Bracknell Forest Council

Transport Business Case

Coral Reef Roundabout

1 Introduction

1.1.1 Bracknell Forest is in a prime location at the heart of the Thames Valley (Fig 1). It is situated at the end of the A329(M), 11 miles east of Reading, 9 miles south west of Windsor and 32 miles west of London. Junction 10 of the M4 is approximately 4.5 miles to the west and junction 3 of the M3 approximately 5 miles to the south east. There are also good links to the regional airports via the M3, M4 and M25.

1.1.2 Bracknell plays a major role in the overall strategic plan for the A322/A329 corridor linking the M3 J3 and M4 J10 (Fig 2). As part of the overall corridor, Bracknell's proposals include capacity improvements to various major junctions along the route that currently experience significant delay, and further implementation of the authority's Intelligent Transport Systems strategy in which a network management approach has been adopted that improves the corridor as a whole through the use of Urban Traffic Control.

1.1.3 Currently the Coral Reef Junction requires significant investment in order to realise the overall benefits of the improvements planned, and already implemented, along the A322/A329 corridor (Fig 3).

1.1.4 Various layouts for the junction have been examined over the years including signalising the existing roundabout and widening of exits. Whilst all delivered some improvement, they did require heavy investment for what now is considered little return.

1.1.5 Through the use of the Early Assessment and Sifting Tool (EAST) framework, developed by the DfT, BFC was able to test options that provided the most suitable solution (Appendix A).

1.1.6 The first of these options was developed as part of the Town Centre Regeneration work in 2004. Concept Option 1 (Fig 4) is a signalised roundabout and would require very little physical alteration of the existing layout of the junction other than to provide stop lines and traffic signal infrastructure at each junction entry point and on the internal circulation. It was noted however that due to the proposed size of the junction along with the level of traffic expected to pass through the junction in the future, the option was not progressed further as it would not provide sufficient capacity at the internal stop lines.

1.1.7 Further to the development of Concept Option 1, Concept Option 2 (Fig 5) was a signalised crossroads providing an all moves junction along with dedicated left turn lanes on each arm. Of all the options, this was considered to be the most expensive due to excessive amounts of construction being required.

1.1.8 Concept Option 3 (Fig 6) followed building on the idea of a signalised crossroads, however this solution takes in third party land and has been modified to create Concept Option 4 (Fig 7) to reduce the size of the junction. Although this design still takes in third party land, the junction has been simplified to remove a number of the islands within the layout.

1.1.9 The preferred option of a signalised crossroads layout concept (Fig 8) is a variation on the other options, but reduces the number of lanes on the A322 approaches to provide a cost effective solution within the highway boundary and for the most part within the existing footprint of the junction. In addition to this, the proposed junction is predicted to provide better capacity than all the other options explored for future traffic levels.

1.1.10 These measures will improve access to existing employment areas and new developments, unlocking their economic potential and also assist in reducing carbon emissions. Benefits would also be felt by neighbouring LEP areas and assist in the overall control and coordination of the strategic corridor network within the Borough. Without these measures the corridor would not provide the level of capacity required to help unlock development and growth linked to the area including TRL and Town Centre regeneration. It would also be contrary to the national approach to addressing economic needs, which seeks to control such burdens on development.

2 The Strategic Case

2.1 The Strategic Plan

2.1.1 The A329/A322 corridor is the one of the region's busiest, and most important routes, passing through Bracknell's urban areas, carrying in excess of 50,000 vehicles per day. Although the route serves as a primary means of access into Bracknell, it is also used by through traffic as an "outer orbital" link between the M3 and M4 motorways, with up to 25% of the total vehicles in the PM peak travelling from the M3 corridor and onwards to the M4. This high percentage of through traffic puts a tremendous strain on the Borough's highway network and creates delays at major junctions, including Coral Reef, for both residents of Bracknell and commuters travelling further afield. With the Highways Agency planning improvements to both the M3 and M4 Bracknell could see an increase in traffic travelling along this route. In response to this the Council has developed a corridor plan showing proposed improvements to the major junctions along the route and details the benefits in journey times before and after (Fig 3).

2.1.2 For years, the Council has effectively built its plan for improvements to major routes, such as the A322/A329, on the prospect of developer-funded schemes (especially Town Centre regeneration). However the drop in rates of return, especially from retail development means that the Council now needs to take the lead and develop comprehensive plans for these routes, and seek alternative funding for implementation. Any improvements we can bring forward will benefit both transport in the Borough and the early achievement of regeneration by reducing the Section 106 burden on future town centre development.

2.1.3 As mentioned, various layouts have been examined for improvements at junctions along this route and whilst all delivered some improvement, they did require heavy investment. Therefore a different approach was adopted that looked at improving the corridor as a whole (Fig 3) and the use of urban traffic control. It was this approach that allowed us to achieve improved journey times along the corridor and also to deliver improvements at the junction at a much reduced cost, providing much better value for money.

