# Worcestershire Local Transport Body

# Annex C (to Appendix A): WLTB Conditional Approval Business Case Pro-Forma for Major Schemes

**Note**

Major Local Transport Schemes are those with a cost of £5m or greater.

For these schemes there are three stages of assessment:-

1. Outline Business Case (to determine whether the scheme is a candidate for funding)
2. Conditional Approval Business Case – the key decision to confirm that the business case for the scheme is sound and to confirm the principle that it will be funded.
3. Final Approval – once procedures and procurement have been completed.

This pro-forma is to be used for the Conditional Approval business case.

For some major schemes, which are to be delivered in separate phases, the Conditional Approval will deal with the Business Case for the whole scheme, and there will then be separate Final Approval submissions for each phase.

June 2017

| STRATEGIC CASE | |
|---|---|
| Scheme Name<br><br>Pershore Infrastructure Improvements Package | Date<br><br>June 2017 |

**Case for Change**

**Summary of Strategic Case**

## Scheme context and location

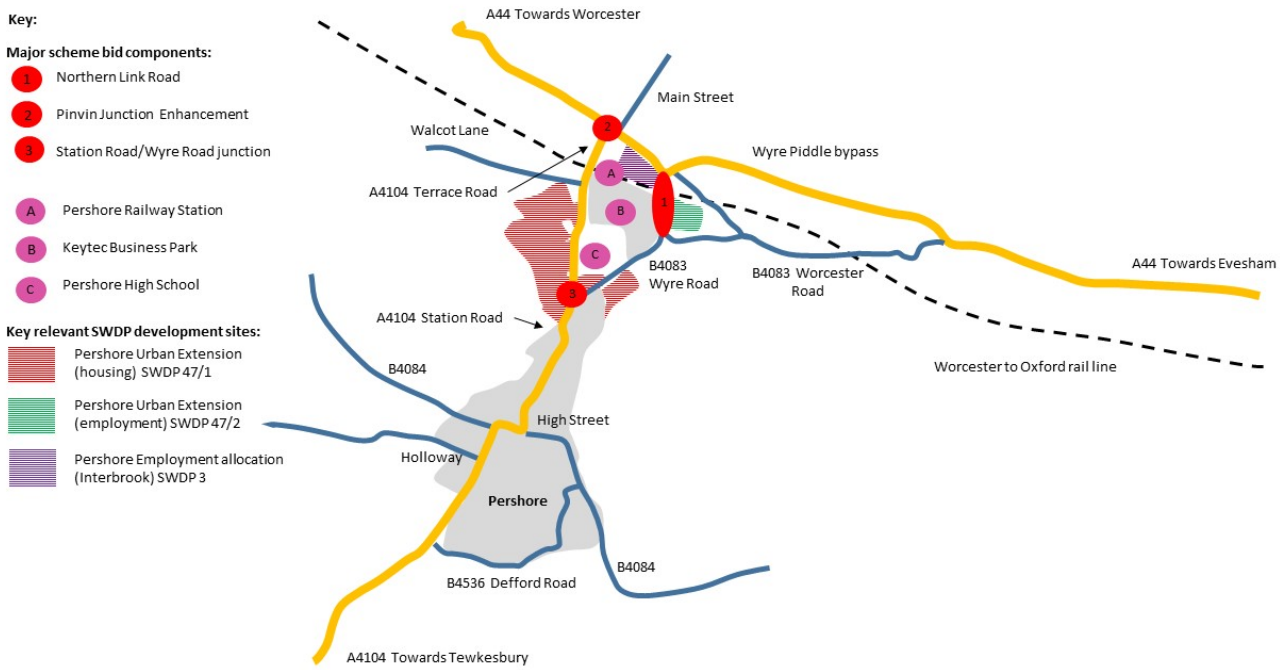
The Pershore Infrastructure Improvements Package will upgrade the links between Pershore town centre and the A44, address issues of congestion on the A44 and improve access to employment and new housing areas. The package comprises three key scheme elements.

1. The construction of a 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 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 junction of A4104 Station Road and B4083 Wyre Road junction. The scheme will complement the delivery of the Northern Link Road by prioritising the Station Road (south) to Wyre Road movement. This will also 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.

*Scheme location and context*




## Transport problems and issues

Within the study area there are a number of transport problems and issues which are preventing policies and priorities from being achieved. These are highlighted in the table below.

*Transport problems and issues and relationship to delivery of key policies*

| **Problem** | **Policy, strategy or priority affected** | **Extent to which problem is preventing achievement of policy, strategy or priority** |
|---|---|---|
| Poor journey time reliability on the A44 due to congestion at Pinvin crossroads means that the A44 is not performing its strategic function.<br><br>This is leading to deteriorating conditions on the A4104 and the B4083 as traffic routes to avoid Pinvin crossroads. | LTP4 – identified the A44 as an important part of the Primary Route Network (PRN) and notes that the PRN is crucial to the economic well-being of Worcestershire and the region. The LTP also notes the importance of the A44 a key link to the M5 and A46 trunk road network.<br><br>WCC Corporate Strategy – identifies reducing journey times as a key priority<br><br>WLEP Strategic Economic Plan – aims to enhance accessibility between key economic centres within the LEP area<br><br>LTP4 – The Economic Objective aims to support Worcestershire's economic competitiveness and growth through the delivery of a reliable and efficient transport network | Pinvin Crossroads is currently operating at capacity, with long average delays, forecast to get worse to 2030 without intervention.<br><br>This situation at Pinvin means that the B4084 remains as busy as the A44 and people are choosing to drive through Pershore to avoid delays at Pinvin.<br><br>This situation means that the A44 is not performing its function as part of the PRN and is not consistent with priorities relating to improved journey times, accessibility and efficiency. |

| | | |
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| Poor access to the Keytec employment area | LTP4 – as above.<br>SWDP – allocates land for an expansion of Keytec via policy SWDP 47/2. Keytec is recognised as an important concentration of higher value and higher skilled jobs | Existing access routes are circuitous and not suited to carrying heavy vehicles. All are envisaged to be at or close to capacity by 2030.<br>If this employment location is to reach its full potential, improved access is critical. |
| Pressure for development, via SWDP allocations/need to facilitate growth.<br>674 homes within the urban extension allocation are consented. This means that traffic flows will increase as the development is built out. | SWDP –identifies two key urban extensions for Pershore to deliver 695 homes and 5 ha of employment uses.<br>WLEP SEP - Aims to target transport investment to unlock hey housing and employment sites | The SWDP itself recognised that these levels of development need to be supported by improvements to the road network. This is acknowledged in Policy SWDP 47/1 which notes the need for "capacity enhancement of the Pinvin Road junction and, if justified, a new link road between Wyre Road and the A44. |
| Poor conditions for pedestrians and cyclists on the A4104 Station Road/Terrace Road | LTP4 - The health and safety objective aims to promote healthy modes of travel.<br>WLEP SEP – identifies Station Road and Terrace Road as congested. | High levels of traffic and increasing numbers of HGVs using both the A4104 and the B4083 have led to deteriorating conditions for pedestrians and cyclists and are thus not consistent with LTP priorities around encouraging and promoting healthy modes of travel. |

More detailed analysis of the problems is contained in the Appendix 4 OAR.

**Preferred scheme**

The preferred scheme has been identified based on a range of both scheme and package level optioneering assessments. This process is reported in:

**Preliminary options reports (POR)** - these look at the various options for each individual scheme within the package. Thus, they deal separately with each location. Three PORs were prepared covering the Northern Link Road, Pinvin crossroads and Station Road/Wyre Road. Each one assesses multiple options and identifies a short list for further consideration. They are included as Appendix 4.

*Outputs from preliminary options reports*

| **Scheme element/location** | **Long list of options** | **Output from preliminary design option report (POR)** |
|---|---|---|
| Pinvin Crossroads | Option 1 – Traffic Signals: Staggered arrangement with A44 running together | Options 1 and 3 should be taken forward for further investigation. |
| | 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/<br>Note that is the layout proposed by the housing developer and does not take into account proposals for a Northern Link Road. | Option 2 identified as preferred option.<br>Option 1 also taken forward for consideration in the OAR as a baseline position. |
| | Option 2 – Introduce a left filter lane for the Wyre Road approach. | |
| | Option 3 – Remove proposed traffic signal control and introduce a normal roundabout | |
| Pershore 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. | Both options have a strong fit with the Business Case.<br>Option 1 recommended due to deliverability issues associated with Option 2. |
| | 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. | Option 2B was ruled out prior to POR report. |

**Options Assessment Report (OAR)** – this summarises the POR assessments and the considers the three scheme elements in combination to allow the assessment of schemes in combination. This led to the identification of a preferred package. The in-combination assessments are a critical part of the optioneering process because preferred package needs to address the overall traffic routeing strategy for Pershore. The OAR is included as Appendix 4.

Hence, the front-runner schemes identified in the PORs were used to generate four scenarios to further test as part of the OAR development process. These are shown in the table below.

*Scenarios/packages considered*

| | **Pinvin** | **Station Road/Wyre Road** | **Northern Link Road** |
|---|---|---|---|
| Scenario 1 | Option 1 | Option 1 | Option 1 |
| Scenario 2 | Option 1 | Option 2 | Option 1 |
| Scenario 3 | Option 3 | Option 1 | Option 1 |
| Scenario 4 | Option 3 | Option 2 | Option 1 |

Within the OAR these four scenarios are considered in terms of how they perform in terms of:

- Traffic modelling
- Achievement of the overall scheme objectives
- Practicality of delivery
- Environment.

The table below summarises the results of the in-combination assessments. The assessment process is described in detail in the OAR contained in Appendix 4.

*Performance of scenarios in relation to assessment criteria*

| **Category** | **Best** | **Next Best** | **Worst** |
|---|---|---|---|
| Traffic modelling and economics | Scenario 4 | Scenario 2 or 3 | Scenario 1 |
| Environmental impacts | No significant differences between Scenarios. | | |
| Deliverability of scheme (including scheme cost) | Scenario 1 | Scenario 2 or 3 | Scenario 4 |
| Scheme Objectives | Scenario 3 or 4 | Scenario 1 or 2 | |

The best performing scenario is Scenario 4, though it is the most challenging to deliver (these delivery challenges are considered in the QRA within Appendix 10). Hence, Scenario 4 is recommended as the Preferred Strategy and hence the schemes that comprise Scenario 4 are recommended as the Preferred Schemes

**Predicted Impacts and how these support policy**

The table below notes the predicted impact of the package schemes and how they support key policy, strategic ambitions and identified priority issues.

