of implementation and the scheme should be presented clearly. An explanation of how these affected the scheme, the realisation of the anticipated benefits, and any adverse impacts should be provided.

The report then follows each of the five cases and presents a more detailed comparison of the outturn events with those anticipated in the Stage Three, Full Business Case, report for each of the five cases.

### ACTIONS

Produce a record of what was delivered, an evaluation of the process of delivering the option, a record of the actual impacts compared to the anticipated impacts and an assessment into the extent to which it met the original objectives.

A summary of the lessons learnt for use by others in future WelTAG appraisals, thereby completing the ROAMEF cycle presented in the introduction to WelTAG.

## **Summary of the WelTAG process**

### **STAGE 1: STRATEGIC OUTLINE CASE**

Identify issue that needs addressing

Establish objectives

Develop long list of possible solutions, including non-transport interventions

Assess long list options against objectives

#### **ACTION:**

Select short list of options to take forward to next Stage

Agree methodology for impacts assessment work in next Stage

### **STAGE 2: OUTLINE BUSINESS CASE**

Identify effectiveness of each short listed option in meeting the scheme objectives

Identify likely impacts of each option

#### **ACTION:**

Selection of preferred option to take forward to next Stage

Agree methodology for any additional impacts assessment work required in next Stage

### **STAGE 3: FULL BUSINESS CASE**

Complete all five cases for preferred option

#### **ACTION:**

Go / no-go decision for preferred option / take another option to full business case

### **STAGE 4: IMPLEMENTATION**

Deliver preferred option

Record details of context of delivery

Monitor process of delivery

Monitor impacts during delivery

#### **ACTION:**

Short term monitoring and evaluation report

### **STAGE 5: POST-IMPLEMENTATION**

Record details of the context surrounding the project and its delivery

Monitor impacts of adopted solution

Evaluation of process of delivery of the adopted solution

Evaluation of actual outcomes

#### **ACTION:**

Apply lessons learnt to future scheme development and appraisals

## WELTAG FIVE CASES

### INTRODUCTION

The Five Cases is used by the Welsh Government and HM Treasury in business cases for projects requiring public sector funding. WeITAG applies the Five Cases model to the appraisal of interventions that affect the transport system. It is designed for the appraisal of transport schemes that require Welsh Government funding but the framework for thinking that it provides is of value in the appraisal of other schemes and transport policies.

### THE STRATEGIC CASE

The strategic case addresses **the need for change**. It presents an evidence based description of the current situation, describes the likely future situation if no action is taken and presents the reasons why an intervention is required. It includes details of the wider context for the proposed intervention, including key trends in non-transport areas such as job availability and the environment.

The strategic case sets out the Welsh Government's over-arching **objectives** and its specific objectives for the transport system. It establishes specific transport planning objectives that have been established for the particular issue under consideration in the WeITAG appraisal.

The criteria for selecting options for further consideration during the WeITAG process are:

- how well an option fulfils the objectives
- the likely social and cultural, environment and economic impacts of each option compared to the financial cost of delivering that option

The strategic case needs to set out, in summary form, the narrative as to how each of the proposed solutions is intended to change the situation. This includes a description of the mechanisms by which the solution will lead to the desired change.

The strategic case describes the key constraints which will affect the design and implementation of solutions to the challenge identified. It is also necessary to explain any key dependencies, with other transport measures or changes in other sectors and areas, which could affect the success of otherwise of the solution achieving the anticipated outcome. Any significant adverse impacts on particular groups of people or locations should be identified, as well as any major risks which could affect the delivery of the scheme, the realisation of the anticipated benefits or the mitigation of adverse impacts.



