Paper C

Heart of South West Local Transport Board

Major Scheme Business Case Summary Report for Programme Entry

A358 Toneway (Creech Castle), Taunton

October 2018

SCHEME SUMMARY

Scheme Name	A358 Toneway (Creech Castle), Taunton	Date	12/10/18

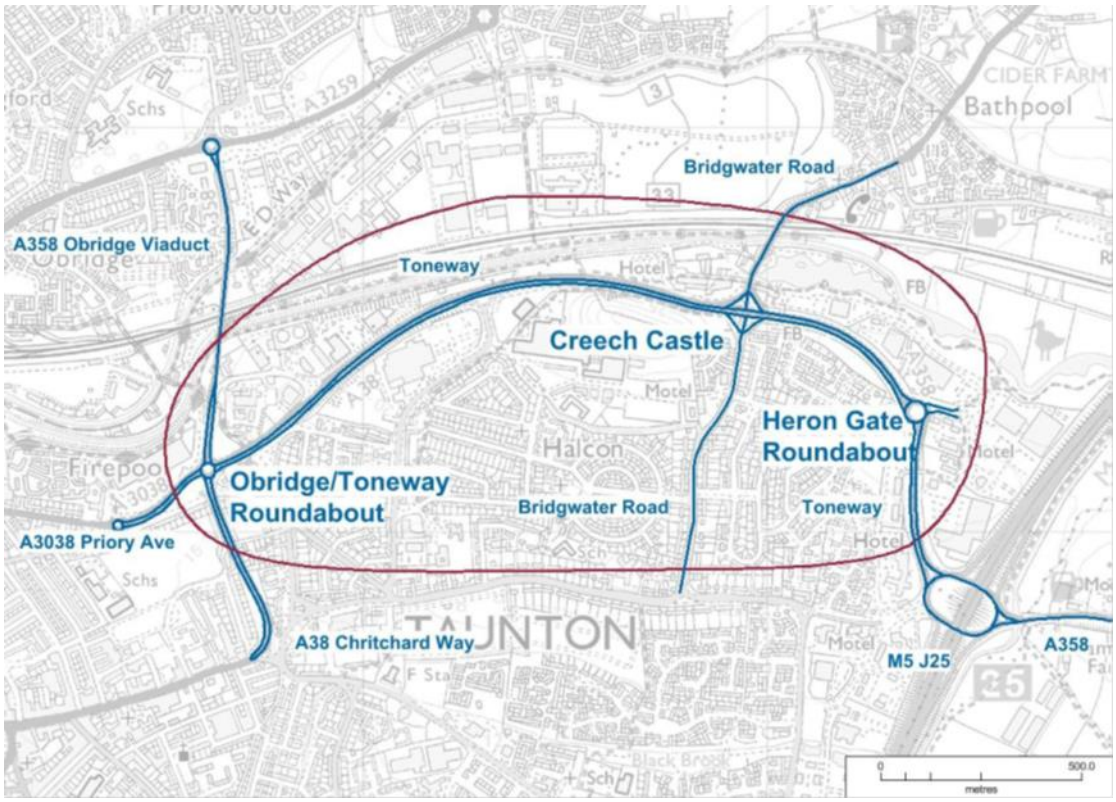
Scheme

Scheme Description

Introduction
Taunton is the county town of Somerset and its major administrative, economic, cultural and retail centre. Health, education and leisure services are all significant within the town. The town is in a strategic location between Exeter and Bristol, with excellent motorway and rail links to both cities.

Road traffic has been identified as the main cause of poor air quality in Taunton Deane with congestion noted as a major problem in the inner parts of Taunton, especially during peak hours. The Toneway is the section of the A358/A38 between M5 Junction 25 and the Obridge Roundabout near the town centre. At the Obridge roundabout there are several alternative routes to the town centre but between the M5 junction and Obridge roundabout the Toneway is the only direct link between the town centre and the Strategic Road Network.

At the western end of the Toneway Corridor the next junction is Priory Avenue roundabout which has recently been improved as part of the Northern Inner Distributor Route (NIDR) project. At the eastern end of the Corridor, the next junction is the M5 Junction 25; this junction is the subject of a separate Growth Deal project which involves a major enhancement to increase capacity. The location of the Toneway is shown on the diagram below.



