

6 Financial Case

6.1 Introduction

The delivery of A4440 Worcester Southern Link Road Improvements, including Phase 4, is a priority for WCC, the Worcestershire LEP, Herefordshire and Worcestershire Chamber of Commerce, local Members of Parliament and the Worcestershire District Authorities. The programme is aligned with agreed priorities, in particular in terms of supporting economic growth in Worcestershire, and further information is set out within this business case as to the proposed scheme details. In summary the scheme provides the following new infrastructure:

- Construction of an additional carriageway adjacent to the existing single carriageway to form a 1.2 mile (1.9 km) dual-2 carriageway from Ketch Roundabout to Powick Roundabout.
- Two new bridge structures to carry the additional 2 lane carriageway, at Carrington Bridge and at Powick Common viaduct;
- Capacity Improvements and junction revisions to allow dual carriageway connections at Ketch Roundabout;
- Widening of the existing footway to accommodate a shared pedestrian/cycle route on northern side;
- New road markings, some widening of carriageway on west approach to accommodate movements to new dual carriageway section at Powick Roundabout;
- Upgrade of dedicated left hand turn to Malvern to fully segregated facility at Powick Roundabout;
- Provision of a foot/cycle bridge linking the north and south cycle routes, located on the west approach, at Powick Roundabout; and
- Upgrade of grade separated pedestrian route for north to south movements at Ketch Roundabout.

The delivery of the A4440 Worcester SLR Phase 4 Improvement scheme entails a three-stage cost lifecycle, as follows:

- Preparation costs from 2017 through to construction of scheme (for the purpose of economic appraisal all costs prior to April 2018 have been assumed to be sunk cost);
- Construction & Land Costs (including site supervision); and
- On-going liabilities including highways and bridge maintenance costs, scheme monitoring and evaluation.

The estimated outturn cost of the scheme is £62m (excluding Part 1 claims).

6.2 Update to the financial case since the OBC

The OBC financial case was developed from scheme costs based on estimates on the designs at the time. Since the development of the OBC, Stage 1 of the ECI contract has been awarded to Alun Griffiths Contractors Ltd and design has been progressed and planning permission obtained. The costs presented in this chapter are therefore updated to reflect this progress and include the Contractor's Target Cost further increasing cost certainty.

6.3 Scheme costs

The estimated scheme capital out-turn cost comprises of preparation costs, construction costs, contingency for risk and allowance for future inflation leading up to the opening of the project in Spring 2021.

The construction costs comprise highway, geotechnical and structure costs, and have been developed, in the main, using the Contractor's Target Cost for the agreed scheme. This covers the majority of the works costs however there are some smaller items not directly included in Contractor's Target Cost and these have

been based on latest estimates (e.g. statutory utility diversions). All costs have a baseline of Quarter 1 2017 which is consistent with the rates in the Contractor's tender submission. See Appendix N for further details.

Note that for the purpose of the economic case, sunk costs have been assumed up to April 2018.

The key costs of the project are:

- Highway Construction Costs – These are based on the Contractor's Target Cost adjusted to allow for inflation;
- Project Preparation Costs – These costs include project management, design, environment, planning and legal costs;
- Land Costs (Including common land costs); and
- Site Supervision & Contract Management Costs – these are costs to oversee the construction phase.

Monitoring and evaluation costs have been excluded and have been estimated to be 0.5% of the construction cost.

6.3.1 Optimism Bias & Quantified Risk Assessment

Optimism Bias has not been included in the costs reported in this section, optimism bias is accounted for in the Economic Case.

A Quantified Risk Assessment (QRA) has been undertaken which recognises additional costs associated with provision works and risk events. The QRA has been included within the total costs of the scheme (£9,354,067 excluding inflation; £11,001,730 including Inflation).

6.3.2 Inflation

Table 6.1 sets out the assumed inflation information for the proposed scheme costs; the inflation that has been calculated based upon a varied value for each of the next year are:

Table 6.1 – Inflation Assumptions

Inflation	2018	2019	2020	2021	2022
Construction Inflation	4.4%	4.34%	4.14%	4.14%	4.14%
Construction Labour	10.70%	9.20%	7.70%	6.30%	4.80%
Professional Services	3.06%	2.96%	2.76%	2.76%	2.76%
Land Values	4.44%	4.34%	4.14%	4.14%	4.14%

The figures in Table 6.1 have been estimated and calculated as follows:

6.3.2.1 Construction Inflation

Construction inflation has been applied to Works Cost and QRA elements of the overall scheme cost. For construction inflation the most recent data set from the Office of National Statistics (ONS) for Construction Output Price Indices (COPIs) was used. Reliable data was available for the period January 2014 to June 2018. It was assumed that the baseline level of inflation in 2018, across all indices, is equal to the most recently recorded level of annual inflation which, for all indices used, was July 2018. Construction price inflation is assumed to be equal to the Q1 level of inflation in 2018 (4.44%) and is then assumed to change in line with the Bank of England's forecasted changes in CPI inflation (from the Bank of England's August 2018 inflation report) from 2019 to 2020. Subsequently, construction price inflation is set to flatline.

