

East Reading Mass Rapid Transit – Phases 1 & 2

Business Case

COMMERCIAL SENSITIVE DATA REDACTED

On behalf of **Reading Borough Council**



Project Ref: 28791/5513 | Rev: | Date: September 2017



Document Control Sheet

Project Name: East Reading Mass Rapid Transit

Project Ref: 28791

Report Title: Business Case

Doc Ref: 28791-5513-BC

Date: September 2017

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Revision	Date	Description	Prepared	Reviewed	Approved
-	December 2016		PG	SM	SM
2	May 2017	ITA comments	NM	SM	SM
3	June 2017	ITA comments	NM	SM	SM
4	26/09/17	ITA comments	NM	PG	SM
5	20/10/17	ITA comments	NM	PG	SM
6	27/10/17	RBC Final Comments	NM	PG	SM

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1 Introduction

1.1 Introduction

- 1.1.1 This document has been produced in support of a bid to the Thames Valley Berkshire Local Enterprise Partnership to secure the funds available to the Local Transport Body and allocated to the East Reading Mass Rapid Transit (MRT) scheme. This report provides the Full Business Case for the East Reading MRT scheme.
- 1.1.2 The East Reading Mass Rapid Transit (ERMRT) scheme is a segregated fast track public transport, pedestrian and cycle route that will support enhanced accessibility and continued sustainable growth in Reading, Wokingham Borough and the wider area.
- 1.1.3 The MRT route is proposed to link the A3290 at Thames Valley Park, from the proposed new Park & Ride facility, to Napier Road, Reading town centre and the railway station.
- 1.1.4 The purpose of the scheme is to improve the attractiveness of travelling more sustainably, therefore reducing private car trips, easing forecast congestion and improving forecast air quality along the existing highway network. The scheme will provide urban connectivity and access to wider strategic transport networks. The A4 corridor in East Reading linking the town centre and the A3290 is suffering from significant levels of congestion, particularly in the peak periods. This congestion is forecast to increase with the projected level of growth in Reading and Wokingham Borough.
- 1.1.5 Growth in Reading and the wider area is planned to continue over the coming years, with more housing and investment in employment opportunities. The scheme will help to facilitate this growth, through providing high quality public transport that will be an attractive alternative to the private car and assist in the continued growth in sustainable transport use within Reading. Further detail of the scheme and the objectives are provided within the following two sections of this document.
- 1.1.6 Buses are the most common form of public transport in the UK accommodating 4.4 billion journeys a year. Buses have a key role in reducing congestion, as a bus can take up to 75 cars off the road, resulting in the use of less road space and therefore relieving congestion. Buses are highly susceptible to the negative effects of congestion if dedicated bus lanes and priority are not provided.
- 1.1.7 Research by Greener Journeys has found that for every 10 per cent increase in congestion bus journeys decrease by 10 per cent. Congestion makes buses slower and less predictable and consequently less attractive. In order to compensate for variable delays, bus companies have to put extra buses on congested routes which adds to their cost base, forcing up fares. All this means that more journeys will be made by car, which leads to greater congestion and therefore a vicious circle of decline.
- 1.1.8 Reading Borough Council has supported investment in public transport for a number of years, which has been further reinforced with significant investment from Reading Buses in prioritised customer service, new technologies and environmentally friendlier vehicles. Buses offer free Wi-Fi, on board charging for mobile devices, smart ticketing, real time rail information for buses that link with the rail network, audio and visual displays and GOS tracking for real time information.
- 1.1.9 Bus use in Reading has increased since 2010 by 24% against a back drop of national decline (-2% across England and -6% in South East). Few places have similarly bucked the long-term trend of decline in bus use (Source: DfT Transport Statistics, Table BUS00110A).
- 1.1.10 Continued investment and improvement in bus services and infrastructure are essential to continue this trend and the ERMRT scheme will further improve the situation for bus use in

Reading and Wokingham Boroughs. If this investment is not made then public transport will become less attractive, resulting in more car trips and the subsequent congestion and air quality issues.

1.1.11 Decisions on transport investment are informed by evidence set out in a business case. The Business case has been developed in line with Treasury's advice on evidence-based decision making set out in the Green Book and use its best practice five case model approach.

1.1.12 This approach shows whether schemes:

- are supported by a robust case for change that fits with wider public policy objectives – the 'strategic case';
- demonstrate value for money – the 'economic case';
- are commercially viable – the 'commercial case';
- are financially affordable – the 'financial case'; and
- are achievable – the 'management case'.

1.1.13 The remainder of this document follows that set out in the DfT's Business Case Guidance, 'The Transport Business Cases', DfT, December 2013.

1.1.14 PBA has undertaken work in support of the strategic and economic cases and this report details the work undertaken in support of these two elements and is set out as follows:

- Section 2 gives the background to the scheme and provides scheme details and the overall aims and objectives;
- Section 3 sets out how the scheme fits into the Strategic Context;
- Section 4 sets out the Economic Case for the scheme;
- Section 5 sets out the Financial Case;
- Section 6 sets out the Commercial Case; and
- Section 7 sets out the Management Case.

2 Background

2.1 Existing Situation

Population

- 2.1.1 The Office for National Statistics (ONS) publishes regular updates on the number of people living in local authority areas. The total population of Reading and Wokingham Boroughs are shown in **Table 2-1**. Reading saw population growth of 10.9% between 2007 and 2016, whilst Wokingham's population grew by 2.9%.

Table 2-1: Population in Reading and Wokingham

	Reading	% change	Wokingham	% change
Jun-07	145,800	---	157,400	---
Jun-08	149,200	2.33%	159,700	1.46%
Jun-09	151,800	1.74%	161,900	1.38%
Jun-10	154,200	1.58%	163,200	0.80%
Jun-11	155,300	0.71%	154,900	-5.09%
Jun-12	157,100	1.16%	156,700	1.16%
Jun-13	159,200	1.34%	157,900	0.77%
Jun-14	160,800	1.01%	159,100	0.76%
Jun-15	161,700	0.56%	160,400	0.82%
Jun-16	162,700	0.62%	161,900	0.94%

Employment and Businesses

- 2.1.1 **Table 2-2** shows the number of jobs in the three unitary authorities between the period of 2008 and 2015.

Table 2-2: Number of Jobs in Reading and Wokingham

	Reading	% change	Wokingham	% change
Jun-08	109,000	---	76,000	---
Jun-09	100,000	-8.3%	75,000	-1.3%
Jun-10	101,000	1.0%	78,000	4.0%
Jun-11	105,000	4.0%	81,000	3.8%
Jun-12	108,000	2.9%	81,000	0.0%
Jun-13	109,000	0.9%	84,000	3.7%
Jun-14	113,000	3.7%	85,000	1.2%
Jun-15	117,000	3.5%	89,000	4.7%

2.1.2 Reading experienced a significant decline of 8.3% in the number of jobs between 2008 and 2009 as a result of the economic recession. However, this trend has significantly reversed and Reading remains the unitary authority with the most number of jobs, with 7.3% growth between 2008 and 2015. Wokingham has also seen increases in job numbers over the seven-year period 2008 to 2015, with growth of 17.1%.

A4 London Road Corridor

2.1.3 The A4 London Road is the main strategic route for vehicles travelling to and from Reading Town Centre to the east and the link to M4 junction 10. It is heavily constrained comprising two narrow lanes for traffic travelling towards central Reading and a single narrow lane exiting towards the A3290. The A4/A329 Cemetery Junction is a particular pinch point along the route. The existing highway network is shown in Figure 2-1.