*Impact and relationship to policy and priorities*

| **Impact** | **How this supports key policy, strategy or priorities** |
|---|---|
| **Congestion relief**<br>Reduced queue lengths and delays at Pinvin Crossroads.<br>More reliable journey times at Pinvin Crossroads.<br>Transfer of traffic from the B4084 to the A44, helping to reinforce the role of the A44 as the strategic route. | By addressing a recognised traffic congestion issue, the scheme will improve the perception of Worcestershire as a County where the movement of people and freight is reliable in accordance with the aims of the SEP. This means that business can locate to Worcestershire with confidence that the infrastructure is able to accommodate the demand for movement. |

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| **Reduced impact of HGV on local roads**<br><br>Reduction in numbers of HGVs using the A4104 Terrace Road and Station Road.<br><br>Reduction in numbers of HGVs using B4084 High Street. | By improving the access to the Keytec Business Park, a proportion of HGV movement will be removed from sensitive and inappropriate roads. This will help to make these routes more suitable for walking and cycling, in line with LTP priorities. |
| **Supporting growth**<br><br>Help to deliver 695 homes and 9.45 ha of employment as part of the SWDP Pershore Urban Extension | By increasing the capacity of the highway network in the Pershore area, the ability to accommodate the growth contained in SWDP as well as address existing congestion issues is increased. |
| **Supporting Growth**<br><br>Help to deliver the 9.45ha of employment allocated in the SWDP Pershore Urban Extension. | By improving the accessibility of the Pershore employment allocations areas to the A44 the employment allocations become more attractive for inward investment. This will support the ambitions of the SEP. |
| **Improving access to Pershore town centre**<br><br>Provide an alternative route into Pershore from the A44, thereby avoiding Terrace Road and Station Road (north of Wyre Road) thereby improving environment on that section of road.<br><br>Transfer of traffic away from Terrace Road and Station Road (north of Wyre Road) will also benefit the expected increased numbers of pedestrians and cyclists as a result of SWDP Pershore Urban Extension. | By providing an alternative main traffic route between Pershore town centre and the A44 to the A4104 Terrace Road and Station Road (north of the Wryre Road junction), the environment for pedestrians and cyclists in the vicinity of the school and railway station access will be safer and hence has the potential to encourage greater use of sustainable modes. Also, the resulting traffic relief given to A4104 Terrace Road and B4083 Wyre Hill will improve the environment and safety for residents on these roads which have sections of narrow pavement close to the highway. This will help to make these routes more suitable for walking and cycling, in line with LTP priorities. |

**Interaction with existing infrastructure**

The strategic traffic routeing objective of the package is to make better use of the existing highway network through addressing a significant congestion location, namely the Pinvin crossroads junction. To achieve this, an alternative route between the A44 and Pershore Town Centre will be constructed, the Northern Link Road. This alternative route also has the benefit of providing much improved access to employment and housing allocations contained in the adopted SWDP.

The Northern Link Road will provide an additional crossing of the main railway line (Worcester to Oxford/London), thus improving network resilience.

The traffic, and particularly HGV traffic, relief provided to existing roads (A4104 Terrace Road, A4104 Station Road north of Wyre Road junction, B4083 Wyre Hill) will positively benefit the environment (noise, air quality, vibration) for adjoining properties and reduction in traffic movement will result in an improved environment for pedestrian and cycle movements.

**Strategic fit with transport objectives, wider Government / regional / other objectives**

This package has a strong strategic fit with wider policies and objectives and is closely aligned with the objectives of the LEP, Worcestershire County Council, the South Worcestershire Councils and Wychavon District Council.

<u>Fit with transport objectives</u>

The current Worcestershire LTP, LTP3, was adopted in 2011 and sets out the transport policies and strategies for Worcestershire from 2011 to 2026. An updated and refreshed version of the Plan, LTP4, is currently under development and sets out how investment in transport infrastructure, information and services will help to achieve the overall vision of the 2017-2022 Corporate Plan.

Worcestershire LTP3 identified as series of objectives and these have been rolled forward into the draft version of LTP4. The table below shows how this package will help to contribute towards achieving these

objectives

*LTP 4 objectives*

| **Objective** | **Contribution of the Pershore Infrastructure Improvements Package to LTP objective** |
|---|---|
| The Economic Objective: To support Worcestershire's economic competitiveness and growth through the delivery of a reliable and efficient transport network | The enhancements will help to deliver more reliable journey times and reduced delay.<br>The package will deliver infrastructure which will help to support housing and employment growth. |
| The Environment Objective: To reduce the impacts of transport in Worcestershire on the local environment, by reducing transport-related emissions of carbon dioxide and other greenhouse gases, with the desired outcomes of tackling climate change and reducing the impacts of transport on public health. | The Northern Link Road scheme will help to enhance the environment along Terrace Road and Station Road and on the B4084 High Street by reducing overall traffic flows, and in particular reducing the number of HGVs. |
| The Health and Safety Objective: To contribute towards better safety, security, health and longer life-expectancy in Worcestershire, by reducing the risk of death, injury or illness arising from transport and promoting healthy modes of travel. | The package will help to make walking and cycling on Terrace Road and Station Road, and also on the B4084 High Street more pleasant and safer. |
| The Equality Objective: To optimise equality of opportunity for all of Worcestershire's citizens with the desired outcome of creating a fairer society. | The package will help ensure that all Worcestershire's citizens have access to an enhanced road network. |
| The Quality of Life Objective: To enhance the quality of life for Worcestershire's residents by promoting a healthy, natural environment, conserving our historic built environment and preserving our heritage assets. | The Northern Link Road scheme will help to enhance the environment along Terrace Road and Station Road and on the B4084 High Street by reducing overall traffic flows.<br>The new link will mitigate environmental impacts along its new alignment. |

A principal aim of LTP4 is to deliver the greatest possible benefits through the delivery of cost effective transport infrastructure and services, or in other words, achieving best value for money. LTP4 targets investment in three broad areas: transport technology, travel choice and capacity enhancement. In the case of the latter the LTP states "…where suitable businesses cases can be identified to support investment, we will aim to fund and delivery capacity enhancements at key pinch points to support development growth, address poor air quality issues and tackle congestion."

*Within the Strategic Transport Schemes for South Worcestershire, LTP4 includes the Pershore Northern Access Improvements Package (this package) recognising that tackling issues in this location are important in terms of delivering the overall aims of the LTP.*

**Fit with wider priorities and objectives**

<u>WCC Corporate Plan</u>

The Corporate Plan highlights being 'open for business' as the key priority for the Worcestershire County Council. The Corporate Plan focusses on boosting the economy, creating jobs and delivering new homes. Continued investment in transport infrastructure is noted as essential and the Plan states that "Transport infrastructure investment will be targeted to unlock the potential of key employment and housing development site across the county." Reducing journey times is also noted as a key objective.

*By assisting the delivery of housing and tackling a congestion pin point this package will help to deliver the objectives of the Corporate Plan.*

The Worcestershire LEP and its partners have identified that additional investment in Worcestershire's transport infrastructure and services is essential to provide businesses with improved access to markets and

employees and to encourage economic growth. Transport investment will be targeted to unlock the potential of key employment and housing development sites to support the overall growth vision. Investment will also improve external linkages (with neighbouring sub-regions and international gateways to enhance access to national and global markets) and enhance accessibility between key economic centres within the LEP area to accommodate the travel demand associated with the growth aspirations.

Worcestershire Strategic Economic Plan

The Strategic Economic Plan (SEP) identifies the Pershore Northern Link Road as a short term priority and notes it is important to facilitate delivery of a strategic employment and housing site. It notes that in Pershore there are a number of landowners who wish to bring forward sites for manufacturing, distribution and agri-tech sectors but that "in order to secure development substantial improvements are required to the local road network which already suffer from major congestion at the Pinvin Crossroads."

The Pershore Northern Relief Road and Pinvin Crossroads are listed as 'Scheme 10' within the SEP's list of transport and infrastructure schemes. The SEP notes that these schemes will:

- Enable access to strategic employment land across 3 sites
- Accelerate delivery of housing units on 3 sites
- Relieve traffic pressures around Pershore to enable growth.

*This package is delivering a scheme specifically recognised with the SEP as being important for the Pershore area.*

South Worcestershire Development Plan (SWDP)

Within the SWDP a strong emphasis is placed upon achieving an appropriate balance between the competing needs of: embracing the highest objectives for sustainable development, ensuring quality of design and the timely provision of the infrastructure required to support the SWDP proposals.

SWDP47/1 allocates land to the North of Pershore for 695 new homes and notes that "In directing development to the north of the town it is important that infrastructure improvements are secured. These include improvements to the Pinvin crossroads junction and other locations on the A44 (a key link between Pershore and both the M5 and A46 trunk Road). The provision of the Northern Link Road from the A44/Wyre Piddle bypass roundabout to Keytec 7 Business Park has strong local support and may also be delivered." In addition SWDP47/2 allocates 5 hectares of employment land (in addition to a further 4.5 hectares separately allocated north of the railway line at Interbrook). The SWDP policies map also shows the route of the Northern Link road as a 'Safeguarded Land for Transport Infrastructure.' The 695 dwellings are now consented (some with reserved matters consent, some with outline consent). All are required to provide S106 contributions of some form towards highway improvements, and this package in particular. There is therefore a recognised link between the need for these works and the development of the urban extension.

*This package is delivering infrastructure recognised as locally important to support development identified in the SWDP.*

The detail of the relevant objectives has been noted above and is described in more detail in Appendix 4 - OAR.

