

Worcestershire Local Transport Board

Major Scheme Business Case Summary Report for Conditional Approval

Pershore Infrastructure Improvements

July 2017



STRATEGIC CASE

Scheme Name Pershore Infrastructure Improvements Date July 2017

Scheme

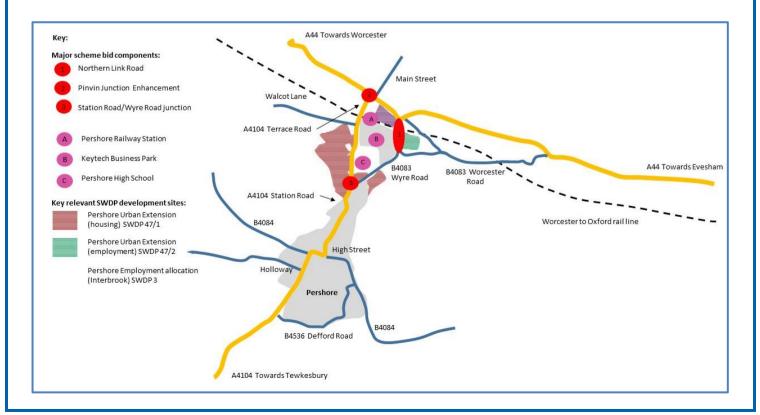
Scheme Description

The Pershore Infrastructure Improvements Package will upgrade the links between Pershore town centre and the A44, address issues of congestion on the A44 and improve access to employment and new housing areas. The package comprises three key scheme elements.

- 1. **Northern Link Road.** This will provide a direct link between the existing A44/B4083 roundabout (north of the Worcester to Oxford railway line) and the B4083 roundabout (south of the railway line). The Link Road will provide a direct connection between the Keytec Business Park and the A44.
- 2. **Modifications to the A44 Pinvin Crossroads.** The scheme design will provide capacity improvements and complement the delivery of the Northern Link Road by prioritising the A44 link and thus reducing the green signal time on Terrace Road. This will reinforce the Northern Link Road as the main north south route between Pershore and the A44.
- 3. **Modifications to the A4104 Station Road / B4083 Wyre Road junction.** The scheme will provide additional capacity and complement the delivery of the Northern Link Road by prioritising the Station Road (south) to Wyre Road movement. This will reinforce the Northern Link Road as the main north south route between Pershore and the A44.

The plan below shows the location of the proposed Northern Link Road, Pinvin Crossroads junction and Wyre Road/Station road junction in relation to the Pershore urban area and the strategic and local road network. It also shows the location of the proposed improvements within the context of the development sites allocated in the South Worcestershire Development Plan (SWDP), most notably:

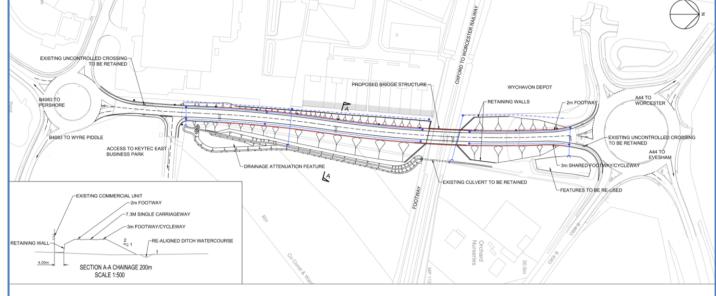
- Site SWDP 47/1, allocated for 695 homes; and
- Site SWDP 47/2, allocated for 5ha of employment uses.