## **Strategic case checklist**

### **The case for change:**

Current situation including the wider context

Likely situation if no action is taken

The key factors behind the current situation

### **Objectives for the intervention:**

National general objectives including the well-being goals and objectives

National transport objectives based on the Welsh Transport Strategy

Local objectives where appropriate

Specific objectives for this problem

### **Long list of options: (at Stage 1)**

How the long list was derived

List of options, showing evidence of consideration across modes and non-transport sector solutions

For each option:

Description

How it tackles the problem

To what extent it meets the objectives

Other relevant issues (key risks, adverse impacts, constraints and dependencies)

### **Short list of options: (from Stage 2 onwards)**

How the short list was derived

For each option:

Description

How it tackles the problem

To what extent it meets the objectives

Other relevant issues (key risks, adverse impacts, constraints, and dependencies)

## THE TRANSPORT CASE

The aim of the transport case is to present the narrative for each option in more details as to how each proposed solution will meet the need identified in the strategic case and the objectives set. It also identifies any assumed elements of the wider context surrounding the scheme which are necessary for the achievement of those outcomes.

The strategic case has set out the overall context of the transport system and the issue under consideration. The transport case presents the impacts of each option under the headings of social and cultural, environmental and economic impacts.

The transport case is an evidence based assessment of

- what the impacts will be,
- the scale of those impacts,
- where they will occur; and
- who / what will experience them.

At WeITAG Stage One much of the evidence used will come from existing data sources and evaluations of relevant previous projects elsewhere. A small amount of primary data collection may be required such as passenger, pedestrian, cyclist or traffic counts and surveys of conditions on the transport network such as queue lengths and overcrowding levels. Where the project is designed to deal with a less tangible problem, exploratory qualitative surveys may be required to uncover the extent of the problem and suggest possible solutions. The WeITAG website provides links to many data sources which may be of use in a WeITAG appraisal.

At WeITAG Stages Two and Three the more detailed assessment of impacts may require the collection of more evidence. This may come from additional quantitative or qualitative surveys or from the output of a model of the transport system. In each case, the proposed means of providing this additional evidence should be set out in the Delivery Case of the previous Stage Report.

The choice of model structure and the methods and data used to build that model depends upon the nature of the problem under consideration, the scale of investment and the type of anticipated impacts. The DfT publishes detailed technical advice on transport modelling in their WebTAG documents which may be of assistance.

The economic impacts of an option include an assessment of the value for money offered by the option. This is based on a comparison of the value of the beneficial impacts which can be quantified and given a monetary value, minus the value of any adverse impacts which can be quantified and given a monetary value, compared to the cost of delivering, maintaining and operating the option.

## **Transport case checklist**

### Social and cultural impacts:

List of impacts considered

Summary of methods used to assess impacts

Who is affected and how?

Summary of the key qualitative / quantitative supporting evidence

### Environmental impacts:

List of impacts considered

Summary of methods used to assess impacts

Who/what is affected and how?

Summary of the key qualitative / quantitative supporting evidence

### Economic impacts:

List of impacts considered including wider economic impacts

Summary of methods used to assess impacts

Who/what is affected and how?

Costs: likely range of values of total lifetime costs and a central estimate. Identify costs to public sector. Specify risk allowance and optimism bias.

Benefits: likely range in value of total lifetime benefits and central estimate; providing qualitative / quantitative supporting evidence. Identify key risks leading to changes in realisation of benefits and appearance of adverse impacts.

Value for money assessment

## THE DELIVERY CASE

This case covers the **delivery arrangements** for the project and then its management during its life time. It covers the arrangements for the procurement, construction and on-going operation of the intervention, details of the monitoring arrangements and the undertaking of the evaluation plan. The costs of the monitoring and evaluation work should be included in the economic and financial case. However the arrangements for providing the funding for these tasks when required, and details of how these services will be delivered, should be described in the management case.

The delivery case in the Stage One Report sets out which organisation and groups within that organisation will sit on the Review Group that meets at the end of each WeITAG Stage. This group will consider the contents of the Stage Report and decides on the actions to be taken at the end of each Stage.

The Review Group also considers the methods to be used in assessing the impacts of the option(s) to be taken forward to the next stage. The recommendations on additional evidence and modelling requirements are made in the Delivery Case. The Review Group may wish to make use of specialist technical assistance on the choice of assessment methods, particularly for major schemes or schemes with major impacts on particular groups of people or locations. Technical advice can be obtained in the first instance by emailing the WeITAG help desk.

[WeITAG@wales.gsi.gov.uk](mailto:WeITAG@wales.gsi.gov.uk).

### **Delivery case checklist**

Project plan with milestones, including key assurance and approval checks

Is delivery based on tried and tested methods, what is innovative?