**Objectives and Outputs**

The table below shows the Objectives for the package and how these relate to the impact of the preferred scenario.

| **Objective** | **Impact** | **How the package addresses the problems identified** |
|---|---|---|
| Support the growth of Worcestershire's economy by tackling existing (and predicted | Reduced queue lengths and delays at Pinvin Crossroads.<br>More reliable journey times at | The ability to reprioritise the traffic signal timings at Pinvin Crossroads junction will mean that the A44 better |

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| future) congestion and journey time reliability | Pinvin Crossroads.<br><br>Transfer of traffic from the B4084 to the A44, helping to reinforce the role of the A44 as the strategic route. | fulfils role as primary route. The reprioritisation of the signal timings is possible as an alternative north-south routes is provided (Northern Link Road) between the A44 and Pershore Town Centre. This means that at Pinvin junction more capacity can be provided to A44 movements. |
| Improve access from Keytec Business park to the A44 | Reduction in numbers of HGVs using the A4104 Terrace Road and Station Road.<br><br>Reduction in numbers of HGVs using B4084 High Street. | The Northern Link Road provides a new direct access to the Keytec Business Park from the A44. |
| Support the delivery of housing and employment growth as outlined in the SWDP, in particular the Pershore Urban Extension | Help to deliver 695 homes and 9.45 ha of employment as part of the SWDP Pershore Urban Extension<br><br>Help to deliver the 9.45ha of employment allocated in the SWDP Pershore Urban Extension. | The Northern Link Road provide additional capacity to the local road network and linkages to the A44 this enabling growth. Furthermore, the improved access arrangements will improve the perception of Pershore as a location for economic growth. |
| 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. | Provide an alternative route into Pershore from the A44, thereby avoiding Terrace Road and Station Road (north of Wyre Road) thereby improving environment on that section of road.<br><br>Transfer of traffic away from Terrace Road and Station Road (north of Wyre Road) will also benefit the expected increased numbers of pedestrians and cyclists as a result of SWDP Pershore Urban Extension. | The Northern Link Road, support by the junction improvements, provides an alternative route for traffic (including HGV movements) and hence the routes where a reduction in traffic is predicted will see a consequent improvement in environmental conditions and reduction in the potential for conflict between traffic and vulnerable road users. |

The 4 objectives of the package are outlined below.

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| Objective 1 | 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. |
| Measure of Success | Reduced queue lengths and delays at Pinvin Crossroads.<br><br>More reliable journey times at Pinvin Crossroads.<br><br>A44 better fulfils role as primary route (traffic does not re-route.<br><br>Transfer of traffic from the B4084 to the A44, helping to reinforce the role of the A44 as the strategic route. |

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| Timescale | Upon scheme opening - 2020 |
| Indicators | Automatic Traffic Counts; Manual Traffic Counts (junctions); Journey Time Surveys |
| Dependencies, Risks, Constraints | See QRA, Appendix 10 |

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| Objective 2 | Improve access to/from Keytec Business Park to the A44 |
| Measure of Success | Provision of an alternative route into the Business Park from the A44, improves access, helping to address problems currently experienced by existing businesses<br><br>Alternative route and more direct access will help to ensure the Business Park is an attractive location for new businesses<br><br>Improved perception of Pershore as a business location |
| Timescale | We would expect perception of the quality of access to improve during the first year after scheme opening – 2020 - 2021 |
| Indicators | Stakeholder feedback |
| Dependencies, Risks, Constraints | Network Rail approval for Northern Link Road to cross main line railway.<br><br>See QRA, Appendix 10 |

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| Objective 3 | Support the delivery of housing and employment growth as outlined in the SWDP, in particular the Pershore Urban Extension |
| Measure of Success | Help to deliver 695 homes and 9.45 ha of employment as part of the SWDP Pershore Urban Extension<br><br>Help to deliver the 9.45ha of employment allocated in the SWDP Pershore Urban Extension. |
| Timescale | 2030 – end of the SWDP plan period. |
| Indicators | Manual Traffic Count (junctions); Stakeholder Feedback; Development Applications |
| Dependencies, Risks, Constraints | See QRA, Appendix 10 |

| | |
|---|---|
| Objective 4 | Improve the environment for pedestrians and cyclists on the A4104 Station Road (north of Wyre Road junction)/Terrace Road through reduction in traffic and HGV traffic in particular. |
| Measure of Success | Reduction in numbers of HGVs using the A4104 Terrace Road and Station Road.<br><br>Reduction in numbers of HGVs using B4084 High Street.<br><br>Transfer of traffic away from Terrace Road and Station Road (north of Wyre Road) will also benefit the expected increased numbers of pedestrians and cyclists |

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|---|---|
| | as a result of SWDP Pershore Urban Extension. |
| Timescale | Scheme opening - 2020 |
| Indicators | Automatic Traffic Counts; STATS19 Accident Data |
| Dependencies, Risks, Constraints | See QRA, Appendix 10 |

The table below explains how the package objectives address the problems identified and how these align with WCC objectives.

*Problems and objectives*

| Problems | Package Objective | Organisation's Objective | Contribution of Package |
|---|---|---|---|
| Poor journey time reliability on the A44 due to congestion at Pinvin crossroads means that the A44 is not performing its strategic function.<br>This is leading to deteriorating conditions on the A4104 and the B4083 as traffic routes to avoid Pinvin crossroads. | Improve the performance and attractiveness of the A44 as a viable alternative to B4084 for traffic movements between Evesham to 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. | WCC Corporate Strategy – identifies reducing journey times as a key priority<br>LTP4 – identified the LTP as an important part of the Primary Route Network (PRN) and notes that the PRN is crucial to the economic well-being of Worcestershire and the region. The LTP also notes the importance of the A44 a key link to the M5 and A46 trunk road network.<br>WLEP Strategic Economic Plan – aims to enhance accessibility between key economic centres within the LEP area<br>LTP4 – The Economic Objective aims to support Worcestershire's economic competitiveness and growth through the delivery of a reliable and efficient transport network | The package, though the provision of a new highway link (Northern Link Road) and changes to the layout and signal timings at nearby junctions, will provide a new north-south link between the A44 and Pershore Town Centre thereby allowing a congested pinch-point on the A44 (Pinvin junction) to be reconfigured to allow greater capacity for the east-west A44 movement. |
| Poor access to the Keytec 7 Business Park employment area | Improve access to/from Keytec Business Park to the A44 | SWDP – allocates land for an expansion of Keytec via policy SWDP 47/2<br>LTP4 – as above | The package will provide a new highway link (including crossing of the railway) between A44 and Keytec Business Park. |
| Pressure for development, via SWDP allocations/need to facilitate growth | Support the delivery of housing and employment growth as outlined in the SWDP, in particular the Pershore Urban Extension | WLEP SEP - Aims to target transport investment to unlock hey housing and employment sites.<br>SWDP –identifies two key urban extensions for Pershore. | The package will provide a new highway link (including crossing of the railway) between A44 and B4083 (Wyre Road) and thus provides improved access to allocated housing development sites. |
| Poor conditions for pedestrians and | Improve the environment for | LTP4 - The health and safety objective aims to promote | By providing new highway link (including crossing of the |

| | | | |
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| cyclists on the A4104 Station Road/Terrace Road | pedestrians and cyclists on the A4104 Station Road (north of Wyre Road junction)/Terrace Road through reduction in traffic and HGV traffic in particular. | healthy modes of travel.<br>WLEP SEP – Identifies Station Road and Terrace Road as congested. | railway) between A44 and B4083 (Wyre Road), the existing highway network that is 'bypassed' is predicted to have a reduction in traffic, including HGV traffic. The consequence of this is a reduction in potential conflict between traffic and vulnerable road users. |

The package will help deliver the Pershore Urban Extension and other local development sites, as indicated below.

| **Delivery of Development** | **Houses** | **Jobs / Employment Floor Space** | **Retail Floor Space** |
|---|---|---|---|
| Development delivered / unlocked by scheme | N/A | N/A | N/A |
| Development that scheme would contribute to delivering | 695 homes (allocation SWDP47/1) | 9.45ha employment (allocation SWDP 47/2 plus Interbrook) | N/A |

## Constraints

The table below highlights issues identified as potential constraints. These have been proactively addressed in the design response, and will continue to be a focus of attention, ensuring that any risks are mitigated.

*Key constraints*

| **Constraint** | **Issue** | **Design Response** |
|---|---|---|
| Need for the Northern Link Road to cross the railway | The scheme would require collaboration with Network Rail and fitting permissions to carry out works adjacent and over the railway, in line with allowable track possessions. | Early engagement of Network Rail. Appendix 2 summarises discussions to date. |
| Construction at night | Construction works are likely to be required at night, to avoid impact on the railway. This may disturb residents. | Restrictions may be placed on the frequency of works and the hours of operation. |
| Environmental impact | Route of the Northern Link Road has been identified as a habitat for slow worms, common lizards and (to a lesser extent) grass snakes. | Early engagement with environmental stakeholders. Development of reptile mitigation strategy.<br>Environmental issues are discussed further in Appendix 15. |
| Underground services | Investigations required. | C2 utility searches undertaken to inform scheme design. Close liaison with utility companies regarding diversion options and C3 costs will be undertaken. |

## Inter-dependencies

As noted previously, the SWDP contains major proposals for an urban extension to Pershore, including both residential and employment uses. This development will have a close relationship with the Pershore package. Policy SWDP47 specifically mentions the need for improvements to Pinvin crossroads and delivery of the Northern Link Road.

This development has been granted planning consent (in various forms of outline/reserved matters) and S106 contributions towards the package have been secured, highlighting a high level of interdependency between the development and the highways package. The District Council anticipates that current levels of congestion will slow down build-out of these sites, should the package not be delivered. Failure to deliver this package will therefore undermine the ability to accommodate the levels of growth envisaged in the SWDP.

## Stakeholders

A Stakeholder Management Plan for the project was developed in April 2016. This has been refreshed and updated for this stage of the Business Case process, and is included within Appendix 12.