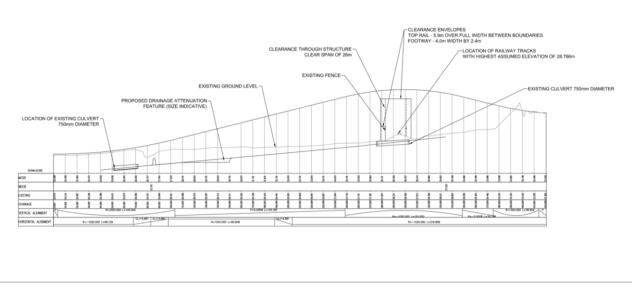


The scheme plans for the three elements of the scheme are shown below:

Northern Link Road



PLAN VIEW

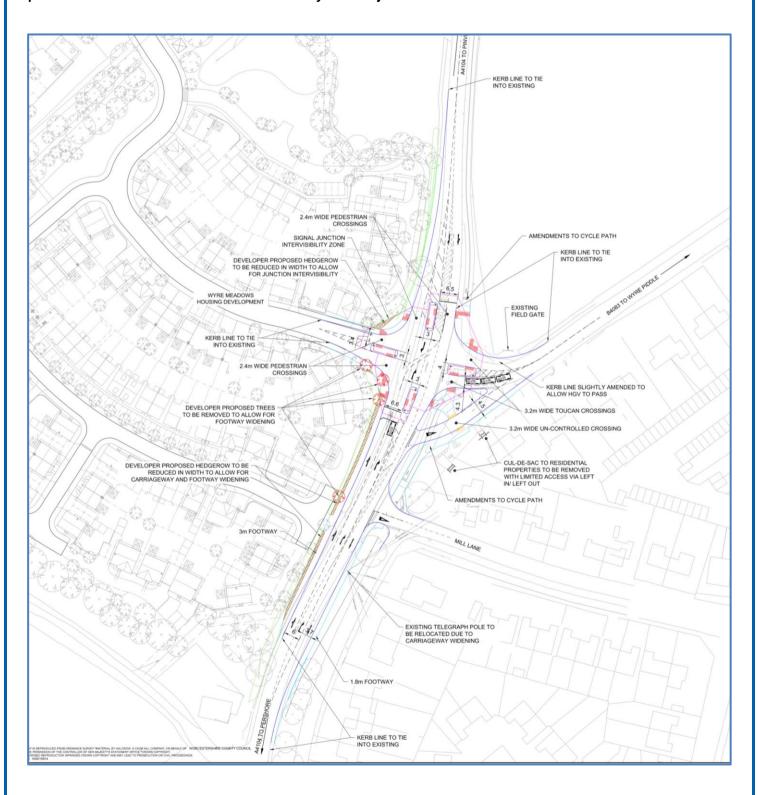


LONGITUDINAL SECTION

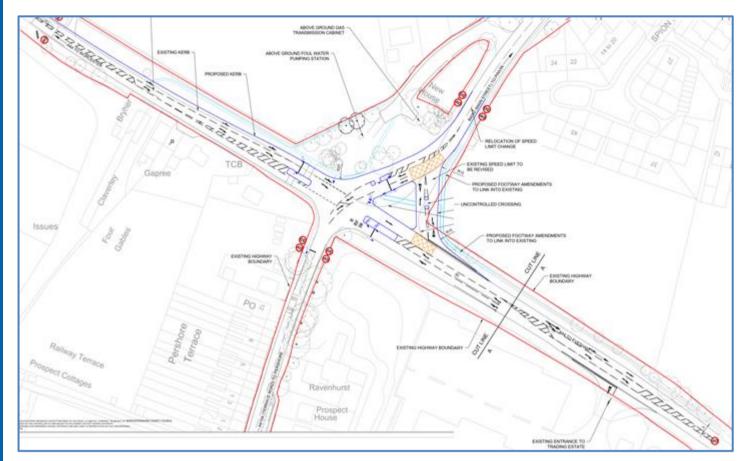
DISTORTED SCALE - HORIZONTAL 1:1000 VERTICAL 1:200



Improvements to A4104 Station Road / B4083 Wyre Road junction:



Improvements to A44 Pinvin Crossroads:



The Business Case provides evidence that the preferred improvement package has a strong strategic fit with wider policies and objectives and is closely aligned with the objectives of the LEP, Worcestershire Council, the South Worcestershire Councils and Wychavon District Council.