Are there any legal requirements e.g. environmental assessments, health impact assessments, planning consents, legal powers?

Governance, organisational structure and roles during subsequent stages

Project reporting arrangements

Communications and stakeholder management plan

Benefits realisation plan

Monitoring and evaluation plan, including the need for any before studies

## THE FINANCIAL CASE

This section of the business case presents information on whether an option is **affordable** in the first place and **the long term financial viability** of the scheme. It covers both capital and annual revenue requirements over the life cycle of the project and the implications of these for the balance sheet, income and expenditure accounts of public sector organisations.

Any funding gap must be made clear. Potential sources of external funding to meet capital and revenue shortfalls should be identified and the key requirements and criteria of those funding bodies stated.

Risks affecting the level and timing of income from third parties such as fares income from users should be identified and where these revenue streams come from the private sector, links should be made with the details provided in the commercial case.

### **Financial case checklist**

#### Lifetime costs of the project

When will they occur?

Price at time when they will occur, including appropriate allowance for inflation

Who will pay what costs and when, including maintenance liabilities?

Details of risk allowances and contingencies

#### Source of funding

Where will the money come from when it is needed over the lifetime of the project?

Who is liable for any repayments for borrowed funds?

#### Accounting implications

On whose balance sheet will the costs and revenues appear?

## THE COMMERCIAL CASE

The commercial case covers those aspects of a scheme which are relevant to the consideration as to whether it is going to prove possible to procure the scheme and then to continue with it in the future. It focuses in particular on the level and type of involvement of the **private sector** in each option. This includes items that affect the delivery of the option and its on-going viability, for example, will there be an on-going need for revenue support, will there be any charges levied on users or non-users and the allocation of risk for the provision of the project and during its on-going operation.

The commercial case details how, and to what extent, the private sector can be involved in the procurement and on-going delivery of each option. The commercial case also covers any issues relating to key contractual arrangements and the possible transfer of staff under TUPE agreements.

If third party finance and contributions are needed to raise the funds for the scheme or to allow for its on-going operation, then the commercial case must set out the commercial arrangements for providing this finance, its likely cost and any issues affecting the likelihood of obtaining this finance.

### **Commercial case checklist**

Specification of required outputs

Procurement options

Suppliers: private and / or public sector; number and experience of likely suppliers

Payment mechanism e.g. linked to performance and availability

Details of any income produced and charging levels

Risk allocation and transfer

Contract length

Human resource issues such as impact on existing staff, TUPE regulations

## WELTAG IMPACTS ASSESSMENT REPORT

### INTRODUCTION

The WeITAG Impacts Assessment Report is a live document which is maintained and grows throughout the five WeITAG stages. It becomes a permanent record of the appraisal work on the proposed transport intervention. It contains the detailed evidence behind the summary information provided to decision makers in the Stage reports.

The WeITAG Impacts Assessment Report contains a catalogue of the items deposited in the accompanying data store. This data store contains a copy of all the data and other evidence used in the appraisal work such as census data, surveys and analytical models. Transport and other models often develop in detail over time so a copy of any models should be placed in the project's data store, as they were at the end of each stage i.e. when the relevant Stage Report was written. In this way they become a record of the supporting evidence available at the time decisions were taken at the end of each Stage.

### EVIDENCE BASED PROCESS

WeITAG is an evidence based process and the WeITAG Impacts Assessment Report records the evidence behind the appraisal contained in the Stage Reports. The WeITAG Impacts Assessment Report can be written for a more technical audience and must contain sufficient detail on the sources of data used and the methods employed that others can reproduce the results at a later date.

Wherever possible, digital data should be stored in common file formats such as csv or shapefiles that can be opened using open source software, such as QGIS. This will enable those carrying out work at later WeITAG stages, such as the Stage 5 evaluation work, to be able to re-create the original work and carry out the evaluation work using the same, current, version of any software being used. This will assist in the production of comparable outputs, even if there have been software changes since the initial work was undertaken.