Key stakeholders of particular note include:

- **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 has influenced 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.
- **Worcestershire 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.
- **Residents** - The Northern Link Road has support locally and the Pershore Northern Link Campaign is a county, district and town councilor group of local supporters. https://www.facebook.com/Pershore-Northern-Link-Campaign-453953041343803/
- **Local businesses**, in particular those on the Keytec 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.

| ECONOMIC CASE | |
|---|---|
| Scheme Name<br><br>Pershore Infrastructure Improvements Package | Date<br><br>June 2017 |

| Economic Summary: | | Value for Money Category |
|---|---|---|
| **PV Benefits (£m)** | **195,751** | **See DfT guidance:**<br><br>**http://assets.dft.gov.uk/publications/value-for-money-assessments-guidance/vfmguidance.pdf** |
| **PV Costs (£m)** | **9,785** | |
| **BCR** | **20** | |

**Assessment Approach and Assumptions**

**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.

The trip matrices for car and heavy goods vehicles were assigned to the network, from which comparisons of link flows and journey times were made between the model and observations. The model was developed to be as good representation as possible of the observations. The model was calibrated and validated in accordance with the standards and procedures set out in TAG unit M3-1 on Highway Assignment Modelling.

Summary statistics of counts passing DMRB criteria are given below. The table shows that in all three model time periods, over 85% of modelled flows satisfy DMRB criteria when compared with observed flows for all vehicles.

*Percentage counts satisfying DMRB criteria*

| Counts | Total Sites | Percentage DMRB Pass | | | | | |
|---|---|---|---|---|---|---|---|
| | | Light Vehicles | | | All Vehicles | | |
| | | AM | IP | PM | AM | IP | PM |
| Calibration | 36 | 97% | 100% | 100% | 100% | 100% | 100% |
| Validation | 24 | 88% | 96% | 96% | 92% | 96% | 92% |
| Total | 60 | 93% | 98% | 98% | 97% | 98% | 97% |

The observed journey times were aggregated between 2 or more ANPRs to form a route and comparison was made for all three time periods with the modelled journey time outputs.
The journey time comparisons met the DMRB acceptability criteria. Over 90% of the routes validated in terms of journey time for AM, IP and PM Peak. Further details on the model development are given in the Local Model Validation Report, Appendix 6.

Forecasts for this study have been developed in accordance with TAG guidelines. As infrastructure options being considered are highways orientated, only forecasts for the private vehicle (LVs and HGVs) have been detailed. The assessment methodology is based on comparison of the Without Scheme (WoS) and With Scheme (WS) forecast scenario to assess the impact of the transport intervention.
Forecasts for two future years have been considered:

- Opening year - 2019; and
- Forecast year - 2030.

The future year models represent the impact of land use changes on travel demands and network performance, being able to assess the impact of different development locations, scales of development and type of development.
The core scenario forecasts for WoS and WS were built for both future years. Essentially this updates the demand data from Reference Case forecast years under the assumption that changes in economic parameters (such as value of time or fuel costs) will also have an impact on the model.

Development assumptions have been identified through consultation with WCC and local authority planning staff for the horizon years of 2019 and 2030 based on their uncertainty classification. Trip demand for the development allocations was derived using vehicular trip rates agreed with WCC for residential and employment developments. Trip ends forecast was based on planned development and constrained to TEMPRO v7.2 (Feb 2017 release) for reference case matrices. Subsequently, income and fuel change factors were applied to prepare final forecasts matrices for WoS and WS scenarios. For HGV, growth factors were obtained from the National Transport Model (NTM) to project HGV matrix for future years.
Only those developments with a status of 'Near Certain' and 'More than Likely' have been included in the forecasts. The committed developments proposed in Pershore are illustrated in the table below.
Generalised cost parameters for the future years were derived using values from 'TAG data book-forthcoming change, November 2016' released in July 2016.

*List of committed developments*

| **Employment** | | |
|---|---|---|
| Employment | Interbrook | 4.45 Ha |
| Employment | Land to the north-east of Pershore | 5 Ha |
| **Residential** | | |
| Housing | Land adj. The Workshop & Uplands | 14 Unit |
| Housing | Land north of the Green | 33 Unit |
| Housing | Land adj. Conningsby Drive | 7 Unit |
| Housing | Land to the north of Pershore off Station Road / Wyre Road, (c) | 695 Unit |
| Housing | Land to the north of Pershore off Station Road / Wyre Road, (a) | |
| Housing | Land to the north of Pershore off Station Road / Wyre Road, (b) | |
| Housing | Garage Court, St Andrews Rd | 8 Unit |
| Housing | Garage Court, Abbots Road | 13 Unit |
| Housing | Land off Defford Rd | 21 Unit |

The WoS network with committed highway schemes include the conversion of three priority junctions into signalised junctions to support the new developments in their vicinity and inclusion of a Puffin crossing on A4104 at the south of Pershore High School entrance.

The WS model networks include the same assumptions as the WoS and include the New Link Road (a single carriageway with a 40mph speed limit) and improvement schemes at Pinvin crossroads and Wyre Road/Station Road junction.

Comparisons of the model outputs between the WoS and WS scenarios were undertaken for the overall network performance statistics, link flow changes, flow and delay at major junctions and journey times on key routes.

Further sensitivity tests under low and high growth scenarios were undertaken for the two forecast years.

The results of the forecast models are described in detail in the Traffic Forecasting Report given in Appendix 6.

**Economic Assessment**

The approach to calculating the Benefits Costs Ratio (BCR) has been completed based on Transport Economic Efficiency, using TUBA (v1.9.8); Traffic Safety, using COBALT; distributional impacts; and regeneration impacts.

The outputs from the highway traffic model covering changes in time and distance skims between the WoS and the WS form the inputs to the economic appraisal. TUBA provides a complete set of default economic parameters in its 'Standard Economics File'. This contains values of time, vehicle operating cost data, tax rates, economic growth rates and a host of other economic parameter values. The average Value of Time (VoT) for all distance is used for all vehicle and trip purposes.

Traffic growth has been accounted for within TUBA up to the year 2030 (that is between 2019 and 2030) by automatic interpolation between modelled years. No traffic growth was assumed after the final modelled year, 2030.

The preparation of costs for the package has been carried out following the principles set out in TAG Unit A1-2 'Scheme Costs'. The baseline cost at 2017 Q1 prices is £8.468 million excluding inflation, QRA and optimism bias.

The TUBA assessment was carried out for the Core Scenario. Further two traffic growth uncertainty tests including the Low Growth and the High Growth Scenarios based on Core Options were undertaken.

The benefits of the scheme have been assessed only for the AM and PM peak periods as the Inter-peak period does not experience congestion. In the economic analysis of the travel time savings, fuel and non-fuel vehicle operating costs and indirect benefits, the annualisation factors used were

- 648 hrs for AM peak and
- 680 hrs for PM peak.

The impacts upon users, derived from calculations in TUBA and COBALT are brought together in the Transport Economic Efficiency Table.

The detailed results of the economic analysis are given in the Economic Assessment Report in Appendix 6.

## Key Risks, Sensitivities and Uncertainties

| Scenario | Travel Time | VOC | Indirect Tax | Other monetised benefits | Total monetised benefits | BCR |
|---|---|---|---|---|---|---|
| Core Scenario | £184m | £17.91m | -£6.719m | £1.371m | £195,751m | 20.00 |
| Low Growth | £162.9m | £15.89m | -£5,961 | £1,475m | £173,513 | 17.73 |

## Overall assessment - Appraisal Summary Table

The overall impact of the package is summarised in the AST included within Appendix 7.

| Impacts | Positive Impacts not Included in BCR | Scale of Impact |
|---|---|---|
| Regeneration and wider economic benefits. See Chapter 6, Appendix 6. | 316 dwellings, 7500 sq.m employment, 3100 FTE jobs, £17m in annual GVA | Slight beneficial |
| Severance | Station Road and Terrace Road will benefit from reduced traffic flows and therefore reduced severance at a location where there is a high demand for walking and cycling, for example in the vicinity of the High School.<br><br>Wyre Road and Station Road (south of the Wyre Road junction) will see increased traffic flows potentially leading to additional severance.<br><br>Northern Link Road - existing uncontrolled pedestrian crossings to be retained. | Slight beneficial |
| Journey quality | Travellers will experience reduced stress due to lower levels of congestion and reduced delay | Slight beneficial |
| Access to services | The package will improve access to the Keytec Business Park | Moderate beneficial |
| Further Comments: | | |

| Impacts | Negative Impacts not Included in BCR | Scale of Impact |
|---|---|---|
| Landscape | Impact on wider landscape type and | Generally slight adverse |

| | | |
|---|---|---|
| | field margin. | |
| | | |
| | | |
| Further Comments: | | |

**Value for Money Statement**

Conclusion from value-for-money assessment and VfM category.

| **Criteria** | **Pershore Infrastructure Improvements Package** |
|---|---|
| Value for Money | Very High Value for Money (unadjusted) |
| NPV | The package has a NPV of: £185.966 million |
| Initial BCR | The package has an initial BCR of 20.00 |
| Summary of the benefits and costs | Benefits<br>• Highway transport user benefits associated with improved journey times<br>• Regeneration benefits up to £17m annual GVA<br>• Distributional impacts benefits |
| Non-monetised impacts | Moderate to high beneficial |
| Key risks, sensitivities and uncertainties underlying the appraisal | None know at this stage |
| Significant social or distributional impacts | Moderately Beneficial |

| FINANCIAL CASE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Scheme Name:** | Pershore Infrastructure Improvement Package | | | **Date:** | June 2017 | | | |
| **Summary Financials** | | | | | | | | |
| **Overall Cost of Scheme** | **£11,142,699** | **LTB Contribution** | **£5,000,000** | **Available Budget** | **£6,142,697** | **Contingent Liabilities** | £ m | |
| **Scheme Costs** | | | | | | | | |
| **Main Expenditure Items (include project income separately) (£m)** | **Previous Years** | **FY 15/16** | **FY 16/17** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **Total** |
| Scheme preparation costs including design and project management | | | | £453,927 | £376,223 | £0 | £0 | £830,150 |
| Land and compensation including Part 1 claims | | | | £0 | £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 COST** | | | | £601,733 | £1,541,803 | £5,936,663 | £3,062,500 | £11,142,699 |
| **Budgetary Impact Summary** | | | | | | | | |
| **Forecast Net Budget profile (£m)** | **Previous years** | **FY 15/16** | **FY 16/17** | **FY 17/18** | **FY 18/19** | **FY 19/20** | **FY 20/21** | **Total** |
| Total Required Budget | | | | £601,733 | £1,541,803 | £5,936,663 | £3,062,500 | £11,142,699 |
| Total Local Contribution (Secured) | | | | £463,000 | £1,150,000 | £0 | £0 | £1,613,000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Total Local Contribution (Unsecured) | | | | £138,733 | | £1,328,466 | £3,062,500 | £4,529,699 |
| Total LTB Requirement | | | | | £391,803 | £4,608,197 | | £5,000,000 |

**Anticipated Funding & Financing Arrangements**

Funding will be obtained from 5 different sources as follows:

Financial Year 2017/18

- WCC Integrated transport block allocation of £408,000;
- Wychavon DC allocation of £55,000 (for scheme development costs such as design);
- WCC borrowing (currently unsecured) of £138,733.
-

Financial Year 2018/19

- Wychavon DC allocation of £150,000 (for works construction costs);
- S106 contributions from identified developments/agreements of £1,000,000 (for works construction costs);
- WLEP allocation of £391,803;

Financial Year 2019/20

- WLEP allocation of £4,608,197;
- WCC borrowing (currently unsecured) of £1,328,466.