Growth Planned at Taunton

The Heart of the South West Strategic Economic Plan (SEP) 2014 – 2020 establishes Taunton is one of the key urban centres around which a large proportion of growth is assumed to take place.

The SEP also recognises that junctions along the M5 motorway are at or reaching capacity and therefore new development close to these junctions cannot take place without associated infrastructure improvements.

Future growth expected for Taunton is described in the adopted Taunton Deane Core Strategy 2011-2028. The Core Strategy "sets a long term strategic vision for the future of the Borough and how it will develop over the next fifteen years or more" (para. 1.1). Amongst many other objectives, the Core Strategy anticipates the creation of 11,900 new jobs (from a 2006 baseline) and construction of at least 15,500 dwellings (net) between 2011 and 2028, across Taunton Deane. This development, together with growth elsewhere (particularly West Somerset), and changes in demographics and behaviour, is expected to result in a significant increase in demand along the Toneway corridor.

Of specific relevance to the Toneway Corridor are development allocations at Monkton Heathfield and Staplegrove: 4,500 homes, and 40,000 sq. m of employment land, schools and a district centre at Monkton Heathfield and 900 homes, employment, a primary school and local centre at Priorswood/ Nerrols. Traffic associated with these sites will affect the corridor whether travelling into Taunton or towards the M5/A358.

New housing at Staplegrove (500-1,500 dwellings after 2015) and Comeytrowe (up to 2,000 dwellings by 2028 with the potential for further growth thereafter) will also have some impact on the corridor, with traffic travelling along it to access the M5 (north) and A358. In addition there is the strategic employment site "Nexus 25" of around 25 hectares close to the existing Park & Ride at Junction 25. This site will have a significant impact on the highway network, including Toneway.

Implications of not changing

Traffic modelling undertaken in support of the proposed Taunton Deane Infrastructure Delivery Plan forecasts significant peak hour traffic growth of between 2010 and 2028, much of which would be as a result of the various development sites. In a scenario without intervention average delay along the Toneway Corridor is expected to increase significantly – with an additional four minutes of delay, for example, added to inbound journeys in the AM peak. Additional congestion is identified as a concern along the length of the Toneway corridor.

As the key route linking the town with Junction 25, improvements are considered essential to enable the development and economic growth in the town, and across Taunton Deane and West Somerset. The traffic modelling work indicates that capacity enhancements will be required at all three junctions on the Toneway – Obridge roundabout; Creech Castle traffic signals and Heron Gate roundabout.

In preparing a proposed bid for submission as a candidate for Growth Deal 3 funding it became clear that it was unlikely there would be sufficient funding to improve all three junctions. It was therefore decided to concentrate on the most urgent requirement, as a first phase. The allocated Monkton Heathfield urban extension will impact on the Creech Castle junction and given the current conditions would severely impact on its operation. If improvements are not undertaken at this junction it will act as a barrier to the development of Monkton Heathfield and impact on the accessibility to Taunton Town Centre and the Strategic Road Network.

It was therefore determined that the Creech Castle junction improvement would form the first phase of the Toneway Corridor Improvement.

Scheme Objectives

The objectives of the scheme are set out in the table below.

Objective 1	Support the economy in Taunton by supporting the delivery of employment and residential sites.
Measure of Success	Delivery of housing and employment land within Taunton as indicated by the Local Plan; any highway objections to new development not to relate to the corridor post-implementation
Timescale	From opening to 2028
Indicators	As for Taunton Deane Local Plan delivery (number of residential units and amount of employment floor space completed).
Dependencies, Risks, Constraints	Wider economic performance discourages delivery of residential or employment sites.