2.1.4 At present, improvement to Coral Reef junction requires funding that will help unlock the wider benefits along the corridor and improve access and journey times across the Thames Valley Region. This is in accordance with Council's adopted Transport Policy and also the objectives of the Thames Valley Local Transport Body in improving journey times between the M3 and M4 and providing better access to Heathrow. The scheme is included within the Council's Local Transport Plan 3 Core Strategy and Implementation Plan (LTP3) 2011-2026 (copy available on request). The plan was consulted on and adopted in 2011 and the Coral Reef junction improvement is listed as scheme no. 76.

2.1.5 The benefits of this scheme will be increased following the successful bid by the HA for National Pinch Point Funding for Junction 10 of the M4 along with the proposed managed motorways projects on the M3 and M4. Additional benefits will be gained from the successful Local Pinch Point bids by Wokingham and Bracknell Councils for the Coppid Beech and Twin Bridges

junction improvements, as both of these schemes form part of the A329/A322 corridor.

2.1.6 Additional drivers to developing such corridor studies include the need to plan for the transport demands from planned new housing and the continuing goals of reducing congestion, supporting local business and protecting the environment.

2.1.7 The Council has an adopted Core Strategy Development Plan Document (Feb 08) which identifies the vision for growth to 2026 which includes around 11,000 new dwellings and which identifies three major areas for growth;

- Policy CS3 – Bracknell Town Centre;
- Policy CS4 – Land at Amen Corner, and
- Policy CS5 – Land North of Whitegrove and Quelm Park (now known as Warfield).

2.1.8 The emerging Site Allocations DPD intends to allocate the above sites (respectively under policies SA11, SA8 and SA9). The SADPD also intends to allocate further sites to meet the Core Strategy DPD growth needs. These further intended allocations are smaller sites identified in policies SA1, 2 and 3 and larger sites.

- Policy SA4 – Land at Broadmoor, Crowthorne;
- Policy SA5 – Land at Transport Research Laboratory, Crowthorne;
- Policy SA6 – Land at Amen Corner North, Binfield, and
- Policy SA7 – Land at Blue Mountain, Binfield.

2.1.9 The sites in the emerging SADPD are dependant on the provision of necessary infrastructure which includes improvements to many of the junctions along the A322/A329 corridor. This requirement was included in modelling evidence in support of the SADPD. Therefore, it is clear that a set of junction improvements along the A322/A329 corridor is directly required to facilitate the Council's future growth plans for around 6,400 dwellings.

2.1.10 Therefore, in accordance with the National Planning Policy Framework, and to help achieve economic growth and bring forward stalled developments, the Local Authority is working proactively to help meet the development needs of business and support an economy fit for the 21st century. This means the costs of these works are now being met, where possible, by the local authority with a mix of capital and developer contributions.

3 The Economic Case

3.1 Methodology for Assessing Impacts

3.1.1 The Bracknell Forest Multi-Modal Transport Model (BMMTM) was used to provide forecast flow information to detailed junction tools ARCADY and LINSIG, with an economic assessment informed by these results. Appendix B details the forecast development assumptions extracted from the Transport Forecast Model and Assessment Report (Aug 2011).

3.1.2 A Gross Added Value (GVA) exercise was also undertaken into how much value the schemes produced in terms of the economics of the value of goods and services produced in an area, industry or sector of an economy.

3.2 Highway Assessment

3.2.1 This scheme was assessed using stand-alone junction analysis tools ARCADY (for the existing layout) and LINSIG (for the proposed layout). This was due to the fact that the VISUM model is considered to underestimate current levels of delay on the approaches to this roundabout therefore the true benefits are not apparent when signals are introduced.

3.2.2 Both the ARCADY and LINSIG assessments were undertaken in base year 2013 and a forecast year of 2026. In the case of both the ARCADY and LINSIG assessments, Passenger Car Units (PCU) have been used to assess the capacity at the junction, whereas in terms of the economic assessment, vehicle flows were used.

3.2.3 Given the underestimation of delay with the forecast model, sensitivity testing has been undertaken reducing the flow levels through the junction by 10% to ensure that the levels of delay produced by ARCADY result in a robust BCR calculation.

3.2.4 Even with the reduced traffic flow, the existing junction layout is predicted to operate over capacity with significant levels of queuing and delay. The ARCADY results are appended to this Business Case in Appendix C, whilst the LINSIG results are found in Appendix D.

3.2.5 The traffic demand flows and average delays were extracted for each scenario, for the AM peak and PM peak, and used along with the scheme cost to calculate a BCR over 60 years. The scheme construction costs are estimated in the order of £3,000,000 for the junction inclusive of the assumed 12% preparation costs and 5% supervision costs.

3.2.6 The delays in vehicle minutes were extracted from the ARCADY and LINSIG assessments. These were converted into a cost by using the values of time taken from WebTAG Unit 3.5.6 (2013) for car which were then discounted to 2010 values to give a benefit for the scheme. These are shown in Table 3.1.