Financial Year 2020/21

- WCC borrowing (currently unsecured) of £3,062,500

£55,000 of Wychavon DC's contribution is to be disbursed only for scheme development costs.

Funding from WLEP, together with the S106 contributions and £150,000 of Wychavon DC's contribution is to be disbursed only for construction costs.

**Scheme Cost Estimate and Key Financial Risks**

A detailed cost estimate is included within Appendix 9 and a Quantified Risk Assessment is included within Appendix 10.

The main risks to cost forecasts or budget, defined by having an expected value greater than £60,000 are summarised below.

*Main risks to costs forecasts or budgets*

| Risk | Mitigation status | Calculated Risk Value |
|---|---|---|
| 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). | Optioneering has identified the preferred option and associated plots have been identified, aim to secure all land by agreement with potential parallel CPO process, engage with Network Rail with regards to oversailing rights. Potential to revise scheme design or approach to departures from standard if difficulties encountered. | Range £0-314,000<br><br>Expected value £63,000 |
| Network Rail approvals take longer than programmed resulting in delay to programme. | Early discussions with Network Rail to agree programme. | Range £0-214,000<br><br>Expected value £64,000 |
| Project Sponsor/key stakeholder key decisions affect programme delivery (e.g. amendments to scheme works scope). Excludes Network Rail. | Ongoing engagement with Sponsors and Stakeholders | Range £0-500,000<br><br>Expected value £183,000 |
| 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 | Mitigation measures include ongoing scheme development and investigation. Pricing could be externally reviewed. Allowance will always be required in QRA unless fixed price contract used. | Range £0-360,000<br><br>Expected value £90,000 |
| Scheme cost inflation uncertainty leading to higher than expected out-turn costs resulting in inadequate budget available. | Inflation of construction elements based on ONS construction output prices, assumed 2.9% per year. QRA equates to uplift to 5%. | Range £0-435,000<br><br>Expected value £65,000 |
| Bridge cost higher than anticipated arising from additional requirements from Network Rail | Early discussions with Network Rail to identify requirements. | Range £102-408,000<br><br>Expected value £88,000 |
| Unforeseen ground conditions resulting in changes to foundation, embankment, bridge, etc. designs. | Site investigation and testing to ensure robust design and to quantify risk. | Range £0-500,000 |

| | | |
|---|---|---|
| | | Expected value £160,000 |

**Accounting and Budgeting Issues**

Not available

| COMMERCIAL CASE | |
|---|---|
| Scheme Name: Pershore Infrastructure Improvement Package | Date: June 2017 |

## Introduction

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 takes into account the resources available to The Council, the risks associated with the project and assesses the procurement routes to deliver the project in the most efficient way possible.

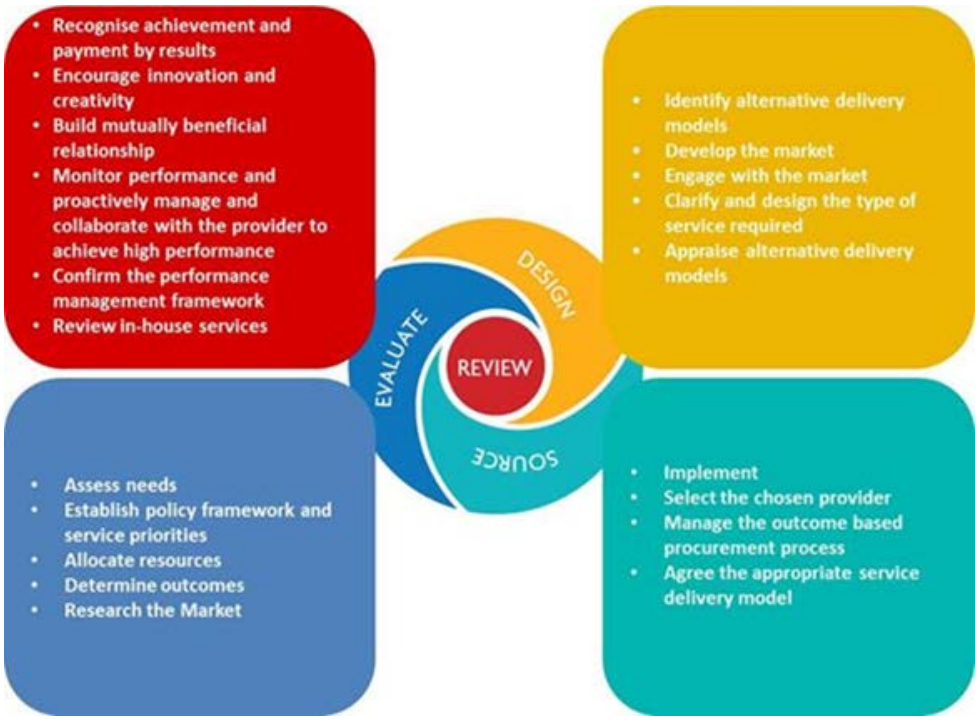
## Capability, Skills and Evidence of Previous Project Delivery

The Council has extensive in-house strategic and technical procurement expertise and a wealth of knowledge and experience, with a proven track record of delivery, with different types of contracts.

The Council is establishing itself as a strategic commissioning organisation that will only directly provide services where there is no viable alternative. Supporting this, The Council has a commercial vision to "drive commercial excellence through developing an open, challenging and pro-active culture and deploying effective commissioning strategies to source the right service from the right provider at the right cost."

The diagram below shows The Council's approach to commissioning and procurement and has influenced the choice of the strategic procurement approach to the project.

*The Council's Approach to commissioning and procurement*




Having recently appointed contractors to deliver several strategic infrastructure projects, including Worcestershire Parkway Railway Station and the Design Development stage of the Worcester Southern Link Road Phase 4, The Council has recent and relevant market intelligence and commercial data to inform its decision-making and procurement plan. This is complemented by technical expertise from our term professional services supplier providing the breadth of both commercial and technical expertise required

to prepare for and deliver the right contractual arrangements for the project. Market engagement specifically focused on this project is included in the procurement programme.

**Procurement Strategy & Sourcing Options**

A number of options are available to The Council to deliver the project. In deciding the preferred option there are a number of key considerations, these being:

- Cost Certainty - ensuring The Council secures best value throughout the project and not just at tender award;
- Whole Life Cost - balancing investment cost with future maintenance costs to achieve best value over the life of the project and the asset;
- Innovation - improving value and reducing overall cost;
- Incentives - encouraging the supply chain to seek continuous improvement and cost down initiatives throughout delivery of the project;
- Supply Chain Integration - reducing potential for project delays with all suppliers working to one plan;
- On Time Delivery - ensuring that disruption to road users and local communities is kept to a minimum;
- Lean Contract Management - minimising project resource requirements through effective and efficient contract management with single points of contact;
- Risk Sharing - ensuring the ownership of risk is apportioned to secure best value with the party best placed to manage each risk;
- Social Value - optimising content against The Council's corporate priorities and community values (see table below).

*The Council Corporate Plan – Shaping Worcestershire's Future 2017-22*

| **Championing Open For Business** | **Children & Families** |
|---|---|
| Support the growth of existing businesses | Strive to ensure Worcestershire schools provide high quality education for all children and young people (Ofsted rated “good” or “outstanding”) |
| Provide direct support, particularly to start-ups to help them survive and then grow | Provide adequate capacity by creating the right number of school places to respond to parental preference |
| Improve skill levels in the county and support the development of a skilled workforce | Support successful schools to expand in an appropriate form, to meet housing growth |
| Attract inward investment into the county | Support our children and young people in achieving good attainment and realising their potential |
| Act in a business friendly way | Continue to lobby central government to ensure fairer funding for our Worcestershire schools |
| Deliver "Game Changer" employment sites and locations | More young people moving successfully into employment |
| Create a World Class Workforce | Safeguarding at the heart of everything we do |

| Protect the Environment | Promote Health & Wellbeing |
|---|---|
| Being a responsible custodian of the county's environment<br><br>Commitment to improve our transport networks and deliver resilient infrastructure<br><br>Minimising waste | Promoting healthy and active lifestyles<br><br>Enabling vulnerable people to live as independently and safely as possible with the support of their families, friends and communities<br><br>Continue to work with partners to make sure all health and social care services are evidence based, effective, and good value for money |

The particular project features influencing the procurement strategy are:

- The project features 3 physically (and partly operationally) discrete elements which could be packaged
- The design and construction of the large embankments and bridging of the railway line have a high level of complexity
- Accommodating a funding profile which restricts availability of funding until design has been fixed and planning has been achieved

Consideration was given to the separation of the 3 elements rather than packaging together, however, this has been discounted for several reasons:

- The proposed modification of Pinvin junction requires land acquisition and is unlikely to be deliverable significantly earlier than the other works
- Separation of the elements will create additional project management costs and introduce further interfaces which may add to time and cost
- The project design and development is predicated on all 3 elements being delivered concurrently and to separate them does not deliver the same optimum outcomes

Finally best practice recommends appointing a contractor early in the development of projects because this allows an integrated team to gain a good understanding of the requirements, develop innovative solutions to complex problems, plan and mobilise resources, and manage risks to accelerate delivery and reduce costs. It integrates design development and construction planning at an early stage which allows the contractor, designer and key supply chain to develop innovative solutions and overcome obstacles and minimise abortive work. It provides more time for planning and the preparation of the construction programme. For example, it allows time to understand and plan for critical events, such as rail possessions and utilities diversions. It also ensures that an agreed contractual programme is in place for the start of the construction stage. It provides greater opportunities for the integrated team to support stakeholder management, and to improve the management of risk and health and safety planning during the development stage.