6.3.2.2 Professional Services

For professional services data from ONS on average weekly earnings (AWE) for Professional, Scientific and Technical Services was used. Time series data was available from Q1 of 2000 to Q2 of 2018. For professional services, the same method of inflation forecasting outlined above is applied; the forecasted

inflation in professional services costs is equal to the Q1 level of inflation in 2018 (3.06%) and then changes in line with the Bank of England's CPI inflation forecasts for 2019-2020. Inflation in professional services costs is then set to flatline.

6.3.2.3 Land Values

No data specific to land value inflation was available, so land value inflation was assumed to be the same as COPI inflation. Land values were not assessed separately as these are difficult to forecast with accuracy. As a result the expected land value inflation has been set to be consistent with construction inflation.

The Bank of England forecast increase in CPI is set out in Table 6.2:

Table 6.2 Bank of England Forecast Inflation (Table 5.G – Q4 CPI Inflation)

-	Mode	Median	Mean
2018 Q4	2.3 (2.2)	2.3 (2.2)	2.3 (2.2)
2019 Q4	2.2 (2.1)	2.2 (2.1)	2.2 (2.1)
2020 Q4	2.0 (2.0)	2.0 (2.0)	2.0 (2.0)

Source: Bank of England Inflation Report, August 2018

As the table above shows the forecast levels of inflation is expected to fall between 2018 and 2019 (2.3 to 2.2, 4.35%) and then fall again between Q4 of 2019 and Q4 of 2020 (2.2 to 2.0) this is a fall of 9.09%. This profile has been used to forecast inflation between 2018 and 2020. As noted above, it is expected that the construction price, land value and professional services inflation will flatline from 2021 onwards.

6.3.2.4 Inflation Methodology

The inflation information has then been compounded taking into account a baseline cost year of Quarter 1 2017. The compounded interest rates are outlined in Table 6.3.

Table 6.3 – Compounded Inflation

Cost Item	2017/18	2018/19	2019/20	2020/21	2021/22
Works Cost	1.0444	1.0908	1.1381	1.1852	1.2343
Land Cost	1.0444	1.0908	1.1381	1.1852	1.2343
Preparation	1.0306	1.0621	1.0936	1.1238	1.1548
Supervision	1.0306	1.0621	1.0936	1.1238	1.1548
QRA	1.0444	1.0908	1.1381	1.1852	1.2343

The inflation rates set out above have been applied to the various elements of the scheme costs breakdown as set out in Table 6.4.

Table 6.4: Scheme development costs (£'000)

Cost type	2017 Q1 Baseline costs	2017/18	2018/19	2019/20	2020/21	2021/22	Total
Preparation	£4,660	£1,337	£1,597	£1,316	£596	£144	£4,990
Construction (incl. land)	£37,939	£536	£2,616	£19,092	£20,199	£1,493	£43,936
Site Supervision	£1,864	£0	£50	£904	£952	£166	£2,072
Total cost without QRA	£44,463	£1,873	£4,263	£21,312	£21,747	£1,803	£50,998
QRA	£9,354	£0	£248	£2,962	£6,304	£1,488	£11,002
Total cost including QRA	£53,817	£1,873	£4,511	£24,274	£28,051	£3,291	£62,000

Notes:

1 Where known, Actual Costs have been used (e.g. 2017/18 costs) and “deflated” to provide equivalent 2017 Q1 Baseline Cost.

2 Monitoring and Evaluation (assumed to be 0.5% of the construction cost) and Part 1 claims excluded.

6.3.2.5 Budgets and funding cover

The scheme has identified contributions from local developers of 12.1% of total scheme costs, but the majority of funding is sought from the DfT. Table 6.5 shows the breakdown of funding by source.

Table 6.5: Funding Sources (£'000)

Cost	2017/18	2018/19	2019/20	2020/21	2021/22	Total
Local Authority Contribution	£0	£0	£0	£0	£0	£0
Department for Transport	£1,873	£4,500	£21,417	£26,709	£0	£54,499
Third Party Contribution (from Developments)	£0	£11	£2,857	£1,342	£3,291	£7,501
Totals	£1,873	£4,511	£24,274	£28,051	£3,291	£62,000

The total funding being sought from DfT is £54,499,000. In order to continue to progress the project to our ambitious delivery programme, following the successful ‘bid for construction funding’ outcome WCC sought agreement with DfT to drawdown funding from September 2017. This request resulted in £3.0m being drawn down in 2018/19.

6.4 Contributions Strategy

In line with the South Worcestershire Development Plan Policy 4 “Financial Contributions from development towards transport infrastructure will be secured either through the Community Infrastructure Levy charging schedule or developer contributions as appropriate.”

Annex I of the SWDP strategy sets out the Infrastructure Plan for Worcester, based upon schemes in the Worcester Transport Strategy, including contributions towards A4440 Worcester Southern Link Road Phases 3 and 4. The overall value of improvements required is set out at £121.21 million. The proposed highway scheme is set out as Essential Infrastructure.