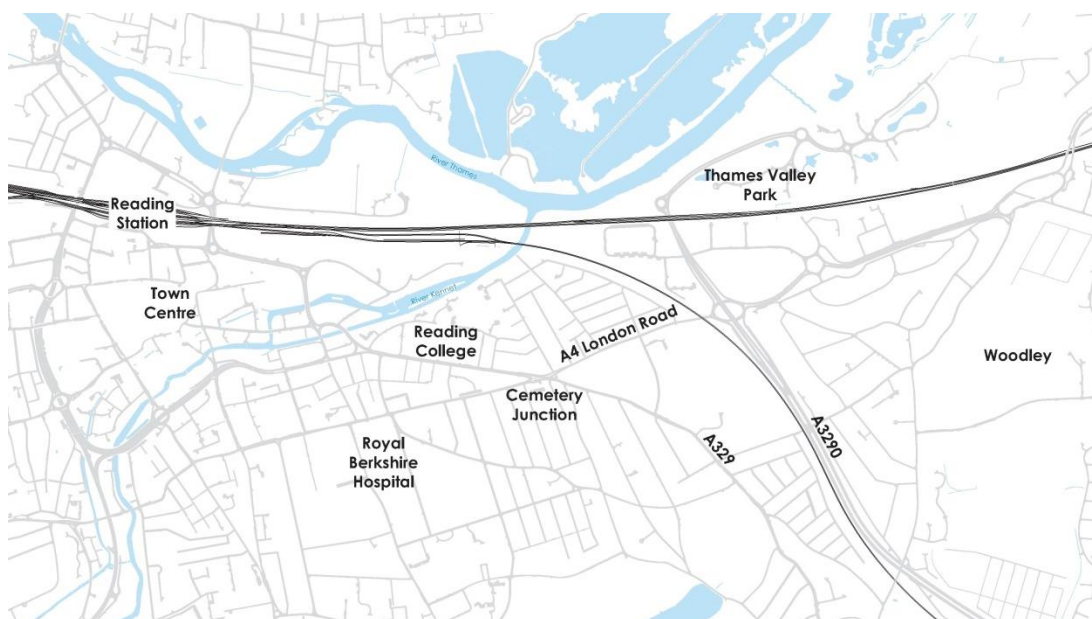


Figure 2-1: Existing Highway Network

2.1.4 Two-way daily traffic flows on the A4 London Road are in the region of 35,000 vehicles. Figure 2-2 shows the average daily flow over the last eight years. The daily traffic flows show that traffic flows at this site appear to have fallen over the period, but stabilised between 2014 and 2015. This may be due to counter inaccuracies with heavily congested routes, or increasing traffic conflicts causing a reduction in capacity, rather than demand reducing. This data should also be viewed in the context of queue data and journey time reliability along the corridor, which are discussed further in paragraphs 2.1.6 to 2.1.8, as well as air quality.

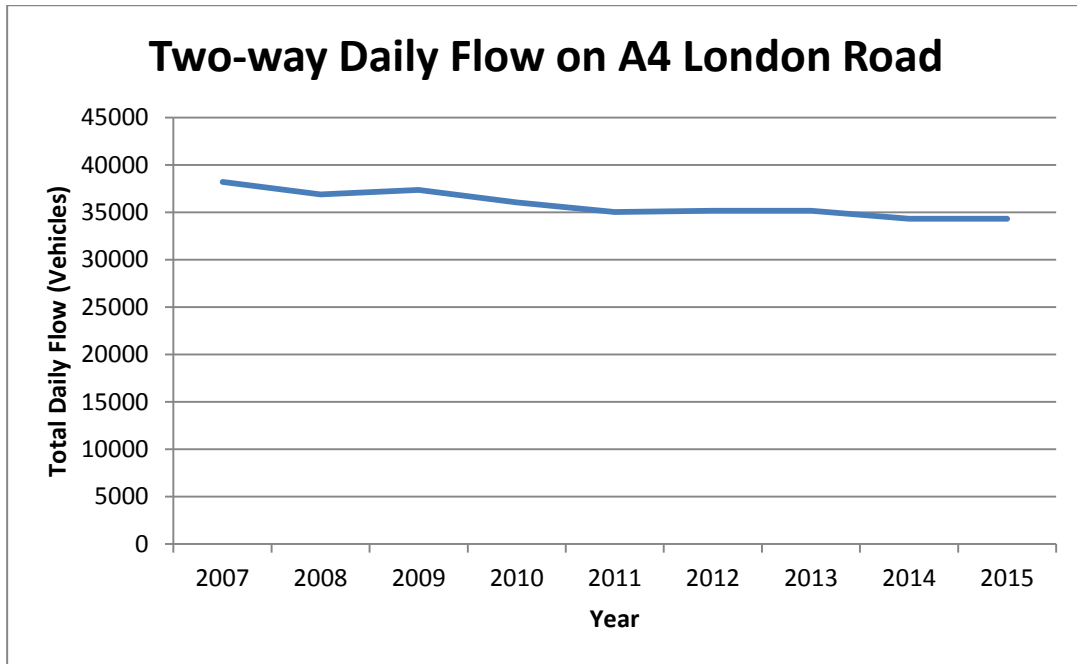


Figure 2-2: Two-Way Flow on A4 London Road

(NB: No data available for 2013 – 2012 data used likely due to detector malfunction)

2.1.5 Figure 2-3 shows the profile of the daily traffic flow in 2015. It shows peak spreading with traffic only reducing between 10:00–12:00, and only in the outbound direction, then gradually increasing towards an extended evening peak period.

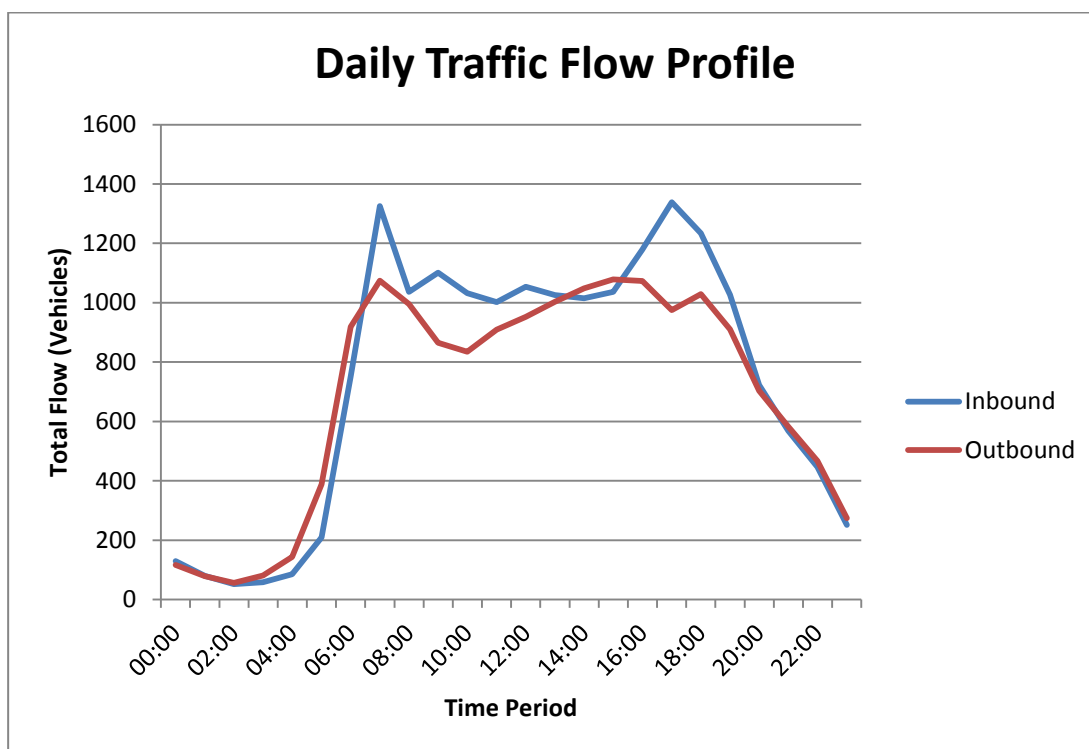


Figure 2-3: Daily Traffic Profile on A4 London Road (2015)

- 2.1.6 These daily profiles, alongside the observed queues, indicate that the corridor is operating at, or over capacity during the majority of the day. The queues can reach 300–550 vehicles exiting Reading in the peak periods and between 60–200 vehicles entering Reading in the peak periods.
- 2.1.7 Journey times along the route show significant variation, resulting in unreliable bus services. The figures below show the inbound and outbound journey times along the A4 corridor for the AM and PM peak hours for weekdays in the middle of May 2015 (avoiding the bank holiday weeks).
- 2.1.8 Inbound journey time for the AM peak hour from the A3290 to Reading Town Centre vary from 17 minutes 55 seconds to 29 minutes 50 seconds. The journey time along the same route for 08:00 to 09:00 on a weekend is around 13 to 14 minutes.
- 2.1.9 Public transport services on the A4 London Road between the A4/A3290 junction and Wokingham Road approach to Cemetery junction, comprise of the following key bus services;
- Park and Ride from Winnersh Triangle
 - Thames Valley Park (TVP) Commuter bus
 - Heathrow Rail Air coach services
 - Service 13 and 14, between Woodley and Reading town centre
 - Reading – Twyford – Henley – High Wycombe (Nos. 800/850)
 - Reading – Twyford – Wokingham (Nos. 126/128/129)
 - Service 4/X4, between Bracknell/Wokingham and Reading town centre.