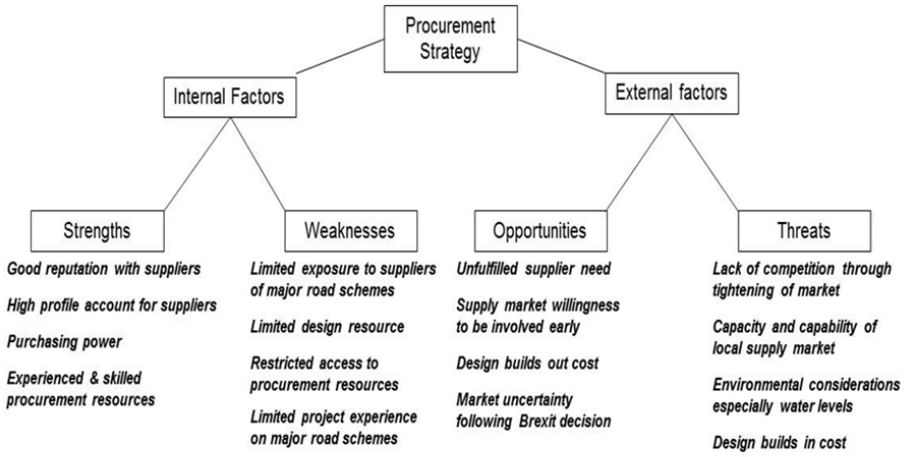
The procurement options considered to develop and realise the design and undertake construction of this project, within all the features and constraints, are:

- Traditional Approach - Client undertakes or commissions design and appoints construction contractor;
- 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 followed by detailed design and construction; and
- Use of The Council's existing term contracts.

SWOT analyses have been used to provide a critique of the internal and external environment in delivering the project via the four options. Internal factors are seen as Strengths and Weaknesses, external factors

as Opportunities and Threats. The analysis has helped to inform how best to match the resources, capabilities and market conditions to the strategic options and selection of best strategic approach, in line with the following model. The results are included at Appendix 14.

*SWOT Model*




Having identified potential strategic procurement options, a more detailed consideration of the ability to deliver the commercial objectives was undertaken and is included at Appendix 14. This demonstrates two preferred procurement routes.

Market engagement activities are scheduled to commence in Summer 2017 to test the appeal of each approach.

The Council has implemented a Procurement Board, supported by a Commercial Assurance Programme (gateway review), to provide senior management challenge, control, measurement and governance on significant procurement projects.

**Recommended Procurement Strategy**

The procurement routes we will progress and test 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 followed by detailed design and construction.

**Option 1 - Use of The Council's Term Contractor**

The first option above is the preferred route as experience has shown that our term contracts facilitate a healthy environment to maximise opportunities for cost down initiatives and innovative solutions to complex problems. It is a longer term relationship and the contract incentivises the contractor to work hard to meet our shared goals. 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 an Open procurement under OJEU and the Public Procurement Regulations.

Rates agreed at the outset of the contract are benchmarked against inflation indices to ensure they remain competitive and maintain cost-effective target 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 and solve issues and obstacles. 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.

Being a term contractor, they are familiar with The Council's aims and objectives, the Local Transport Plan

and the Worcestershire Economic Plan and work 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 and is actively participating in finding solutions and planning the construction stage.

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 however it is may require higher levels of management and administration to fully realise the benefits. 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; and
    - 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 remaining concern 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.

A review of sourcing options has been undertaken, with consideration given to any frameworks or existing contracts offering the preferred contracting models along with the best value for money outcome. This is evidenced in Appendix 14. The Council concludes that:

For Option 1, the Council intends to have the term contractor in place at the date required by the programme.

For Option 2, an Open Procurement under OJEU and the Public Procurement Regulations would commence in the Autumn of 2017, to appoint a contractor by the date required in the programme.

The preferred option is Option 1.

**Financing Arrangements and Payment Mechanisms**

A method of payment allowing for monthly assessments of the costs accrued is likely to be adopted as this allows for optimal cash flow for the supplier, the supply chain and The Council. Similarly, quality and standard of final construction will be managed through retention clauses and performance management.

Clauses requiring fair payment terms throughout the supply chain along with measures to audit this in contract form an integral part of the terms and conditions.

**Risk Allocation and Transfer**

Summarise how risk is transferred as part of contracting process.

We have undertaken an initial assessment of how the types of risk might be apportioned or shared, with risks allocated to the party best placed to manage them, subject to achieving value for money. The contract will include clauses to facilitate the transfer of appropriate risks from The Council to the contractor, such as risks associated with ground conditions and some of the Network Rail obligations. The project costs currently include optimism bias and contingency associated with risk, following the Quantified Risk Assessment.

The risk of costs being higher than currently predicted remains until the tendering process is complete, which is the point that this risk can be transferred to the contractor (on contract award). The indicative allocation of risks resulting from the contractual and procurement arrangements is summarised in the table below. At this stage, ticks have been provided to indicate where each risk type rests or whether these risks are shared between the two.

*Risk allocation*

| Risk Category | The Council | Supplier | Shared |
|---|---|---|---|
| Design | | ✓ | |
| Construction | | ✓ | |
| Implementation | | | ✓ |
| Operations | ✓ | | |
| Termination | | | ✓ |
| Financing | ✓ | | |
| Legislative | | | ✓ |

Essential to the successful running of the contract are high-quality project management skills, complemented by specialist cost control expertise and sufficient support resources. These are required from the outset of project development right through to post-completion. This will be supplemented by a project governance structure more fully described in the Management Case.

**Contract Length**

An indicative programme of contract duration has been developed, as detailed in Appendix 11.

**Human Resources Issues**

No relevant personnel/people management/trade union implications, including TUPE regulations have been identified for this project.

| MANAGEMENT CASE | |
|---|---|
| **Scheme name:** Pershore Infrastructure Improvement Package | **Date:** June 2017 |

## Introduction

A comprehensive set of Preliminary Options Reports (PORs) have been produced to document the options available for each of the three interventions. These reports consider, amongst other things, the constraints and engineering difficulty associated with each of the options and this feeds through into the option assessment matrix under three headings which relate to deliverability. Key criteria affecting delivery were considered to be:

- Need or otherwise for third party land,
- Impact on statutory undertakers' plant or third party assets (such as Network Rail), and
- Estimated construction cost.

Collectively the deliverability assessment was weighted to contribute over 30% of the option score and this was then used as the basis for refining the number of options taken forward for further assessment. The PORs are included within Appendix 4.

In addition to the deliverability assessments undertaken on these options, work has now commenced to engage with stakeholders to further inform the design of the preferred option (as identified by the Option Assessment Report included within Appendix 4, and as presented in this business case). This will ensure progressively increasing confidence that the scope of works and associated construction programme and pricing are robust.

## Evidence of Similar Projects

Worcestershire County Council (WCC) has considerable experience of:

- Delivering transport schemes and packages on time and on budget
- Successfully obtaining consents for major infrastructure schemes and packages
- Developing and maintaining good working relationships with key partners and stakeholders
- Internal resourcing and governance requirements for major schemes and packages
- Delivering schemes and packages via a suite of term contracts.

Examples of schemes and packages successfully implemented by WCC include:

- The £19.5m Worcester Transport Strategy (Phase 1) Major Scheme (WTS). This scheme comprised of a series of improvements to the network (walking, cycling, public transport and vehicular improvements) in and around the city of Worcester including improvements to key corridors into Worcester city centre and upgrading of the existing Ketch roundabout on the A4440 Broomhall Way (part of the Southern Link).
- The £8.2m Evesham Abbey Bridge project funded through the DfT Maintenance programme. This scheme comprised of the replacement of Abbey Bridge over the River Avon along with the approach viaduct, and modification to the signalised junction (improved pedestrian phasing) to the south of the bridge.
- The Hoobrook Link Road (Phase 2) in the South Kidderminster Enterprise Park. The £16m scheme to complete a link road to the south of the town centre with a new bridge over the Worcester Canal and River Stour. The scheme was completed in Summer 2016.

## Programme or Project Dependencies

The table below highlights the dependencies and their significance.

**Requirement for planning permission**

The Northern Link Road requires planning consent, which will include a full EIA. Also, the planning application will, through the Transport Assessment, will consider the interaction of all three elements of the package.

**Ecological Mitigation**

As stated above the Northern Link Road requires a full EIA due to the need to translocate an 'exceptional' population of slowworms. Until such time that WCC can demonstrate the viability of a suitable receptor site for these reptiles the scheme cannot secure planning permission. A reptile mitigation strategy is under development in partnership with WCC to identify and assess a suitable receptor site.

**Network Rail easement**

As the link road crosses the railway line, this will require an easement from Network Rail.

Arrangements for working adjacent and above the line.

**Land ownership**

Option 1 for the Northern Link Road utilises land that is under agreement, ownership, or control by Worcestershire County Council with the exception of the land at the railway where oversailing rights are to be agreed with Network Rail. The land south of the railway is subject to a Section 106 agreement in favour of WCC and relates to the outline permission for the employment site which requires the applicants to hand over land in their ownership to allow the delivery of the link road, should a contract for the construction of the road be entered into within a 30 year period. As part of the design, efforts have been made to avoid the need for acquisition of other land. For example, the use of retaining walls to the west allows the alignment to be positioned adjacent to the existing developed industrial units. This allows the route to avoid encroachment onto 3rd party land north of the railway line and east of the existing culvert (that is owned by others not currently in dialogue with WCC).