Table 3.1: Scheme Benefits

Scenario	Element	AM Peak	PM Peak
Do Minimum	Delay (min/veh) (ARCADY)	3.26	1.25
	Vehicles per hour	5,099	5,256
	Total Delay (mins)	16,623	6,570
Do Something	Delay (veh-hrs) (LINSIG)	81.86	110.81
	Vehicles per hour	5,099	5,256
	Delay (mins)	4,912	6,649
Difference	Delay (mins)	11,711	-78
Value of Time	£ per hour, 2026 (2010 prices)	£16.56	£14.78
Annual Benefit	2026 (2010 prices, undiscounted)	£818,000	-£5,000
Present Value Of Benefits (PVB)		£17,774,000	
Present Value of Costs (PVC)		£3,000,000	
Benefit to Cost Ratio (BCR)		5.92	

3.2.7 The scheme generates a total benefit of £17.774m at 2010 prices with the present value of costs being £3.0m resulting in a BCR of 5.92. Bracknell Forest Council recognises that this BCR figure of 5.92 is quite high in terms of Department for Transport guidance.

3.3 Wider Impacts

3.3.1 A test was undertaken using the transport model to isolate the impact of the Coral Reef improvement. This involved restoring the existing roundabout to the model network whilst retaining all the other corridor improvements proposed throughout the Borough. Any comparison of the two models would then reflect this one change at Coral Reef.

3.3.2 Analysis has been undertaken on the wider impact of the improvements to the Coral Reef Junction.

3.3.3 The figures have been extracted from the Bracknell Multi Modal Transport Model to demonstrate the impact of the Coral Reef improvement on the major traffic corridors through Bracknell (A322/A329, A3095, B3408/A329).

3.3.4 Tables 3.2 and 3.3 illustrate the results of this analysis.

Table 3.2 – 2026 AM Peak

2026 AM Peak					
Corridor	**Inbound Screenline**	**Without Coral Reef Imp**	**With Coral Reef Imp**	**Change**	**% Change**
A329	London Road E of Coppid Beech	1919	1886	-33	-1.7%
A329/A322	Berkshire Way S of Coppid Beech	3184	3179	-5	-0.2%
	Peacock Lane W of Vigar Way	1209	1098	-111	-9.2%
	Nine Mile Ride W of The Hut	894	957	63	7.0%
A3095	Foresters Way S of the Hut	1877	1675	-202	-10.8%
A329/A322	A322 S of Coral Reef	1294	2629	1335	103.2%
A329	London Road E of Martins Heron	1513	1023	-490	-32.4%
	Total	**11890**	**12447**	**557**	**4.7%**
Corridor	**Outbound Screenline**	**Without Coral Reef Imp**	**With Coral Reef Imp**	**Change**	**% Change**
A329	London Road E of Coppid Beech	1430	1512	82	5.7%
A329/A322	Berkshire Way S of Coppid Beech	3266	3302	36	1.1%
	Peacock Lane W of Vigar Way	1610	1573	-37	-2.3%
	Nine Mile Ride W of The Hut	818	846	28	3.4%
A3095	Foresters Way S of the Hut	1704	1775	71	4.2%
A329/A322	A322 S of Coral Reef	1764	2233	469	26.6%
A329	London Road E of Martins Heron	1140	1063	-77	-6.8%
	Total	**11732**	**12304**	**572**	**4.9%**

Table 3.3 – 2026 PM Peak

2026 PM Peak					
Corridor	**Inbound Screenline**	**Without Coral Reef Imp**	**With Coral Reef Imp**	**Change**	**% Change**
A329	London Road E of Coppid Beech	1407	1437	30	2.1%
A329/A322	Berkshire Way S of Coppid Beech	3779	3813	34	0.9%
	Peacock Lane W of Vigar Way	814	790	-24	-2.9%
	Nine Mile Ride W of The Hut	624	665	41	6.6%
A3095	Foresters Way S of the Hut	1635	1600	-35	-2.1%
A329/A322	A322 S of Coral Reef	2133	2374	241	11.3%
A329	London Road E of Martins Heron	1217	1285	68	5.6%
	Total	**11609**	**11964**	**355**	**3.1%**
Corridor	**Outbound Screenline**	**Without Coral Reef Imp**	**With Coral Reef Imp**	**Change**	**% Change**
A329	London Road E of Coppid Beech	2146	2148	2	0.1%
A329/A322	Berkshire Way S of Coppid Beech	2720	2809	89	3.3%
	Peacock Lane W of Vigar Way	1741	1690	-51	-2.9%
	Nine Mile Ride W of The Hut	779	822	43	5.5%
A3095	Foresters Way S of the Hut	2085	2079	-6	-0.3%
A329/A322	A322 S of Coral Reef	2112	2421	309	14.6%
A329	London Road E of Martins Heron	1121	1026	-95	-8.5%
	Total	**12704**	**12995**	**291**	**2.3%**

3.3.5 The substantial AM peak increase in traffic heading into Coral Reef is comfortably accommodated by the additional improvements being implemented along the A322/A329 corridor. The large increase in AM peak inbound traffic at Coral Reef also has a significant positive impact on the other two main corridors.