Scheme Objectives

The scheme objectives are to:

- Improve the performance and attractiveness of the A44 as a viable alternative to B4084 for traffic movements between Evesham and Worcester, by tackling existing (and predicted future) congestion and journey time reliability, thereby helping to better manage traffic conditions on Worcestershire's constrained network and supporting the growth of Worcestershire's economy. Improve access from Keytec Business park to the A44
- Improve access to/from Keytec Business Park to the A44
- Support the delivery of housing and employment growth as outlined in the SWDP, in particular the Pershore Urban Extension
- Improve the environment for pedestrians and cyclists of the A4104 Station Road (north of Wyre Road junction)/Terrace Road through reduction in traffic and HGV traffic in particular.

The Business Case provides clear evidence that the preferred scheme will meet these objectives, and sets out how success against the objectives will be measured.



Summary of Options Assessment

An extensive assessment has been carried out to identify and assess a range of options at each location, as summarised below:

Northern Link Road:

- Option 1 alignment following western boundary of land set aside under S106 agreement. Uses 1020m radius curves. Allows culvert to be retained in its existing location.
- Option 2 alignment displaced from western boundary of land set aside under S106 agreement to facilitate 1 in 2 earthworks solution. Used 510m radius curves. Requires replacement of the existing culvert.
- Option 2B alignment displaced from western boundary of land set aside under S106 agreement to facilitate 1 in 3 earthworks solution.

A44 Pinvin Crossroads:

- Option 1 Traffic Signals: Staggered arrangement with A44 running together
- Option 2 Traffic Signals: Staggered arrangement, introducing additional through lanes, A44 running together
- Option 3 Traffic Signals: Re-alignment of side road to allow concurrent running of side road phase
- Option 4 Traffic Signals: Introduce a crossroads to allow concurrent running of side road phase)
- Option 5 Traffic Signals: Implement a one-way restriction on Terrace Road
- Option 6 Roundabout: Normal roundabout, re-using the former B4082 alignment
- Option 7 Pinvin Junction: Elliptical roundabout

Station Road / Wyre Road Junction:

- Option 1 As per currently proposed layout, with no physical changes. Alter signal timings to accommodate changed pattern of movement (Note that is the layout proposed by the housing developer and does not take into account proposals for a Northern Link Road)
- Option 2 Introduce a left filter lane for the Wyre Road approach.
- Option 3 Remove proposed traffic signal control and introduce a normal roundabout

An **Options Assessment Report (OAR)** was produced which assesses the individual options and also considers the three scheme elements in combination. This report considered the performance of the option packages in terms of traffic impact, achievement of scheme objectives, practicality of delivery and environmental impact.

The OAR concluded that the preferred package should consist of the following elements:

- Northern Link Road Option 1: (alignment following western boundary of land set aside under S106 agreement. Uses 1020m radius curves. Allows culvert to be retained in its existing location.
- A44 Pinvin Crossroads Option 3: Traffic Signals: Re-alignment of side road to allow concurrent running of side road phase
- Station Road / Wyre Road Junction Option 2: Introduce a left filter lane for the Wyre Road approach.

This package of improvements is the preferred scheme presented in the Conditional Approval Business Case (and shown in the scheme plans in this report), although it is recognised that it is the most challenging to deliver.

Stakeholders

A Stakeholder Management Plan for the project has been produced was and is included in the Business Case. This identifies the key stakeholders as:

- Network Rail
- Natural England
- Worcestershire County Ecologist
- Environment Agency
- Residents
- Local businesses

Further details are provided in the Management Case summary later in this report.



ECONOMIC CASE

Forecasting and Economics

Traffic Modelling

The assessment of the proposed package has been undertaken using the Pershore Highway Transport Model developed based on 2015 survey data and in line with guidelines, procedures and processes contained within the Department for Transports WebTAG documentation.

The Model represents typical weekday (Monday – Thursday) conditions for a neutral day in March 2015. It covers the morning and evening peak hours (08:00 to 09:00 and 17:00 to 18:00 respectively) and an average hour in the inter-peak period (between 10:00 and 16:00). The model was developed using VISUM (version 14.00) and included the simulation of junctions using features within the software. A comprehensive data collection exercise was undertaken in March 2015 that included 12-hour ANPR (to inform OD matrices), Classified turning counts and Automatic turning counts.