Option 2 at Wyre Road/Station Road is within the highway boundary.

Option 3 at Pinvin requires a small triangle of land outside the highway boundary and it is hoped that this would be secured by agreement. In addition there are plots of land adjacent to the junctions southern arm where it would be desirable to acquire favourable rights to ensure the maintenance of intervisibility splays.

If required, compulsory purchase of land will be carried out under the powers of the Acquisition of Land Act 1981. This will also rely on the following sections of the Highways Act 1980:

- Section 239: which deals with general powers for the acquisition of land for the construction of a highway.
- Section 240: which deals with general powers for the acquisition of land required for, or for use in connection with construction of the highway.
- Section 246: which deals with the acquisition of land for the purpose of mitigating any adverse effect which the existence or use of the proposed highway will have on its surroundings.

*Dependencies*

| **Issue** | **Impact on timing/programming** | **Issue without which the project cannot be completed or would not achieve its objective** | **Mitigation** |
|---|---|---|---|
| Requirement for planning | This has been allowed for in | The Northern Link Road | Allowance in |

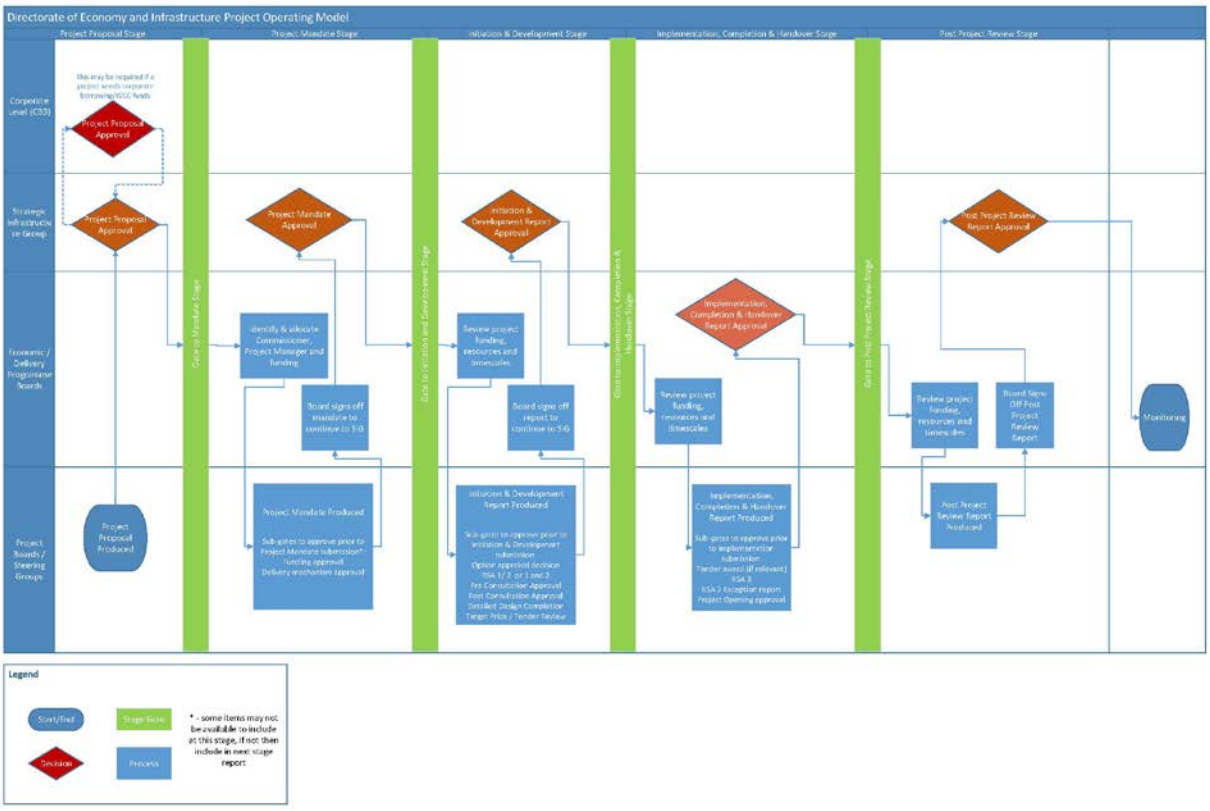
| | | | |
|---|---|---|---|
| permission and EIA | the programme | and therefore wider scheme cannot be constructed without planning consent | programme. |
| A suitable receptor site is required to enable the translocation of the existing reptile population before planning permission will be given. | This has been allowed for in the programme | The Northern Link Road and therefore wider scheme cannot be constructed without planning consent | Work is proceeding to identify, assess and secure a receptor site.<br>Environmental issues are discussed further in Appendix 15. |
| As the link road crosses the railway line, this will require an easement from Network Rail | This issue has potential to impact programming as discussions with Network Rail can be time consuming | The Northern Link Road cannot go ahead without agreement from Network Rail | Early engagement with Network Rail. |
| Need for third party land | This has been allowed for in the programme. | Small triangle of third party land outside of the highway boundary for Pinvin option 3 | Early engagement with landowners. |

## Governance, Organisational Structure & Roles

| | |
|---|---|
| Senior Responsible owner: Nigel Hudson | Project Manager: Chris Beattie |

The project is being delivered in accordance with the WCC Directorate of Economy and Infrastructure's Project Operating Model (POM) which is a PRINCE based project delivery framework characterised by a governance structure and gateway review controlled stages of project development and delivery as shown in figure X below.

*Project Operating Model*



Specific attention has been given to governance, to provide a clearly defined structure for the role of the Cabinet, Project Board, Project Manager and Project Teams. The table below gives an overview of the overall structure. Worcestershire County Council's Cabinet has ultimate authority for the project. The Cabinet meets on a monthly basis.

*Key Project Members*

| Member | Key Roles and Responsibilities | Resourced |
|---|---|---|
| Cabinet | Overall responsibility | Yes |
| Project Board | Design and financial approval | Yes |
| WCC | Project Management | Yes |
| CH2M | Design and scheme development partner including CDM Principal Designer | Yes |
| Place Partnership | Land Agent | Yes |
| Contractor | Design and construction | No, planned for January 2018 |

The package is overseen by a Project Board and their role is one of governance, accountability and decision making. Members of the project board have been involved in key elements of the project to date, including the risk workshop and preparation of the QRA.

The Project Board meet at key milestones throughout the life of the project to ensure Project Assurance objectives are met. The Project Board will also specifically meet at key milestones during the project, tying in with their role in procurement, design and financial approval in the next stages of the project.

*Project Board Membership*

| Member | Organisation/Position | Role |
|---|---|---|
| Nigel Hudson | WCC/Head of Strategic Infrastructure and Economy | Member/Senior Responsible Officer |
| Andy Baker | WCC/ Transport Planning & Commissioning Manager | Member/Responsible Officer |
| Karen Hanchett | WCC/ Development Control Manager | Member |
| Abhi Bhasin | WCC/Senior Transport Planner | Member /Work Package Owner |
| Steph Walton | WCC/Infrastructure Procurement Manager | Member/Work Package Owner |
| Phil Merrick | Wychavon District Council/Head of Economy | Member |
| Ian Edwards | WLEP/WLTB Member | Member |
| Mark Mills | WCC/Contracts Project Manager | Member/ Project Commissioner |
| Chris Beattie | CH2M/Project Manager | Member/ Project Manager |

The Senior Responsible Officer is Nigel Hudson. The role of the SRO is to lead the management and delivery teams and provide the interface with the executive team. In this instance, the Senior Responsible Officer is required to:

- Report to and receive feedback from the Project Board;
- Ensure the appropriate resources, project management and technical expertise are in place for the project;

- Make decisions and approve changes within agreed tolerances or seek authorisation if required;
- Monitor and evaluate project progress against milestones and assess outcomes; and
- Provide guidance, support and direction to the Project Manager and project team.

The Project Manager is Chris Beattie. He will lead the management and delivery teams, providing an interface between the various approval boards and delivery teams, in accordance with WCC Project Operating Model (POM). He manages the project using Prince 2 methods within set tolerances as agreed by the Project Board. He leads the work of the Project Teams and is a member of the Project Board.

The role of the Project Manager is to:

- Lead and coordinate the project team and its work-streams
- Procure consultants and contractors
- Prepare and report project budgets
- Manage project risks and issues
- Report to and receive feedback from the responsible officer
- Produce periodic progress reports to relevant committees

The Project Manager is supported by a project team covering all related disciplines. In most cases a discipline has a lead officer or consultant who is, where relevant, supported by a co-ordinator and wider team.

## Risk Management Strategy

A Quantified Risk Assessment together with a description of the proposed risk mitigation strategy is included within Appendix 10. The main risks to the delivery of the project are set out below.

*Main risks to delivery*

| 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. |

## Project Plan

The Project Plan is included as Appendix 11. Key milestones are summarised below.

*Project Programme*

| **Milestone** | **Target date** |
|---|---|
| Conditional Approval | July 2017 |
| Full Approval | August 2018 |
| Employer's 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 + |

## Communications and Stakeholder Management

A Stakeholder Management and Engagement Plan for the project is included as Appendix 12.

**Previous consultation**

Consultation for the Pershore package has been undertaken in several different forms. The inclusion of schemes for Pershore as a key part of LTP and SWDP 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.

The Northern Link Road has support locally and the Pershore Northern Link Campaign has been set up by county, district and town councillors. https://www.facebook.com/Pershore-Northern-Link-Campaign-453953041343803/

The Town Council is currently consulting on a Town Plan http://www.pershoretownplan.co.uk. Feedback provided by the Town Plan Steering Group shows that traffic and infrastructure is ranking as the theme

receiving the highest number of comments or suggestions to date (as part of a consultation exercise running from April to August 2017). Common comments relate to:

- The need to plan for future increase in traffic;
- The wish to reduce the number of HGV's through Pershore;

  The need to alleviate congestion on Station Road and Wyre Road (with support shown for the concept of a Northern Link Road).