2.1.10 The frequency of these services shown in Table 2-3.

Table 2-3: Existing Public Transport Services Travelling Along A4 London Road

Bus Service	Operator	Number of Buses by Time Period (All Directions)		
		AM Peak (07:00-10:00)	Inter Peak (10:00-16:00)	PM Peak (16:00-19:00)
Winnersh Park and Ride	Reading Buses	12	24	12
Reading Station - Thames Valley Park (TVP)	Stewarts	26	22	24
Reading - Bracknell/Wokingham (Nos. 4 & X4)	Reading Buses	12	24	12
Reading Station - Heathrow Airport (RailAir)	First	9	18	8
Reading - Woodley (Nos. 13 & 14)	Reading Buses	12	24	12
Reading – Twyford – Henley – High Wycombe (Nos. 800/850)	Arriva	6	13	4
Reading – Twyford – Wokingham (Nos. 126/128/129)	Go-Ahead	3	6	3
All Buses Daily Total	All Buses	83	137	79

- 2.1.11 Commuter shuttle buses operate from Reading town centre and railway station to Thames Valley Park between 06:45 and 19:30. These bus services are full towards TVP in the AM peak period and towards Reading Station in the PM peak period. Commuter shuttle buses also run between Thames Valley Park and Winnersh Triangle during peak periods only.
- 2.1.12 Inbound buses use the A4 London Road as far as Cemetery Junction, where there is a contra-flow bus lane on the A329 Kings Road to the town centre. Outbound buses use Kings Road, where there is a bus lane to A4 London Road. There is little, if any, scope to provide further bus priority on the section of A4 London Road between Cemetery Junction and the A3290 junction. The option of bus priority on this section of London Road was previously looked at and was included within the Option Appraisal Report that was produced to support the business case.
- 2.1.13 The tidal flow scheme was a low-cost alternative considered to help improve capacity existing Reading during the PM peak hour. This has however been discounted due to safety and capacity issues. The homes along London Road are all accessed via driveways. If the traffic flow was reversed along the centre lane during the PM peak hour, residents turning right into their driveways (as well as right into the New Town area at the junction with Cholmley Road) would stop the remaining single lane traffic, causing significant congestion and safety issues.

The scheme would have a significant impact on incoming traffic capacity (also effecting bus services) even without consideration of these residents stopping to turn into the homes and was therefore discounted.

- 2.1.14 The 4/X4 service approaches Reading along Wokingham Road and through Cemetery junction and Kings Road.

Future Growth

- 2.1.15 In total, the corridor supports some 75,000 people movements per day to key areas of economic activity such as Thames Valley Park immediately to the east (8000 jobs) and central Reading (over 50,000 jobs). As well as supporting current employment, a further 190,500sqm of employment is planned in the Town Centre and 35,000sqm at IQ Winnersh and 5,300 homes at Kenavon Drive, Station Hill, former Cooper BMW site and Royal Mail sites plus a further 9,400 homes in Wokingham and west side of Bracknell.
- 2.1.16 Continued issues with congestion on the network will restrict economic growth and there is a risk that existing businesses would consider relocating out of the TVB area and possibly elsewhere in Europe.

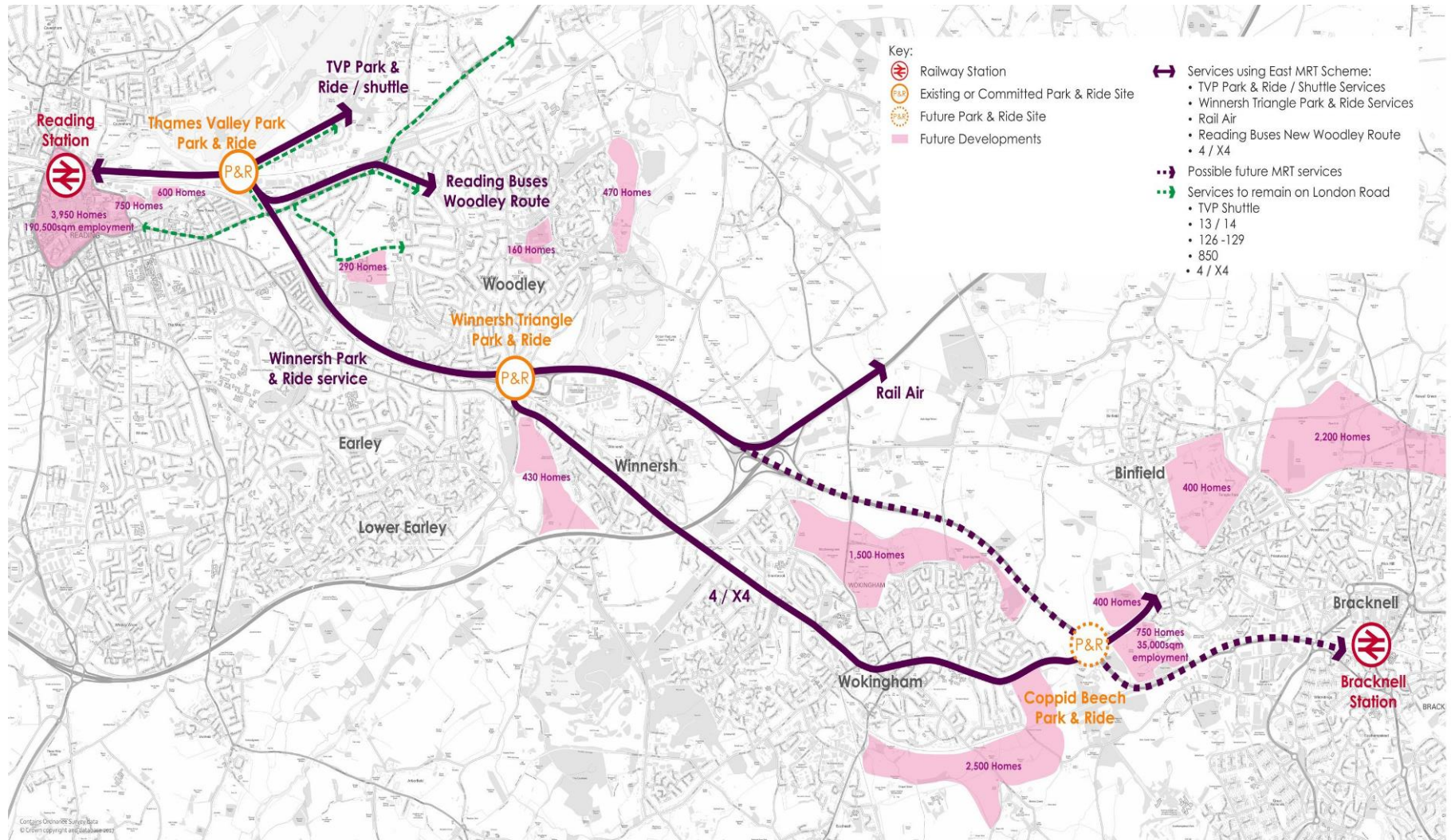


Figure 2-4 Planned Development and Potential Bus Services Along ERMRT

3 Strategic Case

3.1 Introduction

- 3.1.1 This section details how the planned ERMRT fits into the policy context with reference to national, regional and local policies. This scheme is a long-established element of RBC's strategy to deliver sustainable economic growth and housing for Reading and Wokingham Boroughs. It is included in RBC's Corporate Plan, Core Strategy and Local Transport Plan.
- 3.1.2 The scheme is also identified in WBC's Core Strategy, Managing Development Delivery, Local Plan, and Local Transport Plan; and TVB LEP's Strategic Economic Plan.