3.3.6 On the B3408/A329 corridor at Martins Heron, inbound traffic reduces by almost 500, whilst the A3095 corridor is also relieved of over 200 vehicles heading inbound from Foresters Way.

3.4 Gross Value Added

3.4.1 There is significant development due to come forward within Bracknell Forest Borough which requires suitable infrastructure to mitigate any impacts of the development on the road network. The Gross Value Added (GVA) is a measure in economics of the value of goods and services produced in an area, industry or sector of an economy.

3.4.2 The information used in the following assessment has been calculated using:

- HM Treasury data for construction jobs in the economy
- Economic Impact Assessment for Wokingham Town Centre carried out by Hunt Dobson Stringer as a proxy for the BFC area. This equates to similar estimates made in planning applications for other retail and leisure facilities within Wokingham. The equivalent information from the Bracknell area could be substituted in the calculations
- Home Builders Federation jobs multiplier for house building
- ONS average weekly wages by sector
- Office space jobs multiplier produced by Roger Tymm and Partners 1997 SERPLAN

3.4.3 An assumption has been made of the number of housing and employment sites that would be impacted by the scheme which are:

- number of houses: 4,462
- square metres of employment land: 129,320m^2

3.4.4 Table 3.4 shows the development assumptions that have been included within the GVA calculations.

Table 3.4: Assumption on number of housing and employment land

Site	Transport Model Zone	Number of Houses	Employment Land
Town Centre	1	525	2,412
Town Centre	2	525	914
TRL	84	1000	83
Staff College	16	350	
Staff College	287	349	
Other sites	3 and Background	180	
Other sites	4 and Background	180	
Pine Wood (Wokingham)	1028		631
Broadmoor	111	480	189
Small Sites Allowance*	-	566	
Other Sites with Permission*	-	307	

3.4.5 In order to calculate a GVA value, the number of houses in Table 1.2 has to be factored by the number of jobs created for each house built. Figures from the Home Builders Federation show that there are 1.5 full time equivalent (FTE) jobs and 6 FTE indirect jobs created for every house built. In terms of employment land each job relates to 23.226m^2 for retail/leisure and one

worker per 18m^2 of office space. The retail/leisure value has been based on an Economic Impact Assessment for Wokingham Town Centre carried out by Hunt Dobson Stringer with the office space value based on a study by Roger Tymm and Partners (1997 SERPLAN).

3.4.6 Table 3.5 shows the number of jobs that are created for number of houses and employment land assumed to be impacted by the scheme.

Table 3.5: Assumption on number of housing and employment land

Site	Number of houses	Direct jobs FTE	Indirect jobs FTE (*6)	Total	Employment land	FTE jobs
Town Centre (z1)	525	788	3,150	3,938	142,467m^2	2,412
Town Centre (z2)	525	788	3,150	3,938	21,226 m^2	914
TRL (z84)	1000	1,500	6,000	7,500	4,291m^2	83
Staff College (z16)	350	525	2,100	2,625		
Staff College (z287)	349	524	2,094	2,618		
Other sites (3 & b/g)	180	270	1,080	1,350		
Other sites (4 & b/g)	180	270	1,080	1,350		
Pine Wood (Wokingham z1028)					11,358m^2	631
Broadmoor (z111)	480	720	2,880	3,600	3,400m^2	189
Small Sites Allowance*	566	849	3,396	4,245		
Other Sites with Permission*	307	461	1,842	2,303		
Total	**4,462**	**6,693**	**26,772**	**33,465**		**4,230**

3.4.7 The Office for National Statistics (ONS) produces average weekly wages by sector and these have been used to calculate the additional earnings to the economy per annum which are shown in Table 3.6.

Table 3.6: Additional earnings to the economy

Sector	Average annual earnings per sector	Uplift in number of FTE jobs in sector	Additional earnings to the economy per annum
Construction (including housing)	£28,132	33,465	£941,437,380
Wholesale retail, hotels and restaurants	£15,652	914	£14,304,077
Office Service Sector	£22,984	3,316	£76,207,283
Total		**37,695**	**£1,031,948,740**

3.5 Identifying Neutral Impacts

3.5.1 The following table identifies the appropriate environmental impacts and whether the scheme is likely to have an impact. This table is adapted from Table A2 from the DfT WebTAG document "Transport Analysis Guidance – The Transport Appraisal Process (January 2014)"