**Stakeholder analysis**

The Stakeholder Management Plan (Appendix 12) provides a consolidated list of key stakeholders and consultees. For each it identifies role, attitude and influence. This analysis will be updated as the project progresses and used to help ensure that resources are directed towards engaging with the most influential/powerful stakeholders.

**Approach to communications and stakeholder management – pre planning**

To date, stakeholder engagement has been high level and focussed on:

- Council Members – who show a strong degree of support for the package in principle
- Businesses – who have provided various statements to demonstrate the difficulties currently faced in gaining access to the industrial estate.
- Worcestershire's County Ecologist, in respect of mitigation requirements for reptiles
- Network Rail – to begin discussions around permissions and possessions required

Key next steps will be to:

- Further brief Members of the status of the package
- Engage statutory consultees formally through the EIA Scoping Process.
- Engage with the District Council as Local Planning Authority and commence formal pre-application discussions.
- Liaise with landowners.
- Engage more widely with stakeholders and share scheme designs with local residents and network users. This process would be based around a public exhibition, sharing of information via a website, letters and leaflets. This would take place ahead of final designs being finalised in order that comments can be taken into account before the submission of a planning application.

**Assurance & Approvals Plan**

Project activities are identified and defined by professional services scope which is predominantly administered via WCC's PID system. Within this context project deliverables are subject to checking and, for elevated risk items including geotechnical and rail deliverables, peer review before finalisation.

Further to this the WCC Project Operating Model defines a series of approval processes which govern the progress of the project through the project stages (refer to Figure X from previous section). Together with the function of the project board these approval processes afford the opportunity for challenge from WCC non-project team members including members of Economic/Delivery Programme Boards and the Strategic Infrastructure Group.

**Statutory Powers and Acquisitions**

This package requires planning consent, various environmental consents and permission from Network

Rail, as highlighted below.

*Consents; licenses and approvals required.*

| **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 roost, 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.<br>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 |

## Contract Management

The procurement strategy has considered the need for continuity and envisages appointing a contractor to work alongside the current project team to assist with design finalisation and target pricing of the construction works prior to award of the construction works themselves. The timing of this appointment will enable the contractor to influence the design to optimise buildability, cost and quality prior to the submission for planning permission.

Subject to the securing of the necessary planning permission and other conditions the construction works will then be awarded to the contractor. The contractor will be appointed as CDM Principal Contractor and CH2M will continue in its role as Principal Designer however alternative CDM arrangements may be used either at the point the contractor is first appointed or at the point at which the construction contract is awarded. During construction WCC, together with their design partner CH2M, will manage and administrate the construction contract and supervise the works. The project team will continue to report to Project Board until completion of any guarantee period also including any monitoring and evaluation period.

## Key Issues for Implementation

Timely possessions of land to effect ecological mitigation within slowworm active season (typically March to October). It will be desirable to implement the ecological mitigation in advance of the planned construction period and as such this will need to commence early in 2018 to allow sufficient time for trapping and moving large numbers of reptiles and to be able to demonstrate that the site is clear.

The bridge cannot be constructed unless suitable possessions are granted from Network Rail; early discussions have suggested that works can be delivered under 'rules of the route' possessions which typically require a 16 week notice period. As such it is currently considered that these possessions can be arranged once the construction works are mobilised however discussion with Network rail will remain ongoing as the design progresses.

Land is required to enable construction of both the link road and the improvement to Pinvin junction, whilst it is planned to deliver this land by negotiation there is a risk that a full CPO process and public inquiry could ultimately be required. This could result in land not being available to meet the programme for the proposed construction contract. In this instance it would be possible to partly mitigate the delay by adopting a phased approach to construction as access becomes available.

The procurement strategy assumes that a new term civil engineering contractor will be in place by January 2018 to enable the appointment of a contractor, if this option proves not to be viable (on the basis of timing or services available via the contract) then the programme may become unachievable.

## Benefits Realisation and Monitoring and Evaluation Plan

The table below shows how the high level benefits of the package, the Desired Impacts, support the objectives. The Benefits Realisation Plan is included as Appendix 13.

*Objective and impacts*

| No | Objective | Desired Impact |
|---|---|---|
| 1 | Improve the performance and attractiveness of the A44 as a viable alternative to B4084 for traffic movements between Evesham to 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. | Reduced queue lengths and delays at Pinvin Crossroads.<br>More reliable journey times at Pinvin Crossroads.<br>A44 better fulfils role as primary route (traffic does not re-route.<br>Transfer of traffic from the B4084 to the A44, helping to reinforce the role of the A44 as the strategic route. |
| 2 | Improve access to/from Keytec Business Park to the A44 | Provision of an alternative route into the Business Park from the A44, improves access, helping to address problems currently experienced by existing businesses<br>Provision of an alternative route and more direct access will help to ensure the Business Park is an attractive location for new businesses<br>Improved perception of Pershore as a business location |
| 3 | Support the delivery of housing and employment growth as outlined in the SWDP, | Help to deliver 695 homes as part of the SWDP |

| | | |
|---|---|---|
| | in particular the Pershore Urban Extension | Pershore Urban Extension<br>Help to deliver the 9.45ha of employment allocated in the SWDP Pershore Urban Extension. |
| 4 | Improve the environment for pedestrians and cyclists on the A4104 Station Road (north of Wyre Road junction)/Terrace Road through reduction in traffic and HGV traffic in particular. | Reduction in numbers of HGVs using the A4104 Terrace Road and Station Road.<br>Reduction in numbers of HGVs using B4084 High Street.<br>Transfer of traffic away from Terrace Road and Station Road (north of Wyre Road) will also benefit the expected increased numbers of pedestrians and cyclists as a result of SWDP Pershore Urban Extension. |

These Desired Impacts will be monitored using the Monitoring methods described below:

| **Measure** | **Data to be Used** | **Rational for Inclusion** | **Data Collection Methods** |
|---|---|---|---|
| M1: Traffic Flows | Traffic Flows on the NLR, Station Road, A44 and B4084 and linking radial routes from Automatic Traffic Counts (ATCs) will be collected to understand the changes in traffic flows as a result of the scheme. | Understand changes in flow in key corridors and links on strategic highway network, including the impact for new development sites that may be completed with the observation years. | ATC data. |
| M2: Junction Performance | A full junction turning count, queue length and delay surveys (part of journey time surveys) are proposed to assess the performance of the key scheme junctions (Pinvin, NLR north roundabout, NRL south roundabout, Station Rad/Wyre Road). To determine the improved operational efficiency of the new design. | Check the performance of the new junction to establish if benefits are as modelled and forecasts. | Manual counts for peak and off peak hours for single neutral weekday |
| M3: Journey Time Data | Travel times by vehicle on routes impacted by the schemes, covering peak and off peak times of day. | Understand the time saving benefits of the measures, including comparison of car and bus times. | Manual surveys in key corridors.<br>Use of Traffic Master. |
| M4: Stakeholder Feedback | Stakeholder Feedback covering relevant elected members, the Worcestershire LEP | Understand the views of stakeholders to scheme delivery and impacts, and to understand some of the less quantified effects, including package effects. | Part of the on-going consultation process for transport strategies in the County. |
| M5: | The progress of the South | Understand the | Consultation |

| | | | |
|---|---|---|---|
| Development Applications | Worcestershire Development Plan, notable housing and employments sites in the Pershore area. | impacts (size, timescale, type) on development proposals of new measures, and hence impact to population, jobs and growth in the town. | with local planners. |
| M6: Accident Data | STATS19 data for A44, Station Road and Wyre Road to assess any changes as a result of the schemes | Assess impacts on accidents. | Collate STATS19 data. |

The Desired Impacts (based on the Objectives described in the Strategic Case) and the quantitative and qualitative measures are shown in the table below.

| Desired Impacts (D) by Monitoring Outputs (M) | M1: Traffic Flows | M2: Junction Performance | M3: Journey Times | M4: Stakeholder Feedback | M5: Development Applications | M6: STATS19 Accident Data |
|---|---|---|---|---|---|---|
| D1: Reduce delay at Pinvin Junction and improve to journey times on A44 | | | | | | |
| D2: Improve access to the Business Park | | | | | | |
| D3: Provide improved access to sites for new homes and employment development | | | | | | |
| D4: Reduce number of HGVs on A4104 Terrace Road and B4084 High Street. Improve conditions on Terrace Road and Station Road (north of Wyre Road) for pedestrians and cyclists. | | | | | | |

The Benefits Realisation and Monitoring and Evaluation Plan is included as Appendix 13.

**Contingency Plan**

Assumed not applicable

| Business Case Appendices Required | |
|---|---|
| 1 | Location Plan |
| 2 | Layout Plan of scheme |

| | |
|---|---|
| 3 | Appraisal Specification Report |
| 4 | Options Assessment Report |
| 5 | Report of data collection and model validation |
| 6 | Forecasting and Economics Report |
| 7 | Appraisal Summary Table |
| 8 | Reports on Social & Distributional Impact, Environment, etc. as defined in the Appraisal Specification Report |
| 9 | Scheme cost estimate |
| 10 | Quantified risk assessment |
| 11 | Project plan and programme |
| 12 | Communications and Stakeholder Management Plan |
| 13 | Benefits Realisation and Monitoring an Evaluation Plan |
| 14 | Commercial Case additional info |
| 15 | Environmental Scoping Report |

| **Senior Responsible Owner DECLARATION** | |
|---|---|
| As Senior Responsible Owner for [scheme name] I hereby submit this request for funding consideration to the Worcestershire Local Transport Body. | |
| Name: | Signed: |
| Position: | |
| **Section 151 Officer DECLARATION** | |
| As Section 151 Officer for [name of authority] I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that [name of authority]<br><br>has allocated sufficient budget to develop and deliver this scheme on the basis of its proposed funding contribution | |
| Name: | Signed: |

| | |
|---|---|
| | |
| Position: | |

| **CONTACT DETAILS FOR FURTHER ENQUIRIES** | |
|---|---|
| Lead Contact:<br><br>Position:<br><br>Tel:<br><br>E-mail: | |
| Alternative Contact:<br><br>Position:<br><br>Tel:<br><br>E-mail: | |