3.2 Business Strategy

- 3.2.1 As well as providing a good strategic fit with current National Policy a MRT scheme is included in the following current policies and plans:
- Thames Valley Berkshire LEP Strategic Economic Plan
 - Berkshire Local Transport Body Prioritised Schemes
 - Reading Borough Council's Core Strategy of the Local Plan (2008, altered 2015)
 - RBC's Local Development Framework – Sites and detailed policies document, Local Plan (2012, altered 2015)
 - Reading Borough Council's Local Transport Plan 3: Strategy 2011-2026
 - Wokingham Borough Council's Local Plan Core Strategy (2010)
 - Wokingham Borough Council's Local Transport Plan 3: 2011-2026
 - Wokingham Borough Council's Managing Development Delivery (MDD) Local Plan (adopted February 2014).
- 3.2.2 The delivery of a MRT scheme is also in line with the National Planning Policy Framework.

National Planning Policy Framework

- 3.2.3 The development proposal accords with the Government's National Planning Policy Framework (NPPF), in that it promotes and supports sustainable development.
- 3.2.4 The proposal also supports many of the main objectives of NPPF, for example it:

“proactively drives and supports sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs; promotes mixed use developments, and encourage multiple benefits from the use of land in urban and rural areas, recognising that some open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production); and actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable”.

Thames Valley Berkshire LEP Strategic Priorities

- 3.2.5 The LEP seek to “ensure we have transport infrastructure for the 21st century”

3.2.6 One of LEP’s objectives is “to secure investment for Thames Valley Berkshire Strategic infrastructure from public or private sources that will cause barriers to growth in the four areas”:

- Housing and Regeneration
- Transport
- Telecommunications
- Utilities

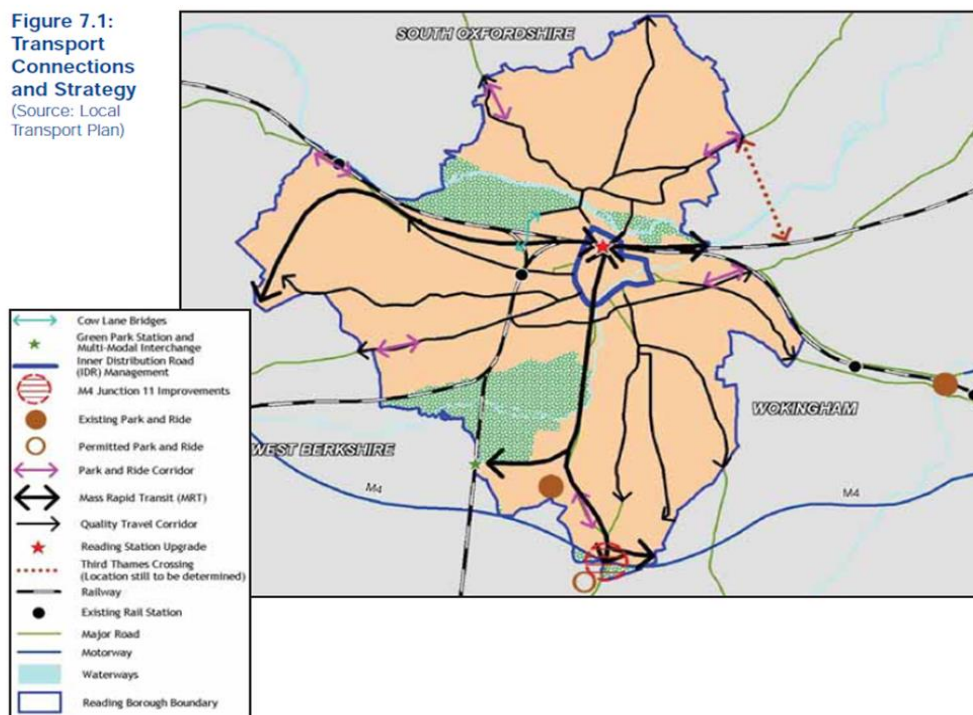
3.2.7 The delivery of ERMRT will help to achieve these aspirations and objectives. The scheme is included within the LEP’s Strategic Economic Plan and is the third highest priority scheme for the Berkshire Local Transport Body.

Reading Borough Council Core Strategy

3.2.8 The adopted Reading Borough Council (RBC) Core Strategy identifies four distinct, but well-connected areas that present themselves as sustainable locations for future development. Quality bus corridors / Mass Rapid Transit is identified as one of the eight core infrastructure projects.

3.2.9 Policy CS21 ‘Major Transport Projects’ states:

“As a regional transport hub, priority will be given to the implementation of the priority transport projects identified in the Local Transport Plan, particularly the upgrading of Reading Station Interchange, Park and Ride Sites, Mass Rapid Transit, road improvements, Quality Bus Routes and associated transport improvements. Land needed for the implementation of priority transport projects will be safeguarded from development, to enable their future provision.”

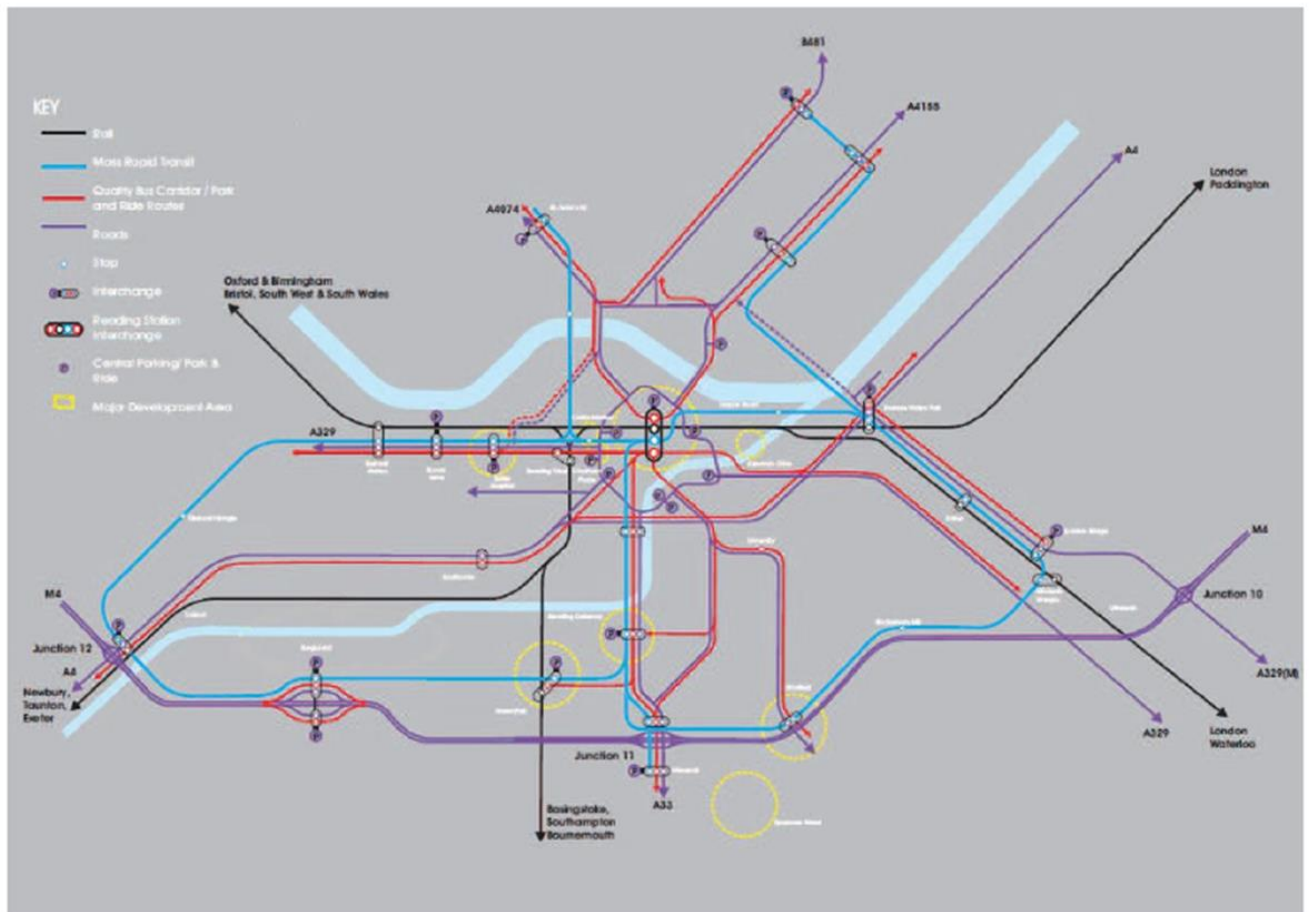


(Source: RBC Core Strategy – Page 64)

Reading Borough Council Local Transport Plan

3.2.10 Reading Borough Council's Local Transport Plan (2011 – 2026) provides the following detail with regards to their Transport Vision for Connecting Reading:

“Transport in Reading will better connect people to the places that they want to go: easily, swiftly, safely, sustainably and in comfort. We will meet the challenges of a dynamic, low-carbon future to promote prosperity for Reading. Whichever way you choose to travel, by foot or bicycle, motorcycle, bus, rail, car or boat whether to work or education, to leisure or the services you need, our transport system will help you get there.”