A copy of all evidence used by those writing any WeITAG Stage Reports must be kept by the authors of those reports and a duplicate copy deposited with the Welsh Government at appropriate intervals during the appraisal process. It is acceptable to use secondary data and analysis produced by others but a full reference to the original source of this evidence must also be provided in the WeITAG Impacts Assessment Report and, wherever possible, a copy of the material provided in the data store.

Details of the quality assurance, verification and validation checks of any models used to provide evidence for a WeITAG appraisal should be provided. This includes models constructed using spreadsheets as well as those built with specialist software. The checks should ensure not only that the model is implemented without errors but that the correct form of analysis has been carried out.

There will always be uncertainty over analysis work. The key sources of uncertainty and how these could affect the analysis and any recommendations should be set out in the Stage Reports. The WeITAG Impacts Assessment Report will contain further details over these uncertainties and the work carried out to understand how these would affect any recommendations, such as the results of sensitivity tests on key inputs and model parameters.

Scenario analysis may be useful for considering how robust the analysis is to changes in the context of the problem under consideration, current trends in travel behaviour and the key inputs into any transport modelling work undertaken such as fuel prices, income levels and population projections.

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## CONTEXT

It is crucial that decision makers, stakeholders and the general public are aware of the wider circumstances and context of the issue which is the subject of a WeITAG appraisal. This information will cover a wide range of subject areas, not just transport, and should highlight key dependencies with other factors.

Links to data sources that may be useful in setting the context are provided on the WeITAG website. Information on the local population can be obtained from the census and employment data from the Business Register and Employment Survey (BRES) conducted by the Office for National Statistics.

The WeITAG website also contains details about how to access some datasets which have to be restricted for data protection reasons or are not freely available for commercial reasons. The website catalogues such data sets and sets out the process to be followed for seeking authorisation to access this data.

There is a growing amount of relevant data becoming available on the internet, such as actual train and bus times. The WeITAG website contains links to many of these but it is possible that the location of external websites may change and other datasets become available which are not referenced on the WeITAG website.

It is the responsibility of those using any non-Welsh Government websites to check the source of the data provided on these sites and to keep fully referenced copies of the data downloaded from them for future use.



The Welsh Government website also provides access to forecasts such as future population levels. Local authority plans provide details of where changes in land use are planned.

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## EXPECTED IMPACTS

The WelTAG reports at Stages One, Two, and Three present a summary of the expected impacts of the proposed interventions, who or what will experience these impacts and the potential to realise the positive benefits and mitigate any adverse effects.

The WelTAG Impacts Assessment Report should contain full detail of the evidence, data and methods used to support the statements made in the Stage reports. The level of detail in the assessment will increase through the WelTAG stages and the WelTAG Impacts Assessment Report should state clearly any gaps in the evidence and set out the plans for filling these gaps.

By the end of Stage Three, the Full Business Case should have complete information on all the anticipated impacts at the level of detail appropriate for the scale of the impact under consideration. In Stages One and Two, areas of incomplete knowledge should be made clear in the Stage Report. The WelTAG Impacts Assessment Report should contain details of the judgements made and assumptions behind the assessments provided in the Stage Report. It should also provide a clear statement of the assumptions made and an analysis of the uncertainty surrounding the assessments.

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## REALISED IMPACTS

The reports at the end of WelTAG Stages Four and Five should contain evidence on the impacts that actually occurred. This should contain details of the wider context surrounding the implementation that affected the scheme such as weather conditions during construction, conditions on other travel models, fare and fuel prices.

The reason for recording the actual impacts that occurred is to evaluate the scheme implemented and to provide the data needed to compare the expected impacts and outcomes with what actually happened. The purpose of this exercise may lead to modifications of the scheme but also will provide feedback to people planning future interventions. It is this feedback which makes WelTAG a learning process.

The feedback may lead to modifications in the design of future interventions and / or changes in the methods used to understand what the likely impacts of an intervention will be.

## TYPES OF IMPACTS

A WelTAG appraisal should consider the wide range of current impacts caused by the problem under examination, the likely impacts into the future if no action is taken, the difference that the proposed intervention would make, and any other impacts that would result from implementation of the proposed solution.