Objective 2	Reduce peak hour congestion (compared to a non-intervention scenario) along the Toneway, improving access from the M5 to Taunton Town Centre.
Measure of Success	A reduction in peak hour journey times along agreed routes, to include a route from (but not including) Junction 25 to the Obridge/ Toneway Roundabout and vice versa.
Timescale	Over five years from scheme opening
Indicators	Journey times along the Toneway to be monitored before construction (after Programme Entry) and for five years post-opening.
Dependencies, Risks, Constraints	Increasing capacity can induce traffic, or result in traffic diverting onto the corridor, thus limiting journey time benefits.
Objective 3	Reduction in severance
Measure of Success	Increase in pedestrian and cycling across the corridor.
Timescale	Five years after opening
Indicators	Walking and cycling movements to be monitored before opening (from Programme Entry) and for five years after opening
Dependencies, Risks, Constraints	Increasing capacity can induce traffic and discourage modal shift to walking/cycling

Summary

Problems		Scheme Objective	Organisation's Objective	Contribution of Scheme Proposal
1	**Congestion as constraint on housing and employment development**	Objective 1	Ensuring economic well being	Improve journey time to reduce journey time to nearby employment and residential developments
2	**Peak time congestion and queueing**	Objective 2	Living sustainably, staying safe, being healthy	Increase capacity and introduce signalisation to reduce peak time delay and reduce queues
3	**Safety Issues**	Objective 3	Staying safe	Increase capacity and establish segregated pedestrian and cycle routes to reduce the severity of collisions.

Summary of Options Assessment and Preferred Scheme Layout

Options Assessment

As part of the initial scoping process a wide range of possible measures was considered. The analysis of options considered the main constraints, benefits and costs and effectiveness of the various infrastructure improvements, in order to identify the most appropriate solution. The options evaluated were as follows:-

- Improved public transport (enhanced service provision and/or priority for rail, bus or park & ride)
- Improved facilities for walking and cycling, encouraging mode shift and hence reducing congestion
- Attitudinal and behavioural change (personalised travel planning, workplace/ residential travel planning, etc.) encouraging mode choice and reducing congestion
- Variable Message Signing/ information systems directing drivers to suitable alternative routes or car parks
- Capacity enhancement at a single junction (Creech Castle) to reduce congestion. The improvement would include facilities for pedestrians and cyclists.
- Improvements to capacity along the Toneway Corridor, including facilities for pedestrians and cyclists to reduce severance

Following assessment it was concluded that the preferred option was to improve the capacity of the Creech Castle junction. While delivering a lower cost option would have been preferable it is essential that the scheme delivers the best value for money, and is effective in meeting the objectives.

Various junction layouts were therefore considered at the Creech Castle junction prior to the preferred scheme being determined. These included:-

- Replacement of the at-grade traffic signal junction with a grade separated roundabout
- Replacement of the traffic signal junction with a signal controlled “hamburger” roundabout
- Enhancement of the traffic signal junction with additional through traffic lanes and pedestrian/ cycle crossings

The preferred scheme is that last of these three options – an enhanced traffic signal layout. The main components of the scheme are:-

- Widening of the Toneway East approach from two to three ahead lanes
- Widening of the Bridgwater Road South approach to four lanes at the stop line, with two dedicated lanes for right turning traffic and a further lane for both straight ahead and right turners.
- Removal of the right turn from Toneway West to Bridgwater Road South, with this lane now marked for straight ahead traffic
- The Bridgwater Road North approach will have an additional right turn lane and the left turn will be increased to two lanes at the stop line
- An at-grade signalised pedestrian and cycle crossing of the Toneway to supplement the existing bridge, together with a shared footway, cycleway along Bridgwater Road

A comparison of the proposed layout with the existing layout is included as Appendix 1 to this report, and a plan of the proposed layout is included as Appendix 2

Scheme Outputs

It had originally been anticipated that improvements at the three Toneway junctions – Heron Gate Roundabout, Creech Castle and Obridge Roundabout would be part of a single Growth Deal project package and that 18000 sq. m of employment space and 3,000 homes would be facilitated. However, the scheme was scaled back to just a first phase, the Creech Castle junction, as a consequence of the limited funding available through the Local Growth Fund.

Therefore the project outputs are correspondingly reduced. It is estimated that the improvement will deliver 1025 homes at Monkton Heathfield after which additional infrastructure will be required to support the development.

Somerset County Council is currently in the process of developing a Housing Infrastructure Fund bid that will include the schemes at Obrige and Heron Gate roundabouts. If successful, this second phase of the Toneway project would facilitate the balance of the original outputs.

The phasing of the housing outputs related to Creech Castle is shown in the table below.