Specifically in the SWDP 45/2 Policy with regards to the Temple Laugherne site, it states that the delivery of around 2,150 dwellings will be provided. “The rate of delivery will be dependent upon the phased implementation of the Worcester Transport Strategy and, in particular, the dualling of relevant sections of the A4440 Southern Link Road.”

Further the policy sets out “ Measures, including proportionate contributions directly related to the development, to support and safeguard the implementation of relevant schemes set out in the Worcestershire Local Transport Plan 3, including the adopted Worcester Transport Strategy, which includes

the phased dualling of the A4440 Southern Link Road; the delivery of a road within the site between the A44 and the Martley Road; and improved accessibility by non-car modes to Worcester city centre.”

The SLR4 is also included in LTP4 (policy SWST5).

In the SWDP it was stated that “Planning obligations through Section 106 agreements will continue to be sought to provide funding to mitigate negative impacts relating to specific developments. A Developer Contributions SPD will be produced to provide detailed guidance to be used in conjunction with the Community Infrastructure Levy charging schedule.”

In addition to the Temple Laugherne site (West of Worcester Urban Extension), under current planning legislation it is possible to obtain contributions towards highways infrastructure from a total of 5 development sites. Identified sites at this stage include:

- West of Worcester Strategic Urban Extension (Bloor Homes). The current status is that this has been approved at Planning Committee, pending legal agreement, for the sum of £9,761,920.00
- West of Worcester Strategic Urban Extension (Hallam Land). This is due to go to Planning Committee in January 2019, with an agreed contribution sum of £8,065,873.56
- North East Malvern Strategic Site. This is due to go to Planning Committee in January 2019, with an agreed contribution of £2,213,027.26

Grove Farm. This has achieved planning consent with an agreed contribution of £1,045,920.00. It must be noted that not all of the above figures are to be attributed to this scheme, but it does demonstrate that we have certainty of sufficient funding available from developers. Due to the nature of the South Worcestershire Development Plan, additional contributions can be allocated to other schemes that form the Infrastructure Delivery Plan.

It is acknowledged that the contribution levels identified are based 100% on developer funding, as this cost is likely to be loaded to a key milestone date in the delivery of the sites set out above, there is likely to be a requirement for Worcestershire County Council to fund this in the short term until the developer contribution is paid. Thus it is proposed that this would be undertaken via cash flow management through the normal capital programme borrowing requirements following cabinet approval.

6.5 Whole life costs

Consideration has been given to the additional maintenance costs and annual costs associated with the new structures, carriageway and footway elements of the proposed Worcester SLR Phase 4 Improvement scheme.

Table 6.6 sets out the maintenance base costs for the structures which form part of the A4440 Worcester Southern Link Road Phase 4 Improvement Scheme. Table 6.7 sets out the highway and footway maintenance costs assumed.

Table 6.6 – Hams Way Footbridge Maintenance and operation costs

Maintenance Item	Assumed Year(s) of maintenance item	Base Cost Per Cycle
Metalwork maintenance repainting (Footbridge Only)	2036, 2066	£28,000
Whole structural metalwork repainting (Footbridge Only)	2051	£240,000
Drainage/Bearing shelf cleaning (Not Required for Footbridge)	2026, 2031, 2036, 2041, 2046, 2051, 2056, 2061, 2066, 2071, 2076	£1,600
Parapet Replacement (River Bridge & Viaduct)	2071	£271,200
Expansion Joint Renewal (River Bridge & Viaduct)	2046, 2071	£72,000
Routine Maintenance	Annual	£1,400
Deck resurfacing and re-waterproofing (Footbridge Only)	2041, 2066	£16,000

Maintenance Item	Assumed Year(s) of maintenance item	Base Cost Per Cycle
Deck resurfacing and re-waterproofing (River Bridge & Viaduct)	2051	£360,000
Bearing Renewal (Footbridge Only)	2051	£40,000
Bearing Renewal (River Bridge & Viaduct)	2071	£384,000
Concrete repairs (Viaduct Only)	2051	£40,000
Concrete and Steel repairs (River Bridge Only)	2051	£120,000

Table 6.7 – Highway & Footway Maintenance and operation costs

Maintenance Item	Assumed Year(s) of maintenance item	Base Cost Per Cycle
Resurfacing of additional Link Road; Ketch Roundabout; Powick Roundabout and approach carriageway	2031, 2051, 2071	£303,224
Resurfacing footway	2031, 2051, 2071	£13,509
Deep Inlay of additional Link Road; Ketch Roundabout; Powick Roundabout and approach carriageway	2041, 2061	£1,242,857
Deep Inlay footway	2041, 2061	£44,034

The maintenance costs with the exception of the Traffic Management items has been fed into the TUBA modelling presented in the economic case. The Traffic Management items have been factored into the QUADRO modelling.

6.6 Section 151 Officer Sign off

This Full Business Case submission has been reviewed by, and a declaration received from, Worcestershire County Council's Section 151 Officer and has been appended, as Appendix S.

6.7 Summary of Financial Case

The Financial Case sets out the project costs and funding sources to deliver the scheme.

The Case demonstrates that WCC has considered all aspects of the schemes costs and has included within the project costs an assessed amount for contingency to cover project risks.