(Source: RBC Local Transport Plan (2011-2026) - Public Transport Strategy Page 54)

3.2.11 The LTP provides a number of Area Action Plans (AAP's) for the different areas across the borough, with each of these supporting the implementation of MRT through 'Opportunities for Addressing Challenges'.

Eastern AAP includes:

- *“To continue to work with Wokingham Borough Council, South Oxfordshire District Council, Oxfordshire County Council and Bracknell Forest District Council to find cross-boundary solutions to transport challenges.*
- *To work with Wokingham Borough Council to progress the implementation of a long term Park and Ride strategy, considering alternative sites to Loddon Bridge, including the possible use of Broken Brow at the northern end of the A329(M).*

- To carry out targeted neighbourhood or area studies, working with Wokingham Borough Council to build on previous work to deliver multi-targeted benefits, including the improvement of public transport journey times and reliability and the management of development pressures. One focus would be on strategic radial routes into Reading and the potential provision of a mass rapid transit supporting a park and ride strategy.
- To work with the private sector and Wokingham Borough Council to innovate and secure delivery of integrated transport choices associated with new development proposed within Wokingham Borough.
- To work with Wokingham Borough Council to deliver an East Reading Transport Link and associated Park & Ride facilities”

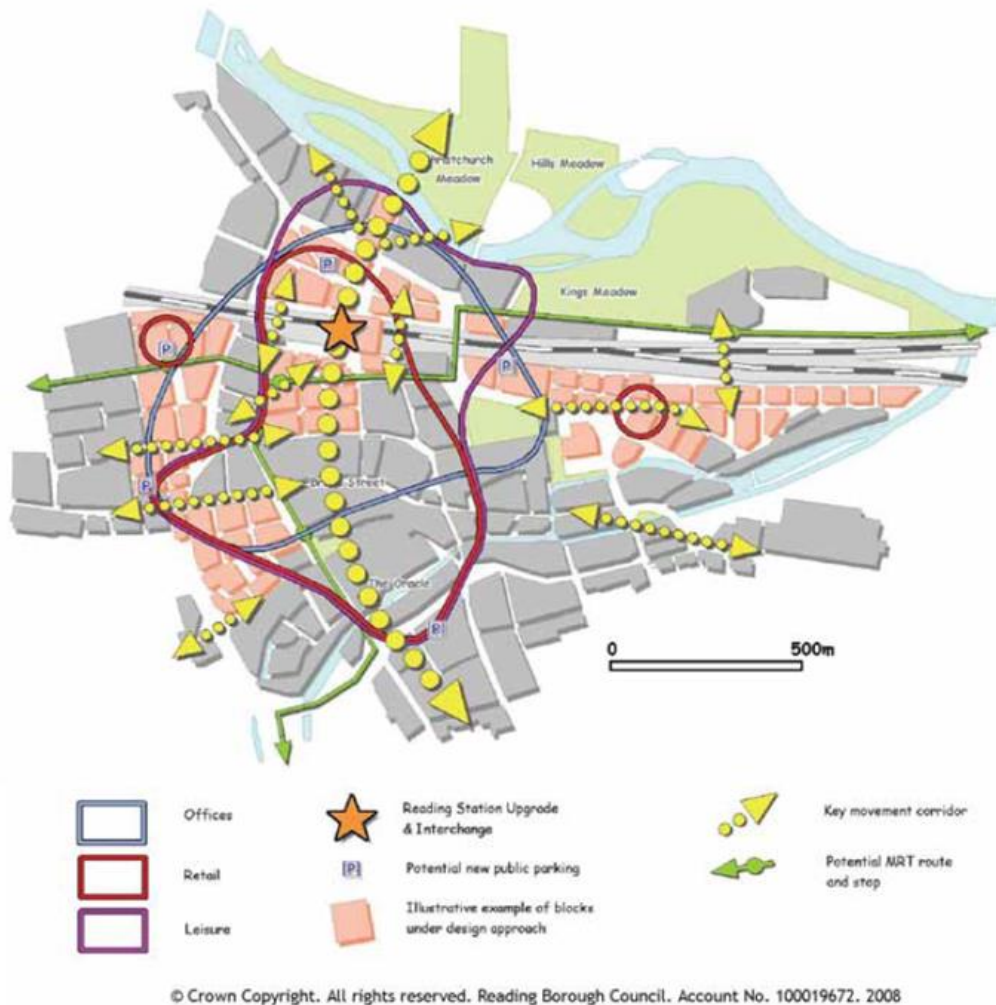
3.2.12 The LTP notes that: “An MRT system must be designed to meet a set of standards above and beyond a quality local bus. The long-term vision incorporates a network that expands the public transport offer rather than replacing existing networks, and it will be branded as such. The MRT network extends beyond Reading to offer public transport and interchange options to the wider travel to work area. The Park and Ride objectives and policies support the MRT and interchange options, aiming to reduce private transport mileage and improve journey times and air quality on some of Reading’s busiest roads.”

Figure 2.1: Transport in the Centre of Reading (source: Local Transport Plan 2006-2011)



(Source: Local Transport Plan (2011- 2026) - Central Area Action Plan Page 12)

Figure 5.2: Spatial and Design Strategy for the Centre of Reading



(Source: Local Transport Plan (2011- 2026) Central Area Action Plan Page 18)

Wokingham Borough Core Strategy

- 3.2.13 High Quality express bus services or mass rapid transit along the A4 and A329 corridors are identified as an integral part of Wokingham Borough Council’s Core Strategy. Policy CP10 of the Core Strategy, together with Policy CC08 and Appendix 3 of the MDD Local Plan, safeguard areas identified for improvements to the strategic transport network including mass rapid transit along the A4/A329 corridors, improvements to public transport services and improvements to footpath and cycle networks.
- 3.2.14 ERMRT will help assist the planning obligations related to South Wokingham (2500 homes) and North Wokingham (1500 homes):
- “Improvements to the quality and frequency of public transport services along any part of the network” ...
 - “High quality express bus services or mass rapid transit along A329 corridor”

Wokingham Local Transport Plan

- 3.2.15 Policy PT8 Park & Ride: *“The council will promote the use of Park & Ride services and will support the future introduction of new sites in the borough where feasible.*

Over the life of this plan and the development of the adopted core strategy we will work with Reading Borough council and Bracknell Forest Councils to deliver and retain Park & Ride at the following locations:

- *Near to Coppid Beach roundabout on the A329 in Wokingham*
- *Park and Ride in the vicinity of the M4 junction 11 (MereOak)*
- *Relocation or retention of the Park & Ride at Winnersh*
- *Park & Ride located in Thames Valley Park to complement the high quality express bus services or mass rapid transit along the A4 or A329 corridors into central Reading.”*

- 3.2.16 This confirms their aspirations to connect to a mass rapid transit system along the A4 or A329.

- 3.2.17 Policy SP1: Support for Major Infrastructure sets out that *“the Council will actively support development of suitable major transport projects that are necessary to support the future growth and success of the Borough. Major Strategic Public Transport, Walking and Cycling Infrastructure includes:*

- *“High quality express bus services or mass rapid transit along the A4 and A329 corridors*
- *High quality express bus services or mass rapid transit between Reading and Woodley town centres*
- *High quality express bus services between Green Park and Twyford stations via the Park & Rides in the vicinity of M4, J11 and Loddon Bridge and Winnersh Triangle Railway Station*
- *Measures to improve accessibility by non-car transport modes along routes to the stations at Green Park and Winnersh Triangle”*

Managing Development Delivery (MDD) Local Plan (adopted February 2014).