Table 3.7 - Option Assessment Framework (Value for Money)

a) Impact on the Economy		
Assessment Areas	**Outputs**	**Commentary**
Business Users	Beneficial	Improvement in journey times and general travel costs as a result of improved queuing and capacity. Queue lengths are predicted to halve as a result of the introduction of the signalised junction.
Transport Providers	Neutral	One bus service goes through the junction but there are only 4 buses per week so any effect would be marginal if any.
Reliability	Beneficial	There are decreases in the delays and queuing across the network which may improve reliability
Regeneration	Neutral	Scheme not within Regeneration Area.
Wider Impacts	Beneficial	See tables 4.1 and 4.2
b) Impact on the Environment		
Assessment Areas	**Outputs**	**Commentary**
Noise	Neutral	The scale of change has been modelled in terms of the increases or decreases in flow, delays and queuing, so a quantitative noise analysis has not been attempted, however the road surface will be improved.
Air Quality	Slight benefit	The edge of highway is being moved further away from properties so will result in a lower impact in terms of air pollutants to nearby properties.
Greenhouse Gases	Neutral	It is anticipated that there will be lower levels of queuing, however there will be vehicles stopped at the traffic lights waiting to proceed

		through the junction.
Landscape	Slight Adverse	Installation of Traffic Signals, however it does not impact on a designated site and the proposed scheme is within the existing highway boundary.
Townscape	Slight Adverse	Installation of Traffic Signals, however the proposed scheme is not within or adjacent to a sensitive site and is within the existing highway boundary.
Historic Environment	Neutral	The improvements are to take place within the highway boundary, therefore there is not perceived to be an impact.
Biodiversity	Neutral	The improvements are to take place within the highway boundary, therefore there is not perceived to be an impact.
Water Environment	Neutral	There is no change to the highway drainage or to the means of discharge, and there is negligible change to the volume and quality discharged
c) Impact on Society		
Assessment Areas	**Outputs**	**Commentary**
Non-Business Users	Beneficial	Improvement in journey times and general travel costs as a result of improved queuing and capacity.
Physical Activity	Neutral	The improvements do not affect facilities for pedestrians or cyclists, therefore there is no change to the number and length of walking and cycling trips made.
Journey Quality	Beneficial	Reduction in queue lengths will result in reduced driver frustration.
Accidents	Beneficial	19 accidents have been recorded in the last 5 years at the junction. By reducing the number of conflict points through modification of the junction form, this is likely to reduce the number of accidents, particularly shunt-type accidents.

Security	Neutral	There is no change to the likely incidence of crime or fear of crime related to road users.
Access to Services	Beneficial	Improvements to the junction are anticipated to result in improved journey times.
Affordability	N/A	
Severance	Neutral	There will be no impact in terms of severance.
Option Values	Slight Beneficial	No new public transport services provided as a result of the improvements, but improved journey times could result in additional public transport routes.
d) Public Accounts		
Assessment Areas	**Outputs**	**Commentary**
Cost to Broad Transport Budget - Central Government	£PVC	£2,100,000
Cost to Broad Transport Budget - Local Government		
Indirect Tax Revenues	£PVB	The highway improvements have the effect of reducing delay through the junction therefore vehicles are travelling more efficiently. There is likely to be a dis-benefit to central government in terms of reduced fuel consumption and tax receipts, however this may be offset by the higher vehicular throughput. A dis-benefit to local users of the highway network but this has not been quantified.
e) Distributional Impacts		
Assessment Areas	**Outputs**	**Commentary**
User Benefits	Beneficial	Benefit to Cost ratio of 5.7 as a result of the introduction of the scheme
Noise	Slight Adverse	There will be a slight increase in traffic levels as a result of the scheme and therefore a slight increase in noise levels. This is likely to occur during the day.

Air Quality	Neutral	Although there is likely to be an increase in traffic levels as a result of the improvements, it is unlikely in terms of distributional impacts to have an effect on the local air quality.
Accidents	Beneficial	There is likely to be a reduction in shunt type accidents as a result of the introduction of a signalised junction.
Security	Neutral	There will be no impact in terms of security.
Severance	Neutral	There will be no impact in terms of severance.
Accessibility	Neutral	There are no public transport routes affected by the proposed changes.
Affordability	N/A	
f) Indicative Benefit Cost Ratio		
Assessment Areas	**Outputs**	**Commentary**
Cost to Private Sector		£900,000
Indicative Net Present Value		£14,743,000
Indicative Economic BCR		5.92

3.6 Assessment of Social Distributional Impacts

3.6.1 Table 3.8 illustrates the Social Distributional Impacts as a result of the proposed scheme.

Table 3.8 – Social Distributional Impacts

Scheme description: Improvement of the existing 4 arm roundabout with a new 4 arm signalised junction.				
Indicator	**(a) Appraisal output criteria**	**(b) Potential impact (yes / no, positive/negative if known)**	**(c) Qualitative Comments**	**(d) Proceed to Step 2**
User benefits	The TUBA user benefit analysis software or an equivalent process has been used in the appraisal; and/or the value of user benefits Transport Economic Efficiency (TEE) table is non-zero.	Yes, Positive	Improvement in journey times and general travel costs as a result of improved queuing and capacity. Queue lengths are predicted to halve as a result of the introduction of the signalised junction.	Y
Noise	Any change in alignment of transport corridor or any links with significant changes (>25% or <-20%) in vehicle flow, speed or %HDV content. Also note comment in TAG Unit A3.	Yes, Negative	The scale of change has been modelled in terms of the increases or decreases in flow, delays and queuing but a quantitative noise analysis has not been attempted	Y
Air quality	Any change in alignment of transport corridor or any links with significant changes in vehicle flow, speed or %HDV content: • Change in 24 hour AADT of 1000 vehicles or more • Change in 24 hour AADT of HDV of 200 HDV vehicles or more • Change in daily average speed of 10kph or more • Change in peak hour speed of 20kph or more • Change in road alignment of 5m or more	Yes, Positive	The edge of highway is being moved further away from properties so will result in a lower impact in terms of air pollutants to nearby properties.	Y
Accidents	Any change in alignment of transport corridor (or road layout) that may have positive or negative safety impacts, or any links with significant changes in vehicle flow, speed, %HGV content or any significant change (>10%) in the number of pedestrians, cyclists or motorcyclists using road network.	Yes, Positive	19 accidents have been recorded in the last 5 years at the junction. By reducing the number of conflict points through modification of the junction form, this is likely to reduce the number of accidents, particularly shunt-type accidents.	Y