Future year forecasts have been produced for the scheme opening year (2019) and a further forecast year of 2030. The future year models include all planned development within the local area.

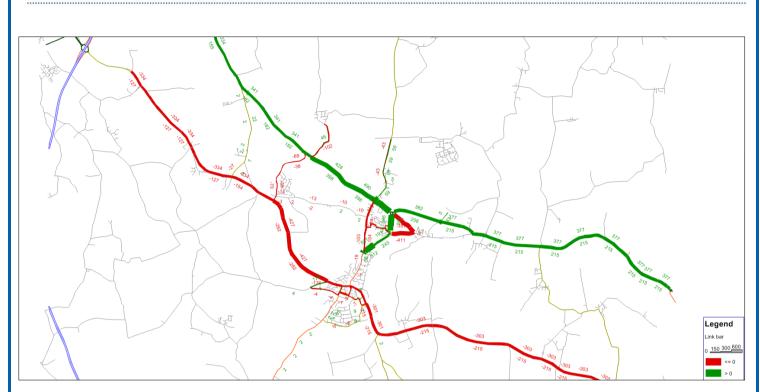
The figures on the following page show the impact of the scheme on traffic flows across the network. The green bands represent an increase in traffic flow as a result of the scheme, whereas the red bands show a decrease.

The diagrams demonstrate that the scheme functions as intended, with traffic using the new Link Road to access the Keytec site. It also shows increased use of the A44 as a result of the improvements, particularly at Pinvin Crossroads.

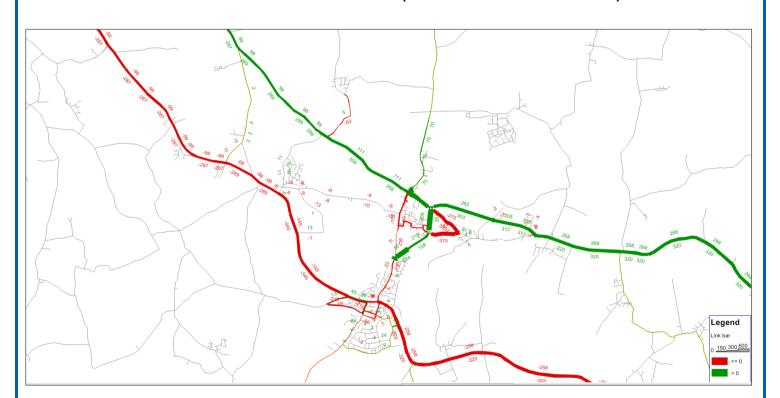
Economic Assessment

The economic asses	sment has been car	ried out in compliance	with DfT WebTA	∖G guidance. `	The economic a	ssessment has
included the benefits	from the scheme as	a result of travel time	, vehicle operatir	ng cost and ac	cident benefits.	





Link flow difference in 2030 AM Peak (With Scheme vs Without Scheme)



Link flow difference in 2030 PM Peak (With Scheme vs Without Scheme)



FINANCIAL CASE								
Main Expenditure Items (£m)	FY 15/16	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21	FY 21/22	Total
Scheme preparation costs including design and project management			£453,927	£376,223	£0	£0		£830,150
Land and compensation including Part 1 claims			03	£174,709	£0	£224,229		£398,938
Works construction including stats costs (including risk and optimism bias)			£147,806	£965,004	£5,620,988	£2,677,277		£9,411,074
Site supervision and other external costs			£0	£25,867	£315,675	£160,994		£502,537
TOTAL SCHEME COST			£601,733	£1,541,803	£5,936,663	£3,062,500		£11,142,699

Scheme Funding				
Funding Source	Funding Amount (£m)			
Total Local Contribution (Secured)	£1,613,000			
Total Local Contribution (Unsecured)	£4,529,699			
Total LTB Requirement	£5,000,000			
TOTAL	£11,142,699			