An examination of possible impacts should range widely so as to capture as many impacts as possible. The impacts should be presented under three headings; social and cultural, environmental and economic. The following three sections present the potential impacts that should always be considered, but the list is not exhaustive and other impacts may be relevant.

The aim of the WelTAG appraisal at each stage is to present decision makers with a summary of each potential impact, indicating the nature of the impact, its severity and which groups of people or locations will be affected. The impacts may well be beneficial for some groups but adverse for others and the WelTAG Stage Reports should set this out clearly. The level of analysis needs to be sufficient to provide the relevant information for the decisions that need to be taken at the end of each Stage.

At Stage One: Strategic Outline Case, the assessments of the impacts are likely to be mainly qualitative with indications provided of the numbers of people affected. During Stage Two: the Outline Business Case Stage, the level of quantification of the impacts should increase for those impacts which are relevant to the decisions that need to be made. By the Full Business Case all relevant impacts should be quantified, alongside qualitative assessments, if appropriate methods for doing so are available.

The appraisal work should not assign weightings to the impacts. It is for the decision makers at the end of each Stage and ultimately the elected representatives to decide on the merits of changes to the transport system and the inevitable trade-off between the social and cultural, environmental and economic costs and the benefits of the proposed schemes, compared to the alternative of not intervening in the transport system.

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## SOCIAL AND CULTURAL IMPACTS

**Physical activity:** the amount of walking, cycling and other physical exercise undertaken by people

**Journey quality:** for example, the comfort of the vehicle and access to information

**Accidents:** the number and severity of injuries

**Security:** how safe do people feel

**Access to employment:** how many jobs can people reach and what is the journey time

**Access to services:** impact on journeys to key services such as health facilities, schools

**Affordability:** is there any change to the cost of travel paid by users

**Severance:** do any groups of people become separated from others or facilities they regularly use

**Option and non-use values:** does the scheme provide alternatives for current journeys and does it change the resilience of the transport system

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## ENVIRONMENTAL IMPACTS

**Noise:** does anyone experience a change in noise levels

**Air quality:** are there changes in air quality

**Greenhouse gases:** is there a change in the amount of greenhouse gases emitted

**Landscape:** is there a visual or other impact on the landscape

**Townscape:** is there a visual or other impact on the townscape

**Historic Environment:** are there any changes in areas of historical interest

**Biodiversity:** is there an impact on wildlife and the number of species

**Water Environment:** is there an impact on water courses

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## ECONOMIC IMPACTS

**Journey time changes:** across all affected modes for users and non-users of the scheme.

**Journey time reliability changes:** changes in the variation in journey times between times of days and between journeys made at the same time each day.

**Transport costs:** monetary costs paid by those travelling e.g. vehicle operating costs, tolls, and public transport fares.

**Accidents:** the cost of accidents.

**Changes in productivity:** availability of suitable labour for employers, and changes in agglomeration effects.

**Local economy:** how does the scheme affect the sectors in the local economy?

**Land:** does the scheme reduce the amount of agricultural land? Does it open up development sites?

**Capital costs:** to the public sector, to the private sector from the scheme itself and from the impacts

**Revenue costs:** to the public sector, to the private sector, and to end users from the scheme itself and from the impacts

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## VALUE FOR MONEY

The benefit cost ratio informs the value for money assessment which is one of many criteria used to inform the decision whether to proceed with the proposed intervention. The core benefit cost ratio should include the same monetised benefits as included in the DfT's TUBA software. Additional items, such as wider economic impacts, can be included in a second figure known as the wider benefit cost ratio. The WeITAG website should be consulted for details regarding areas where recommended appraisal methods and techniques for use in Wales differ from those set out in the DfT WebTAG guidance.

Full details of the methods used to assemble the evidence used in the strategic and transport case should be provided in the WeITAG Impacts Assessment Report.

## METHODS FOR ASSESSING IMPACTS

WelTAG is not prescriptive about the methods that should be used to assess impacts as this is a continually developing field, but the methods used should be appropriate for understanding the extent and severity of each impact. The proposed methods to be used for assessing impacts during the next Stage should be set out in the Stage Report for the previous stage and agreed by the Review Group.