Security	Any change in public transport waiting/interchange facilities including pedestrian access expected to affect user perceptions of personal security.	N/A	There will be no impact in terms of security.	N
Severance	Introduction or removal of barriers to pedestrian movement, either through changes to road crossing provision, or through introduction of new public transport or road corridors. Any areas with significant changes (>10%) in vehicle flow, speed, %HGV content.	N/A	There will be no impact in terms of severance.	N
Accessibility	Changes in routings or timings of current public transport services, any changes to public transport provision, including routing, frequencies, waiting facilities (bus stops / rail stations) and rolling stock, or any indirect impacts on accessibility to services (e.g. demolition & re-location of a school).	N/A	There are no public transport routes affected by the proposed changes.	N
Affordability	In cases where the following charges would occur; Parking charges (including where changes in the allocation of free or reduced fee spaces may occur); Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs); Road user charges (including discounts and exemptions for different groups of travellers); Public transport fare changes (where, for example premium fares are set on new or existing modes or where multi-modal discounted travel tickets become available due to new ticketing technologies); or Public transport concession availability (where, for example concession arrangements vary as a result of a move in service provision from bus to light rail or heavy rail, where such concession entitlement is not maintained by the local authority[1]).	N/A	N/A	N

4 The Financial Case

4.1 The Financial Case

4.1.1 The total cost of the scheme is approximately £3.0m. A Bill of Quantities is attached (Appendix D).

4.1.2 Significant progress on the detailed design of the scheme has enabled geometric refinements of the junction layout, with positive impacts on the scale of the construction. Routes to procurement have also been clarified and simplified with the Council's Highways Term Contractor proposed as the Principal Contractor for the overall construction project. This approach provides further opportunity for financial and operational efficiencies. The principles of 'value engineering' will be further applied throughout the remaining detailed design stages. These combined elements are reflected in the reduced overall scheme costs below.

Table 4.1 Cost Breakdown

Source of funding or type of contribution	Cost
Amount sought from BLTB	£2,100,000
Provisional profiling of BLTB drawdown	2015-16: £2,100,000
Local contributions from…..	
- Section 106 agreements	2016-17: £265,000
- BFC Capital Programme	2016-17: £635,000
- Preparation of and fees associated with Surveys, Modelling, Design, Utilities	£30-60,000
- Officer time	Full costs not yet known
Total Scheme Cost	In excess of £3.0million

4.1.3 The contribution from BFC is made up from a mix of Borough Capital and Developer funding. Non LTB contributions will be made up of £256k Section 106 contributions from the Martins Heron Tesco development which has already been committed to the scheme – (Appendix F) and £644k from Borough Capital included within the next two years' Capital Programme (Appendix G).

Table 4.2: Funding profile (Nominal terms)

£000s	2014-15	2015-16	2016-17	Total
LTB funding sought (Approx 70% of total)		2,100		2,100
Local Authority contribution	100*		635	635
Third Party contribution			265	265
TOTAL	**100***	**2,100**	**900**	**3,100**

*preparation costs included within the 2014/15 Capital Programme

4.1.4 A 15% level of optimism bias has been applied to cover unforeseen cost overruns. However, these should be limited with careful planning between all parties on traffic management and also detailed cost estimates from the tendered Schedule of Rates.

4.1.5 The scheme is to be carried out within adopted highway and therefore does not require planning permission. Following completion all associated infrastructure would be added to the Transport Asset Management Plan and maintained at Borough expense.

5 The Commercial Case

5.1 Scheme Delivery

5.1.1 Due to the project being small in scale with a limited scope of works there is no complexity in terms of construction tasks, site access etc. Third party land is not required for the scheme and some of the construction work can be undertaken off-line, simplifying the traffic management issues.

5.1.2 Overall, the risks associated with delivering the project are considered to be straightforward and amenable to well-understood management practices. The scheme is also to be carried out within adopted highway and therefore does not require planning permission.

5.1.3 Routes to procurement have been clarified and simplified with the use of the Council's Highway Term Contractor as the Principal Contractor for the overall construction project. Through the use of "Target Costing" any cost overruns or cost savings will be shared between the Contractor and the Council with no financial risk to the LTB. This approach involves joint working with the contractor at the design and programming stages to minimise the costs and to share the risks.