VALUE FOR M	ONEY STATEMENT	
	Assessment	Detail
Initial BCR	20.00	As stated in Business Case. Minor variation likely to reflect latest scheme cost estimate.
Adjusted BCR	20.00	No further monetised benefits included.
Non-Monetised Impacts	Overall Slight Beneficial Impact	Large Beneficial impact for: Regeneration Access to Services Moderate Beneficial impact for: Journey Quality Severance Moderate adverse impact for: Landscape Slight adverse impact for: Accidents Neutral impact for Biodiversity, but this is dependent upon the Reptile Mitigation Strategy
Key Risks, Sensitivities and Uncertainties	Very low risk of scheme being in lower value- for-money category	BCRs have been produced for a low growth scenario – this gave a BCR of 17.73. Appraisal has used fixed demand approach – evidence provided (as per WebTAG guidance) that variable demand modelling not required. Traffic modelling shows very high delays in without scheme scenario in future years, leading to high level of travel time savings. Interpeak models not included in economic appraisal – this would be likely to further increase BCR. No construction impact included – this would reduce BCR.
	Value for Money Category	Very High
	raide ior menoy category	,



COMMERCIAL CASE

Summary of Commercial Case

The commercial strategy addresses the key project risks and enables the development of the project to programme whilst also ensuring an effective procurement and cost confidence. Key issues affecting the procurement strategy include the funding and its timeline, the rail interface and the multi-disciplinary requirements of the project scope.

The Commercial Case for the project aims to take into account the resources available to WCC as client, the risks associated with the project and to assess the procurement routes to deliver the project in the most efficient way possible.

A range of procurement options has been considered in developing the procurement strategy:-

- Traditional Approach Client undertakes or commissions design and appoints construction contractor;
- Traditional Approach Plus Early Contractor Involvement (ECI) Client undertakes or commissions design and appoints construction contractor with early contractor involvement. ECI allows the Contractor to be appointed before details of what is to be constructed have been fully developed and priced:
- Design and Build Single stage Single Award to Single Supplier for detailed design and construction post planning and development;
- Design and Build Two stage Two stage award to Single Supplier for project development (including ECI) and then detailed design and construction;
- Private Finance Investment (PFI) Given that funding has been applied for from the DfT, and the limited scale of the project, this option has not been pursued.
- Use of The Council's existing term contractor.

A SWOT analysis has been used to provide a critique of the internal and external environment in delivering the project via the five options (having discarded PFI for the reasons given above.)

In addition each option has been subjected to a RAG rating against a number of key objectives.

This analysis has identified two preferred procurement approaches. Market engagement activities are scheduled in order to test the appeal of each approach. The procurement routes to be tested during market engagement are:

- Use of The Council's term contractor
- Design and Build Two stage Two-stage award to Single Supplier for project development (including ECI) and then detailed design and construction.

Option 1 - Use of The Council's Term Contractor

The first option above is the preferred route as it provided the best result in the options to outcomes analysis and facilitates a healthy environment to maximise opportunities for cost down initiatives. Additionally, it complements the Council's strategic approach to commissioning.

The term contractor is engaged for a number of years to deliver small to medium-sized projects for the Council and is engaged following and Open procurement under OJEU and Public Procurement Regulations.

Rates and prices agreed at the outset of the contract are benchmarked against inflation indices to ensure they remain competitive and maintain cost-effective pricing. Incentives are included to ensure the contractor is engaged in delivering ECI solutions that not only reduce project costs but also optimise programmes and resources. In a long-term contract, the contractor works with the Council to find ways to provide the works inside the funding profile and the budget constraints.

The contractor, being a term contractor, is familiar with the Council's aims and objectives, the Local Transport Plan and the Worcestershire Economic Plan and works collaboratively to achieve those goals.

Design preparation and asset management including whole life costs are optimised because the contractor is able to comment and influence designs at the earliest opportunity.

Having the contractor engaged early broadens the project team which in turn helps to identify and manage risks early in the project resulting in improved cost certainty for the latter construction phases.