- 3.2.18 Appendix 3 of the MDD Local Plan refers to strategic transport projects indicated on Figure 24 of the Local Transport Plan, which includes a proposed highway scheme connecting west into Reading Borough from Thames Valley Park and the proposed Park & Ride facility. Supporting text to Policy SAL09 of the MDD Local Plan (Paragraphs 4.68-4.69) requires development proposals to have regard to the ‘Cross Town Link’ proposals from Thames Valley Park being pursued by RBC.

3.3 Problem Identified and Drivers for Change

- 3.3.1 Reading is forecast to marginally outperform London, to record the highest GVA growth of any UK city between 2015 and 2018, at 3.1% (Source: Rebalancing: UK region and city economic forecast. EY, 2015). Furthermore, businesses in the Thames Valley are reported to be planning to expand headcount, with predictions of a rise to 64% this year (source: DBO’s Barometer report).

- 3.3.2 These forecasts are not surprising when Reading is due to benefit from significant investment in the following strategic networks:

- Crossrail, which is planned to start running in December 2019 and is reported to be generating the most homes of all the new rail lines.
- The Western Rail Access to Heathrow (WRAtH) will provide direct access to Heathrow Airport from Reading and is currently projected by Network Rail to be completed by 2024.
- HS2, which should be completed in the next decade, will reduce journey times from London to Birmingham to 49 minutes, making it easier to commute from Britain's second city to the capital. London's rail commuter network will then encompass Brighton, in the south, Southend, in the east, Reading, in the west, and Birmingham, to the north.
- M4 Junctions 3-12: Smart Motorway.

3.3.3 Figure 3-5 shows how the ERMRT connects to the strategic transport infrastructure.

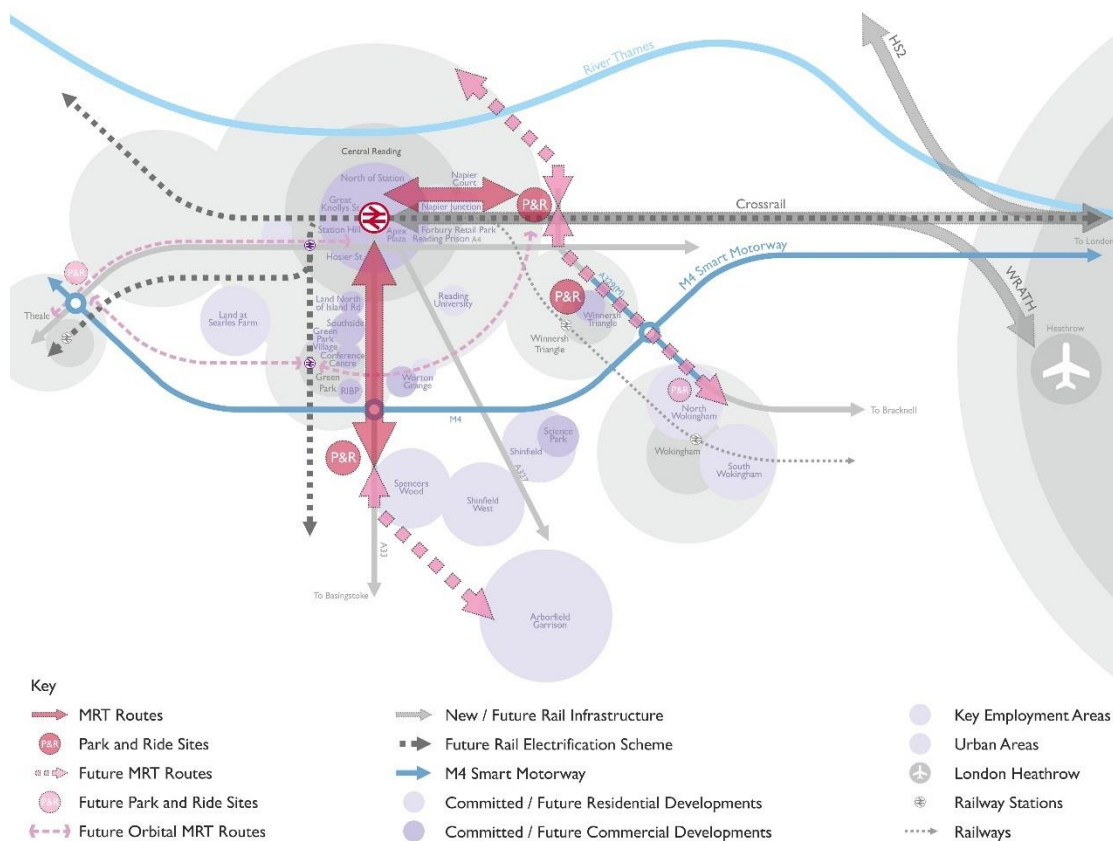


Figure 3-5: Local and Regional Development Connectivity

3.3.4 A growing town must be supported by good transport links, to provide urban connectivity and access to wider strategic networks. Reading's transport links are suffering from the highest levels of congestion outside of London (source: Department for Transport statistics, Table CGN0206b, September 2015) with limited public transport alternative that avoids the congestion. Reading Borough Council (RBC) has made significant headway in delivering its transport strategy (set out in the last three Local Transport Plans), which has been identified to support planned growth, but significant work is still needed. Junction 11 on the M4 has benefitted from capacity increases and bus priority. Reading Station has been improved to remove the rail bottleneck and facilities upgraded to support the capacity increases. Park and

Ride sites have been delivered at Mere oak and Winnersh, with another planned at Thames Valley Park. Cycle routes have been delivered along London Road, Wokingham Road, A33, and across the River Thames via a new foot/cycle bridge. Pinch point schemes have relieved bottlenecks.

- 3.3.5 Ernst and Young compiled a report which suggested that economic growth in Reading was predicted to be higher than anywhere else in the UK. Reading however remains one of the most congested towns/cities outside of London (Source: Inrix 2016 Traffic Scorecard). A step-change is needed to provide connectivity, capacity upgrades and encourage sustainable travel to allow this potential economic growth to be achieved.
- 3.3.6 The A4 London Road is heavily constrained comprising two narrow lanes for traffic travelling towards central Reading and a single narrow lane exiting towards the A3290, and onto junction 10 of M4. The daily traffic flows have not fluctuated markedly over the last eight years and the daily profile of the traffic flows show peak spreading with traffic only reducing between 10:00–12:00 then gradually increasing towards an extended evening peak period. This, alongside the observed queues indicate that the corridor is operating at, or over capacity during much of the day. The queues can reach 300 – 550 vehicles exiting Reading in the peak periods and between 60 – 200 vehicles entering Reading in the peak periods. Furthermore, the commuter shuttle bus services are full in the peak periods.
- 3.3.7 Journey times range from 7 to 24 minutes east bound, depending upon the time of day. For Westbound, the journey times range from 10 to 24 minutes. This shows there is currently significant variations in journey time due to congestion which will severely limit the potential for future growth on the corridor and the attractiveness of using public transport as opposed to the private car.
- 3.3.8 A key issue in validating the Reading Transport Model (RTM) which is a key component of the modelling evidence base, is the variation in day to day peak traffic flows in Reading and trying to best model these. The model should be viewed in the context of these day to day variations. These issues were documented in the LMVR Section 7.7. It can be considered that the relatively lower journey times in the model validation implies network conditions are understated and hence the switch to public transport is likely to be on the conservative side. The modelling is therefore assessing a worse and hence more conservative scenario. It also has to be noted that the additional actual number of trips as a result of the ERMRT is relatively small and this would not be affected significantly by a much improved base model validation.
- 3.3.9 Public transport services are well used in east Reading and the commuter shuttle bus services are full in the peak periods. There is existing bus priority between Watlington Street gyratory and Cemetery Junction, however services suffer delays in the town centre and between Cemetery Junction and the A3290.
- 3.3.10 The A4 London Road does not provide adequate pedestrian and cycle facilities between and on the boundary of Reading and Wokingham Boroughs. The towpath provides a route, however there are stretches where cyclists are required to dismount, as access rights are on foot only. The natural surveillance is poor, surfacing is poor, it is narrow in places, shared with pedestrians and includes a stepped bridge, which all detract from its use as a high quality cycle facility.
- 3.3.11 The corridor supports some 75,000 people movements (ATC on Kings Road showed an average daily flow of 22500 vehicles in October 2015) per day to crucial areas of economic activity such as Thames Valley Park immediately to the east (8,000 jobs) and central Reading (over 50,000 jobs). The corridor also provides access to further and higher education establishments such as Reading College and University of Reading.