5.1.4 Following the improvement to a number of junctions along the route and also the securing of funds towards delivering the authority's Intelligent Transport Systems strategy, a network management approach was adopted that looked at improving the corridor as a whole and the use of Urban Traffic Control. It is this approach that will allow us to achieve improved journey times along the corridor and also to deliver improvements at key junctions at a much reduced cost, providing much better value for money.

6 The Management Case

6.1 Introduction

6.1.1 The scheme is similar in scale to the improvements carried out at the Twin Bridges junction which was included as part of the Department for Transports Local Pinch Point Programme. More details can be found at the following link:

www.bracknell-forest.gov.uk/Localpinchpointbid

6.1.2 The scheme is to be carried out within adopted highway and therefore does not require planning permission

6.2 Delivery

6.2.1 The main works of the Coral Reef Junction Improvement project will be delivered through the Highways Term Contract and a project plan has been developed (Appendix H).

Table 6.1 Key Dates

Task	Timescale
Business case development	October 2013 – May 2014
BLTB independent assessment	June 2014 - July 2014
BLTB financial approval	July 2014
Detailed design completion	July 2014 – October 2014
Finalise/order utility diversions	December 2014
Utility diversion lead in time	January 2015 – March 2015
Utility diversion works	April 2015 – May 2015
Construction	June 2015 – November 2016

6.3 Communications Plan

6.3.1 Under the New Roads and Streetworks Act, all service main locations have been identified and necessary diversions are being co-ordinated within the scheme. During works, effective temporary traffic management will ensure the junction/route remains operational at all times. This will include working hours restricted to outside rush hour and temporary diversion routing during resurfacing which would be carried out overnight/weekends. All those affected by the works will be consulted and kept informed throughout.

6.3.2 Stakeholders, including local residents, will be notified of the scheme details in advance of work starting, and during work, via the press, Council website and via social media including Facebook and Twitter.

Action Plan – Table 6.2

Date	
Pre-Construction	Consultation with affected residents and businesses. Press Release – BFC Website, Local Press, Facebook, Twitter, Town & Country, Forest views Advance warning signs on approaches to the junction warning of works and duration.
During Construction	Scheme updates - Facebook, Twitter, Town & Country, Forest views Advanced warning signs of any temporary road closures and the temporary diversion route
Post Construction	Press Release of scheme completion - Facebook, Twitter, Town & Country, Forest views

6.4 Governance

6.4.1 The Council's management team is made up of:

Neil Matthews – Transport Development Manager, Transport Development – Project Delivery Manager

Paul Trevis – Principal Engineer, Engineering Projects and Adoptions – Project Manager

Stuart Jefferies – Principal Engineer, Transport Strategy – Steering Group Chair

6.4.2 Ultimate responsibility for delivery of the scheme rests with Bracknell Forest Council. We will therefore assume an overall project management role. We will therefore establish a Steering Group chaired by an officer from the Council's Transport Management section. The Steering Group will meet on a regular basis to review progress, update the risk register, and make key strategic decisions.

6.4.3 The day-to-day management and delivery of the project will be the responsibility of the Transport Development Department and the Engineering projects team within it. They will work closely with delivery partners, and also form a point of contact for stakeholders.

6.4.4 The usual Council governance procedures will apply to all aspects of the project management, with issues being escalated in accordance with Council protocols as necessary.

6.5 Stakeholder Management

6.5.1 The scheme is included within the Council's Local Transport Plan 3 Core Strategy and Implementation Plan (LTP3) 2011-2026 (copy available on request). The plan was consulted on and adopted in 2011 and the Coral Reef junction improvement is listed as scheme no. 76.

6.5.2 The scheme forms part of the overall A329/A322 corridor improvements and is included in the Strategic Economic Plan for improving links between the M3 and M4. This is supported by the LEP and promoted by the Berkshire Strategic Transport Forum. Members of the forum include all six Berkshire Unitary Authorities, DfT, Highways Agency, Network Rail and Heathrow Airport Ltd.

6.6 Risk Management

WORKSTREAM: Coral Reef Roundabout Upgrade (Business Case)

AIM: To seek Funding to bring forward the delivery of the Coral Reef Roundabout improvement works