Development	2016/17/18	2018/19	2019/20	2021 +	Total
Monkton Heathfield Phase 1	150				150
Hartnells (Part of MH Phase 2		130	120	70	320
Monkton Heathfield Phase 2				555	555
Total					1025

ECONOMIC CASE

Modelling and Assessment

In order to meet the requirements under the LTB assurance framework a review of the existing Taunton Strategic Traffic Model was undertaken. It was concluded that it should be updated in order to improve the outputs and to better comply WebTAG guidance.

Forecasts were prepared for 2021 (as the assumed opening year) and 2036 (as the design year, 15 years after opening). Modelling covered the AM peak, average InterPeak, and PM peak hours.

A number of different future year scenarios have been tested in the scheme appraisal. The core scenario reflects the most central forecast and is the best available prediction of future outcomes, given the current understanding of local factors influencing demand and supply. The overall level of traffic growth in this scenario has been constrained to the national model of transport demand and is therefore consistent with government forecasts. The most recent DfT National Road Traffic Forecasts have been used as a basis for the growth in freight trips.

The Benefit to Cost (BCR) ratio for the Core Scenario is 7.2, which rises to 7.4 as an 'adjusted' BCR that includes wider economic impacts of the scheme. This places the scheme strongly in the "Very High" value for money category.

Sensitivity tests have included a lower growth scenario, and a higher growth scenario in line with the methodology outlined by the Department for Transport in WebTAG. The low growth adjusted BCR is 5.8, and high growth 8.7.

Operational Assessment

The modelling shows that the revised junction would reduce congestion and delays at both peak periods and in the inter-peak period. However, the traffic benefits calculated in the scheme assessment arise predominantly from the morning peak period. This is understood to be partly a reflection of the fact that Creech Castle is just one of three key junctions on the Toneway Corridor.

In the evening peak period, in particular, the volume of traffic arriving at Creech Castle can be constrained, to a degree, by the capacity of Obridge Roundabout. Also, if there is a greater volume of traffic moving outbound on Toneway in the evening peak period, this will increase the flow entering the Heron Gate roundabout from the Toneway, and may have an impact on the queues of traffic leaving the retail park at Heron Gate.

One other impact of the Creech Castle improvement is the removal of the right turn movement from Toneway (West) to Bridgwater Road (South). The modelling work indicates that there is not a significant time penalty for the limited number of users who would have to take alternative routes.

It therefore appears that, while the Creech Castle junction improvement will have a significant beneficial impact, the full magnitude of those benefits will be realised when it is possible to complete Phase 2 of the Toneway improvements, at the Obridge and Heron Gate roundabouts. Without the complementary improvements in capacity at Obridge and Heron Gate roundabouts the overall network capacity along, and across, the Toneway corridor will to an extent be constrained, and the modelling suggests that this is most likely to be apparent first in the evening peak period.

Also, while the revised junction layout will provide significant benefits, it does not have infinite capacity and if there is high growth in travel demand to and beyond the forecast year then additional measures will be required. These could include investments to enhance alternatives to car travel, and improvements on other routes.

Social and Distributional Impact

A social impact appraisal has been carried out as part of the scheme assessment. The scheme is appraised to be neutral in terms of its overall social impact.

There are no adverse impacts. One positive quantifiable element relates to accidents, which showed a small (£0.9m) net benefit over the 60 year appraisal period.

There is also a minor social benefit through the reduction in severance. The at-grade crossing point of the Toneway at the

junction strengthens the link between areas on either side of the corridor because it will no longer be necessary to make a diversion to cross via the existing footbridge.

FINANCIAL SUMMARY

Main Expenditure Items (£m)	FY 18/19	FY 19/20	FY 20/21	Total
Preparation and supervision	0.400	0.570		0.970
Land acquisition		0.020		0.020
Utilities	0.100	0.670		0.770
Construction		3.500		3.500
Risk allowance		0.390		0.390
Optimism Bias		2.310		2.310
TOTAL SCHEME COST	0.500	7.460		7.960

Scheme Funding	
Funding Source	**Funding Amount (£m)**
LTB contribution	6.410
Local contribution - secured	0.150
Local contribution - unsecured	1.400
TOTAL	**7.960**

LTB Contribution			
Total Scheme Cost	7.960	LTB Contribution (£m)	6.410
From Growth Deal 3 bid			
Total Scheme Cost	9.780	LTB Contribution (£m)	6.700
Variation in Scheme Cost	-1.820	Variation in LTB Contribution (£m)	-0.290