Option 2 - Design and Build Two-Stage

The Early Contractor Involvement (ECI) two-stage procurement approach also complements the Council's strategic approach to commissioning. The output of the SWOT analysis informs that ECI maximises on The Council's strengths and procurement opportunities and the two stages offer an alternative method of managing the project costs through its funding profile and the budget constraints.

It will be essential to include incentives to optimise the price for stage two during stage one along with mechanisms to share the benefits of ECI and innovation during project development and design.

For this route to operate successfully, it is imperative that The Council:

- Includes programme and work-scope requirements for the second stage within the Stage 1 tender;
- Requires agreement on the Stage 2 conditions of contract as part of the Stage 1 tender;
- Provides clarity for the parties' respective rights and obligations upon conclusion of Stage 1, if either Party does not wish to proceed to Stage 2;
- Maintains competitive tension within the tender procedure by:-
 - Evaluating change to the Stage 2 price using the competitive pricing information submitted pursuant to Stage 1;
 - Allowing the Contractor to share savings between the tendered price for stage 2 and the fixed stage 2 price;
 - Ensuring the successful bid includes a strong design function to investigate, analyse and develop The Council's outline design and the Contractor's corresponding proposals for the project and robust value engineering.

The question with this option is whether this model is attractive to the market given the size and scope of the project. This will be tested during market engagement.

Implications for timing

Option 1- The existing term contract is no longer open to new commissions. It is understood that a new term contractor should be in place by early 2018.

Option 2- An Open Procurement under OJEU and the Public Procurement Regulations would be commenced in the autumn of 2017, to appoint a contractor by the date required in the programme.

ITA Comments

One key question is whether the Pershore Package is best delivered as a single project or as several discrete elements. There is an argument that it might be progressed as a number of separate items:-

- 1. Pinvin crossroads
- 2. Wyre Road junction
- 3. Northern Link Road

The three elements of the package as identified above are at separate locations, physically discrete from each other, and they also involve different types of work.

Pinvin Crossroads is a significant local improvement scheme, which is not dependent on the other elements of the Pershore Package. It would start delivering benefits as soon as it was completed, and ideally should be progressed by the quickest possible mechanism. Under normal circumstances this is the scale of project which would often be constructed using a term contractor. The rationale for such term contracts is to provide a cost effective and time effective means of procuring works of this scale.

Wyre Road junction is similarly of small scale, but the need for its implementation is more closely tied to completion of the Northern Link Road.

The Northern Link Road is clearly the largest element of the Pershore Package, with a cost of over £5m. We support the approach which has been adopted, to consider a range of procurement options, but we also note that there are further procurement options available including the use of established procurement frameworks. Such frameworks give access to a range of contractors with suitable experience for a project of this scale, which have already been through a pre-qualification process. Use of such frameworks can offer shorter timescales and reduced procurement cost.



Environmental mitigation works

If a construction start is to be made on the link road in 2018/19, the reptile mitigation strategy will need to be started in Spring 2018 as transloaction needs to be undertaken during the summer months. The nature of the work involved in reptile relocation is undoubtedly specialist.

Whichever contractual option is selected for the Northern Link we believe that consideration should be given to a separate contract / arrangements for advanced environmental mitigation works to translocate reptiles from the site of the Northern Link Road to an agreed receptor site. In advance of the translocation, some works will need to be undertaken at the receptor site in order to make it suitable to receive and support the population of reptiles.

MANAGEMENT CASE

Planning and Procedures

The Pershore Infrastructure Improvements Package will require a number of approvals, as set out in the table below.