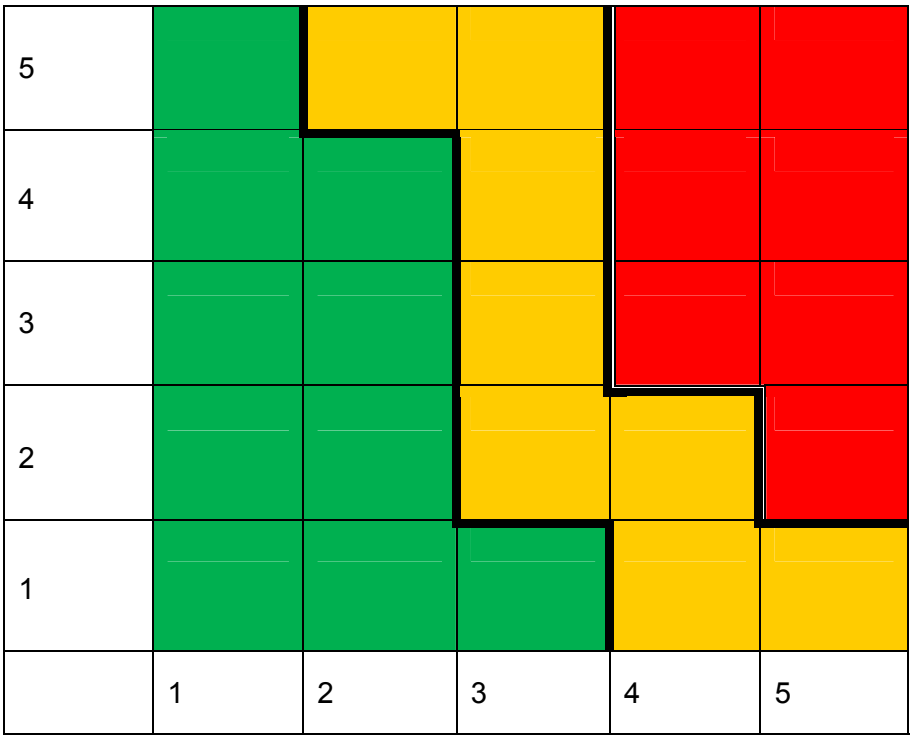
WORKSTREAM LEAD : Neil Mathews

Risk ID	Description of potential risk	Residual risk scoring			Financial Impacts £000's				Actions to Mitigate Risk	Person(s) Responsible for Action	Comments (to include details of any problems, date and who by)
		Impact	Likelihood	Risk Score	Lowest Cost Estimate	Highest Cost Estimate	Probability (%)	Current Estimated Risk Value			
1	That the overall cost of the Coral Reef Upgrade exceeds the funding available	2	2	4	10	100	50	27.5	Detailed BOQ with Effective Site and contract management	NM	Costs Provided
2	Statutory undertakers C4 cost estimates significantly exceed C3 cost estimates	3	1	3	10	100	40	22	Liaise with statutory undertakers and early commission of C4 estimates	NM	To be discussed with Contractors
3	Highway Works in neighbouring local authority area during construction leading to traffic congestion and possible impact on programme and costs	4	1	4	0	50	20	5	Liaison with neighbouring authorities and agreement re: programme	NM	Meetings underway to discuss any conflicts in programme
4	Unexpected need for additional Temporary Traffic Management increasing costs	2	1	2	10	50	20	6	Liaison with Traffic Management section and early quantification of TM cost	NM	To be discussed with contractor
5	Delays to programme due to non-performance of supplier or sub-contractor failure	2	4	8	0	30	70	10.5	Make contractor aware of risk. Contractor to develop risk action plan.	NM	To be discussed with contractor
6	Phasing of sections of the works in order to reduce impact on traffic and local business	4	1	4	0	50	50	12.5	Make contractor aware of risk. Contractor to develop risk action plan.	NM	To be discussed with contractor

7	Temporary surfacing to widened areas of carriageway to facilitate phasing and traffic management	4	1	4	10	20	70	10.5	Make contractor aware of risk. Contractor to develop risk action plan.	NM	To be discussed with contractor
8	Temporary configuration of traffic signals to suit method of working	2	3	6	10	20	95	13.5	Make contractor aware of risk. Contractor to develop risk action plan.	NM	To be discussed with contractor
9	Trees to be removed outside the highway bourndary to improve visibility above minimum standard	2	2	4	2	5	80	2.8	Make contractor aware of risk. Contractor to develop risk action plan	NM	To be discussed with contractor
10	Delay due to adverse weather conditions	2	2	4	10	50	50	15	Make contractor aware of risk. Contractor to develop risk action plan	NM	To be discussed with contractor
11	Traffic congestion during construction greater than estimated	2	2	4	10	100	40	22	Make contractor aware of risk. Contractor to develop risk action plan	NM	To be discussed with contractor
Total								147.3			

6.7 Risk matrix

LIKELIHOOD



IMPACT

Likelihood:
5 Very High
4 High
3 Significant
2 Low
1 Almost Impossible

Impact:
5 Catastrophic
4 Critical
3 Major
2 Marginal
1 Negligible

6.8 Monitoring and Evaluation

Scheme Impacts

6.8.1 Road traffic flows around the Coral Reef junction will be tabulated and compared to the pre-construction situation. This would be covered in the annual Travel in Bracknell Report which covers all modes and reports on growth and decline in use and patronage etc. This report will also focus on journey times travelling along the main corridors running through the Borough. This junction is one of Bracknell's major junctions along this corridor and improvements here are therefore key to any changes in journey times, allowing us to analyse the difference before and after opening.

Economic Impacts

6.8.2 Delivery of the Coral Reef scheme is linked to progress with a number of developments in Bracknell including the Town Centre Regeneration, TRL and other development in Bracknell and Wokingham along this busy corridor.