VALUE FOR MONEY STATEMENT

	Assessment	Detail
Initial BCR	7.2	At 7.2 the BCR places the scheme in the Very High value for money category. The transport related benefits assessed include:- • Travel time costs • Vehicle operating costs • Reduction in greenhouse gases There are transport related dis-benefits in relation to:- • Traffic noise • Local air quality
Adjusted BCR	7.4	One element has been quantified, the benefit of "Wider Impacts – output change in imperfectly competitive market", and this leads to a small change in BCR. Other elements of Wider Impacts could potentially have been calculated.
Non-Monetised Impacts	The overall non-monetised impact is neutral	There are slight beneficial impacts for:- • Severance There are slight adverse impacts for:- • Water environment Remaining impacts are neutral.
Key Risks, Sensitivities and Uncertainties		The BCR categorisation is significantly above the threshold of 4 for Very High value for money. The low growth scenario has a BCR of 5.8 (adjusted), still significantly above the threshold for Very High value for money. Hence it is concluded that the assessment as Very High is robust.
	Value for Money Category	**Very High**

DELIVERABILITY

Key Risks to Delivery

Financial Risk

The cost estimate for the scheme includes an allowance for risk, and Optimism Bias at 44%. A full risk register and a Quantified Risk Assessment have been provided has part of the Business Case.

In addition to the Local Growth Fund allocation Somerset County Council have secured a total of £0.15m from developers of the Phase 1 Monkton Heathfield development. This contribution has already been received.

Contributions from the Phase 2 development at Monkton Heathfield are currently being negotiated. In view of the fact that these contributions have not yet been secured a bid has been submitted to the County Council's Capital Programme to ensure the project deliverability of the project.

Management and Procurement

The design will be managed through Somerset County Council's Engineering Design Team. They will be supported during the design and site supervision phase as necessary using additional / specialist resources available through the County Council's Engineering Consultancy Contract.

Procurement activities will be managed by the County Council's Commercial and Procurement team with a view to ensuring a competitive process that achieves best value for money and minimises exposure to risk.

Having considered current capacity for delivering major highways infrastructure, the complexity of the project and the budget the County Council has determined that the best options for procurement is to issue a tender for a construction partner. This will be a separate contract from the one for M5 Junction 25 because of the programme differences.

The procurement exercise is programmed to take place commencing with the publication of the OJEU notice in April 2019 with a view to awarding a contract in September 2019.

Land Acquisition and Statutory Processes

The main junction improvement will be constructed on highway land, using Highways Act powers.

Third party land is required to deliver foot/cycle bridge link. Failure to secure this land would limit the active travel benefits of the scheme, and the County Council's designers are in dialogue with the landowner, including discussions about necessary accommodation works.

Consents will also be required to construct this short footway / cycle bridge link.

Environmental Impact

The project is situated predominantly on the existing Toneway highway corridor, and hence the environmental impact is limited. However the widening of the Bridgwater Road corridor where it crosses the River Tone just north of Creech Castle does have the potential for adverse environmental impact.

An ecology study has been carried out as part of the Business Case. This recommended that, to avoid impacting on the "Favourable Conservation Status" for the local bat populations, any lighting on the footway/cycleway bridge extension should not illuminate the watercourse above the current level.

In addition to avoid disturbance to kingfishers whilst breeding or with dependent young, works over, or adjacent, to the River Tone or its tributary may only take place in the period between the 1st September to the 28th February.

Consultation

A public consultation on the proposals was launched on 23rd August 2018 and runs until 31st October. It includes a public "drop-in" session on 17th October.

RECOMMENDATION

Independent Transport Advisor Recommendations

It is recommended that the Local Transport Board:

1) Approve the A358 Toneway (Creech Castle), Taunton improvement as part of the LTB 2015-2021 Programme

2) Approve a financial contribution of up to £6.410m, subject to there being no significant change to the scheme between this stage and the completion of design, procurement and final value for money assessment

3) Note that if the final scheme cost after procurement is significantly lower than the current estimate then the financial contribution from the Local Transport Board will be correspondingly reduced, to be agreed at the Final Approval stage.