Statutory Powers and Consents Required				
Description	Act or Legislation	Comments		
Full Planning Consent	Planning Act 2008	To be determined by Worcestershire County Council.		
Compulsory Purchase Order	Highways Act 1980	To be determined by Secretary of State. May not be required if third party negotiations are successful.		
European Protected Species Licence	Conservation of Habitats and Species Regulations 2010	To be determined by Natural England. Low potential for EPSL to be required, but would be necessary if bat roosts, Great Crested Newts, main Badger sett or otter holt impacted.		
Land drainage consent		Required to discharge drainage network to adjacent ditch watercourse.		
Designation of new highway	Highways Act 1980	The new link road will need to be designated as the A4104 highway and Terrace Road (leading to Pinvin) will be downgraded. Land designations are to also be reviewed at Pinvin in respect of the defined extent of the highway.		
Temporary stopping up or diversion of public footpath		The proposed southern abutment of the link road bridge is to be located directly adjacent the existing footway, a temporary stopping up order or diversion will be required to enable working space during construction.		
Wayleave to enable construction and operation of the highway over the rail Network		To be determined by Network Rail		

A particular issue to note is that the planning application will need to be accompanied by an Environmental Statement, owing to the presence of a significant population of reptiles on the site of the Northern Link Road. As a consequence the application falls under the Environmental Impact Assessment regulations, which requires a longer timescale before determination of the application.

Environmental Impact

The Business Case includes a comprehensive Environmental Scoping Report, and appendices which include a Reptile Mitigation Strategy.

The impact of the improvements on traffic flows will be a redistribution of traffic, with higher flows on some links and lower flows on others. In general there will be a reduction in traffic passing through Pershore on the A4084 and transfer to the A44. Overall this is likely to result in a beneficial impact for noise, air quality and townscape.

The most significant environmental issue is undoubtedly the presence of reptiles on the site of the Northern Link Road. The population of slow worms found (48) is categorised as "exceptional". The surveys also found 16 common lizards and 3 grass

snakes. These populations resulted in the requirement from the planning authority that the planning application for the scheme to include and Environmental Statement.

This in turn requires a Reptile Mitigation Strategy which sets out how the reptiles will be relocated to a new site. The receptor site is expected to be a former landfill site owned by Worcestershire County Council. Surveys of this site have shown that it is a suitable site for relocation of the reptiles, and some minor works will be necessary to create the best conditions for sustaining the reptiles.

Social and Distributional Impact

The improvements result in an improvement in journey quality and reduction in severance. Analysis within the economic assessment report appears to show the preponderance of benefits going to middle or upper income quintiles.

Programme

The Business Case submission includes a programme as set out below:-

Milestone	Target date
Conditional Approval	July 2017
Full Approval	August 2018
Detailed design	August 2017 to December 2017
Land negotiations (and CPO if required)	October 2017 to September 2019
Submission of planning application	September 2018
Procurement	November 2017 to February 2018
Award construction contract (ECI Stage One)	February 2018
Commencement of works on site	March 2019
Scheme opening	April 2020 – September 2020
Monitoring and evaluation	April 2020 +

Stakeholder management

The Business Case submission includes a Stakeholder Management Plan

The key stakeholders identified include:-

Local businesses, in particular those on the Keytech 7 Business Park. Wychavon District Council has been engaging with these businesses to understand local problems and collate businesses views on the need for and impact of the proposed Northern Link Road. Businesses share the view that access is unsatisfactory, especially for large vehicles and support the provision of an enhanced access, as well as works to relieve congestion at Pinvin crossroads. Feedback from businesses suggests that the Northern Link Road would directly enhance their businesses, including improved links to the rest of the country, whilst undoubtedly significantly reducing the safety risk attributed with current transport routes.

Residents - The Northern Link Road is well supported locally and the Pershore Northern Link Campaign represents the views of local supporters.

Network Rail – are a key stakeholder in relation to delivery of the Northern Link Road as works will require appropriate permissions to build over and near to the railway line. The need to follow Network Rail processes influences the project programme.

Natural England – are also key in relation to the Link Road due to the known presence of slow worms. Successful delivery of the project will be dependent upon suitable mitigation and translocation, which will require endorsement from Natural England.

Worcerstershire County Ecologist – who has already been engaged in respect of the requirements for a mitigation strategy for reptiles.

Environment Agency – who will need to be engaged in relation to drainage issues.