3.4 Impact of Not Changing

- 3.4.1 If nothing is done, congestion on the network would continue to increase and no further growth can be accommodated including planned growth for the local and wider area. This would

seriously restrict economic growth and there is a risk that existing businesses would consider relocating out of the TVB area and possibly elsewhere in Europe.

3.5 Choice of Scheme

- 3.5.1 The OAR sets out the process of scheme selection, which demonstrates that a comprehensive review of alternative routes and the use of various modes of transport has been undertaken. A segregated bus route in the proposed location provides clear benefits over options such as park & rail and park & ferry, in terms of shorter journey times, shorter waiting times, passenger capacity and catchment.
- 3.5.2 Other options are either not affordable, such as a tunnel or will be ineffective in meeting the objectives of the scheme. The low cost option is not feasible as it will not deliver the necessary capacity increases and will result in serious safety issues.

3.6 Objectives

- 3.6.1 The objectives of the ERMRT scheme have been developed based on an understanding of the current situation, future situation and the need for the intervention.
- 3.6.2 It is essential that the outcomes and outputs of the scheme align with the strategic objectives set out by the LEP in the Strategic Economic Plan (SEP), as well as the planning and transport strategies for Reading and Wokingham.
- 3.6.3 Delivery of the scheme would substantially increase capacity and reduce forecast congestion on the network, enabling additional journeys and reducing journey times to support economic growth.
- 3.6.4 A key objective of the SEP is to enhance urban connectivity; this is translated into one of the key themes within Package 2. This reflects the polycentric nature of Thames Valley Berkshire (TVB) and provides a stronger economic focus. This scheme will contribute to the functionality of Reading in connectivity terms, making key employment and development sites in central Reading and to the east more accessible on a sustainable basis. In addition, it provides a key east-west spine to the proposed wider Thames Valley Berkshire MRT network and enhanced access to/from east Reading and Wokingham to Reading Station.
- 3.6.5 This project is part of Package 2 – Enhancing Urban Connectivity. It also contributes to Package 1 - Unlocking Housing Development and Package 3 – Encouraging Vibrant Town Centres.
- 3.6.6 To overcome the problems and issues within the scheme area, the following set of specific objectives have been established which are:
- i. Provide a cost-effective solution to accommodate future travel demand on the London Road Corridor for local trips;
 - ii. Increase capacity for movement of people thereby reducing journey times and forecast congestion, as well as improving reliability of journeys along the corridor.
 - iii. Improve forecast air quality, in particular on the London Road corridor, with reduction in delays and reduction in buses on this section of the route.
 - iv. Support economic development and housing delivery in Reading Town Centre, east Reading, Wokingham and within the Thames Valley.
 - v. Develop a high quality, sustainable system which visibly has priority over the private car to encourage sustainable transport use.

- vi. Facilitate a future MRT network for the Thames Valley between Reading, Wokingham and Bracknell.
- vii. Allow access for mobility impaired and pushchairs.

3.7 Measures for success

3.7.1 For each objective set out above, at least one ‘indicator of success’ has been established to determine what constitutes successful delivery of any transport-related improvements. Indicators and related targets are outlined in Table 3-1.

Table 3-1: Success Indicators

Indicator	Target	Relating to Objective
(1) Provide a high quality, safe, convenient and reliable alternative to the car and improve usage of sustainable transport in Reading	Increase public transport modal split Increase public transport capacity Improve public transport reliability Improve public transport journey times Improve personal security Reduce casualty frequency and severity	(i)
(2) Alleviate the severe forecast congestion on the London Road corridor by allowing better flow of traffic	Improve (or keep to neutral) car journey times	(ii)
(3) Improve forecast air quality on the London Road corridor	Reduction in forecast emissions levels directly from highway vehicles	(iii)
(4) Stimulate development, Increase in jobs and resident population in East Reading and Wokingham and the town centre	Number new jobs created Number homes built	(iv)

3.7.2 A programme of monitoring will be put in place prior to construction, and again at one year and 5 years after construction to monitor the success of the scheme. In line with Table 3-1 above, the monitoring will include before and after conditions to key parameters such as:

- Traffic congestion and journey times;
- Public transport journey time and reliability;
- Usage of sustainable transport
- Road safety;

3.7.3 RBC is already undertaking annual cordon monitoring counts for all modes of transport around Reading town centre and this will contribute towards understanding the success of the scheme.

3.8 Scope

- 3.8.1 The ERMRT scheme is a segregated fast track public transport, pedestrian and cycle route that will support enhanced accessibility and continued sustainable growth in Reading, Wokingham Borough and the wider area. The MRT route is proposed to link the A3290 at Thames Valley Park, via the proposed new Park & Ride facility, to Napier Road, Reading town centre and the railway station. This is shown in Figure 3-6.
- 3.8.2 The purpose of the scheme is to improve the attractiveness of travelling more sustainably, therefore reducing private car trips, easing forecast congestion and air quality along the existing highway network, particularly on the A4 corridor.
- 3.8.3 This eastern section will form part of a longer term MRT network for the Thames Valley or operate as a standalone MRT route. Drawings 28791-001-003 and 004 show further details of the ERMRT scheme and Figure 3-7 shows how the scheme provides a critical link for a wider MRT network.