As a general rule, the methods used to assess impacts should follow the advice set out by the Department of Transport in their Transport Appraisal Guidance (WebTAG). This does not preclude the additional use of innovative appraisal techniques where these can provide further insights into the likely impacts of a scheme or support the narrative as to how the proposed intervention will lead to the anticipated outcomes.

The sources of evidence provided to predict future impacts should make use of both quantitative and qualitative research methods. During Stage One much of the appraisal work will be based on secondary data (data sources already available) but as the appraisal continues fresh, primary data will be needed. The WelTAG website contains links to useful sources of secondary data and advice on the collection of primary data.

For many schemes transport, environmental and financial models will be used to provide evidence on impacts in the future both of not intervening in the transport system and the outcomes of the alternative interventions under consideration. All such models should be fully documented in the WelTAG Impacts Assessment Report and copies placed in the data store.

Evidence from case studies elsewhere in the UK and further afield may be useful in the appraisal work, although relevant differences in the context of the case study and the proposed application in Wales should be explained.

## MONITORING AND EVALUATION PLAN

A detailed monitoring and evaluation plan should be drawn up in Stage Three. This plan should describe what evidence will be used in the project's evaluation report and how it will be collected. Evidence is required on the actual inputs used when implementing the scheme and during its on-going operation, what was actually delivered, the impacts experienced, to what extent the intervention met its objectives and how they were achieved.

The monitoring and evaluation plan should also set out the timetable and resources required for producing the evaluation reports produced during Stages Four and Five.

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## CONTEXT INFORMATION

Information of the context surrounding the intervention should be prepared using available evidence, such as changes in fuel prices, general growth in traffic levels and public transport usage in the wider area. It is recommended that a project diary or log is maintained during the implementation and operation of the intervention. This can be used to record events such as the weather, when there are changes in fuel prices, public transport fares and/or car park prices, and when new developments opened, which could be expected to affect the realisation of and level of impacts caused by the intervention.

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## AVAILABLE EVIDENCE

The evidence used to present the context, inputs, outputs, intended outcomes and actual impacts should be based as far as possible on currently available data. The monitoring and evaluation plan should describe how use will be made of relevant data that is already collected and will be available when the evaluation report is written.

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## BESPOKE EVIDENCE

The monitoring plan will detail where data will be collected specifically in order to evaluate the proposed intervention. This may include surveys such as focus groups with users and non-users of the intervention and qualitative surveys. Where a significant sum of money is proposed for surveys, either in absolute terms or as a proportion of the total cost of the intervention, then a detailed description of the proposed survey and a justification of the need for the surveys should be presented in the monitoring plan.

The level of use of any part of the transport system is subject to daily variation and evidence should be provided on the degree of daily variation generally found in the area. This information can be obtained from automatic traffic counters, public transport operator data and automatic cycle counters.

The WeITAG reports produced at Stages Four and Five should present the evidence on the impacts of the scheme. Both beneficial and adverse impacts should be recorded. The report should also include any impacts which occurred but were not anticipated during the early stages of the appraisal but were observed during and after implementation.

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## DATA STORE

The data store forms a record of the appraisal work undertaken. It should contain a review of the evidence taken from other sources used in the appraisal process and

copies of any new evidence produced. This new evidence may be qualitative, such as the results from surveys and focus groups or quantitative, such as the analysis of patronage and fares data and the outputs of transport, financial, environmental or other models.

The WeITAG website contains advice on the storage of digital datasets. The data should be clearly catalogued and documented. Wherever possible, data should be stored in standard file formats such as text or csv files rather than file formats used by commercial software. Full notes should be provided on the software used to produce any models and sufficient information and data presented so that the models and their outputs can be reproduced by others in the future.

The WeITAG Impacts Assessment Report should contain a catalogue of the data, models and other evidence sources used in the appraisal and held in the data store. It should record which items are publicly available and those which have restricted access due to issues such as personal or commercial confidentiality.

## REFERENCES

Public Sector Business Cases, Using the Five Case Model. Green Book Supplementary Guidance on Delivering Public Value from Spending Proposals. HM Treasury July 2013

The Green Book. HM Treasury 2003

Logic Mapping: Hint and Tips for Better Transport Evaluations. Tavistock Institute. 2010