Public consultation

The inclusion of schemes for Pershore as a key part of Local Transport Plan and South Worcestershire Development Plan process means that they have been subject to various high level consultations, including:

- Consultation on LTP3, which included the Keytec Link Road as scheme SW16.
- Recent consultation on draft LTP4, which include the Pershore Northern Link and the Pinvin Crossorads Enhancements as scheme SWST4, under the heading of Pershore Northern Access Improvements.
- Consultation on the SWDP which discussed both the need for enhancements to Pinvin Crossroads and the Northern Link Road as part of Policy SWDP42.
- As part of the planning application for site SWDP47/2, residents had an opportunity to comment on the application including the provision for a future Northern Link Road.
- As part of the District Council's information gathering process to establish problems, issues and level of support for the Link Road.

However, there has not yet been any specific public consultation on the detailed proposals.

Benefits Realisation, Monitoring and Evaluation

The Business Case submission includes a Benefits Realisation, Monitoring and Evaluation Plan which sets out the data requirements for establishing whether the scheme, once implemented, is achieving its objectives.

This will require collection of pre-construction data, and similar data one year and 5 years after scheme opening.

Risk Assessment

The Business Case submission includes an assessment of risk. This includes a Quantified Risk Assessment together with a description of the proposed risk mitigation strategy. The main risks to the delivery of the project are set out below.

Rank	Risk Number	Risk Description
1	041	Unforeseen ground conditions resulting in changes to foundation, embankment, bridge, etc. designs.
2	024	Project Sponsor/key stakeholder key decisions affect programme delivery (e.g. amendments to scheme works scope). Excludes Network Rail.
3	040	Bridge cost higher than anticipated arising from additional requirements from Network Rail
4	026	Scheme cost inflation uncertainty leading to higher than expected out-turn costs resulting in inadequate budget available.
5	025	Scheme outturn costs greater than estimated resulting in inadequate budget available (price estimation risk). Construction sub-total currently allows for +5%

		adjustment to cover for measurement or omission error
6	007	Land acquisition. Not all land obtained via negotiation requiring a CPO with a risk of Public Inquiry with associated legal costs and resulting in assumed 12-month delay to programme (includes Network Rail oversailing rights).
7	012	Network Rail approvals take longer than programmed resulting in delay to programme.
8	031	Railway closures (as opposed to rules of the route possessions) are required for bridge construction with consequential delay to the programme.
9	019	Increase in land costs associated with acquisition or negotiation of rights (excludes CPO risk and associated legal costs)
10	052	Cost of valid Part 1 claims exceeding expected total resulting in additional cost to WCC.

ITA Comment on Delivery

There are a number of key considerations which will determine the ability to deliver the project within the timescale set out within the programme. Some of these are inter-linked:-

- The date for submission of the planning application for the Northern Link Road. Ideally this should be sooner rather than later, but there is a desirability of including contractor input on buildability and finishes. [There is little scope for variation on the line and level of the link road.]
- Procurement of the contractor for the link road procurement timescales may be a consideration in which option is finally selected.
- Agreement on the details of the reptile mitigation strategy in time for it to be implemented in Spring 2018.
- Finalisation of scheme details for highway geometry/operation (safety audit), railway bridge (Network Rail approval/possessions), drainage (Environment Agency)
- · Acquisition of land/ rights

CONCLUSIONS

Independent Transport Advisor Conclusions

- 1) We conclude that the Strategic Case for the Pershore Infrastructure Improvements Package is sound
- 2) We support the assessment that the package represents Very High value for money
- 3) We consider that the risk of the package being in a lower value for money category is low.
- 4) We understand that the balance of scheme financing will be considered by the Worcestershire County Council Cabinet
- 5) We note the progress to date in considering procurement options, and the inter-relationship between appointment of a contractor and the package programme.
- 6) We note that the major environmental impact of the Northern Link Road is on the population of reptiles, and support the early completion and implementation of the strategy to relocate the reptiles.
- 7) We recommend that the Pershore Infrastructure Improvements Package be given Conditional Approval with a contribution of up to £5.0m from the Worcestershire Local Growth Fund, and that the package is progressed to Full Business Case submission.