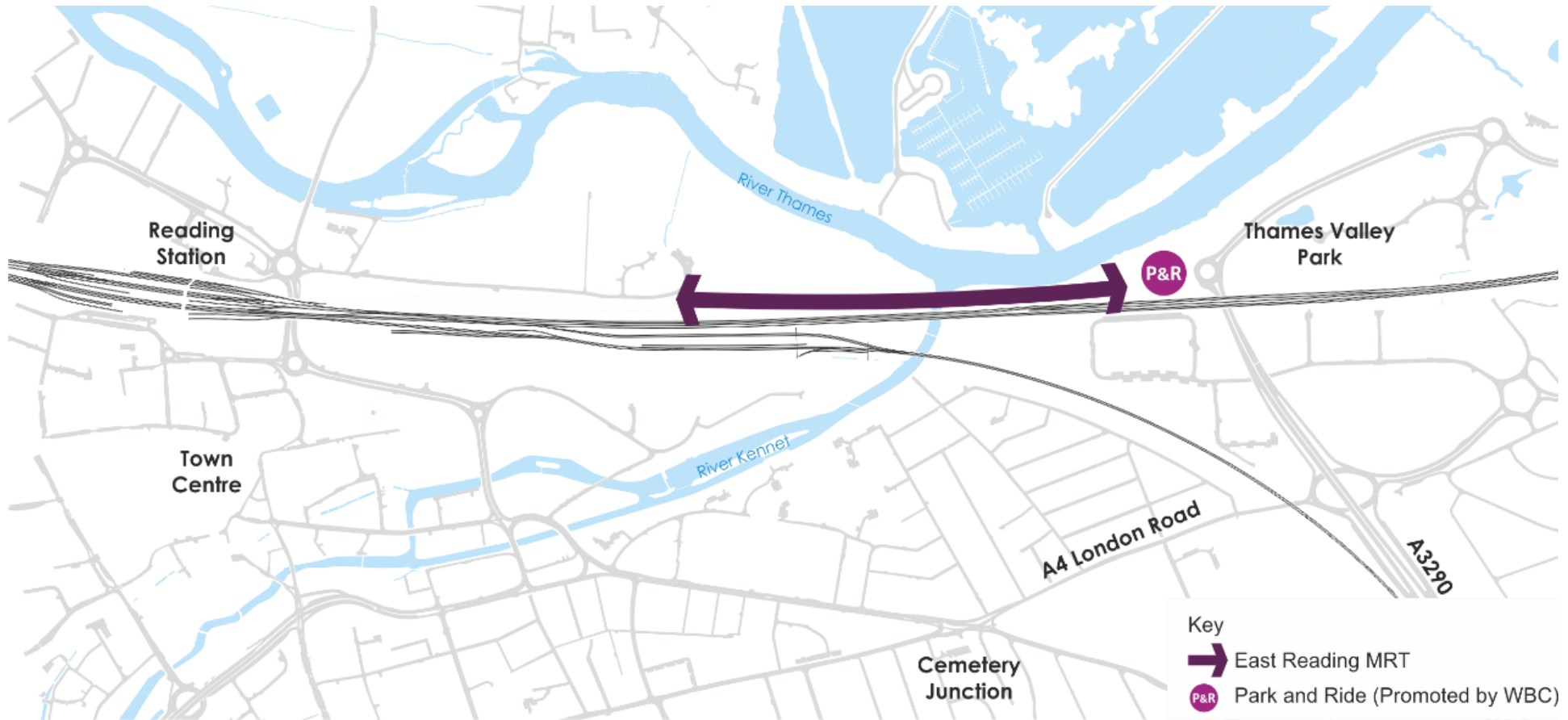


Figure 3-6: Extent of East Reading MRT

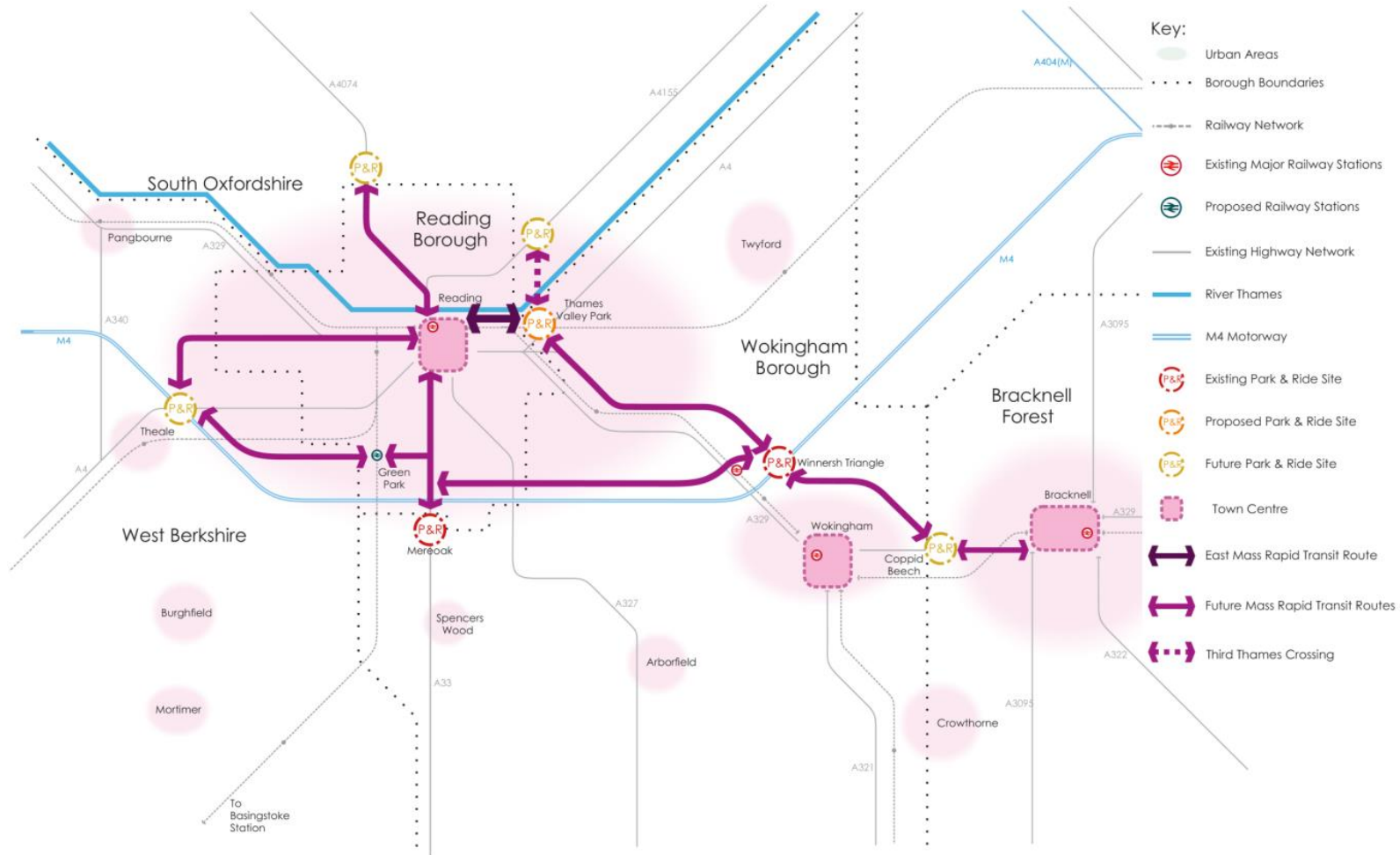


Figure 3-7: Wider Future Thames Valley MRT

- 3.8.4 The link provides future opportunity to link to a Third Thames Crossing to provide MRT to a Park and Ride north of the River Thames, as well as a further park and ride site at Coppid Beech. There are also further future opportunities that the ERMRT could help facilitate and become part of a much wider MRT network, including provision of MRT to Bracknell and Wokingham and provision of radial routes within Reading.
- 3.8.5 The scheme includes a quality cycle and pedestrian route that will provide a more direct link between the town centre, Thames Valley Park, Woodley and other destinations in the east and south east of the Reading urban area.
- 3.8.6 For the purposes of the business case it has been assumed that services indicated in Table 3-2 will make use of the scheme when it is opened. The relevant bus operators have confirmed that these assumptions are reasonable.

Table 3-2: Assumed Public Transport Services with ERMRT in place

Bus Service	Operator	Number of Buses by Time Period (All Directions)		
		AM Peak (07:00-10:00)	Inter Peak (10:00-16:00)	PM Peak (16:00-19:00)
Winnersh Park and Ride	Reading Buses	12	24	12
Reading Station - Thames Valley Park (TVP)	Stewarts	26	18	23
Reading - Bracknell/Wokingham (Nos. 4 & X4)	Reading Buses	12	24	12
Reading Station - Heathrow Airport (RailAir)	First	9	18	8
Reading - Woodley (Nos. 13 & 14)	Reading Buses	0	0	0
Reading – Twyford – Henley – High Wycombe (Nos. 800/850)	Arriva	0	0	0
Reading – Twyford – Wokingham (Nos. 126/128/129)	Go-Ahead	0	0	0
Thames Valley Park (TVP) Park and Ride	Reading Buses	12	24	12
New Service 12/12a Reading to Woodley	Reading Buses	12	6	12
All Buses	All Buses	83	118	80

- 3.8.7 The ERMRT scheme will result in faster, more reliable public transport services with significantly increased levels of patronage. This means that extra services would be provided

in comparison to the existing levels on the corridor. In addition, there will remain a considerable level of demand for public transport services on the London Road corridor and bus operators have confirmed that their intention would be to continue to provide a significant level of service on this corridor in addition to the services that will utilise the MRT route.

3.9 Constraints

- 3.9.1 The design is constrained by land availability between the railway line and the River, as well as its flood plain. Utilities, woodland and third party land ownerships are also a constraint.

3.10 Inter-dependencies

- 3.10.1 Delivery of the scheme is dependent on securing funding and land agreements; however, all the required funding is expected to be secured to enable the contributions come to fruition. The Value for Money (VfM) case for the scheme includes the Thames Valley Park and Ride (TVP P&R) as a committed scheme. The TVP P&R business case has received approval for funding from the LEP and also has planning consent.

3.11 Stakeholders

- 3.11.1 The principles and elements of the scheme has been consulted upon via a public consultation held in summer 2016 including an exhibition on 19th July 2016, and through the public consultations for the development of the current Local Transport Plan and Core Strategy.
- 3.11.2 A planning application for the scheme was submitted on 4th July 2017 and is currently under consultation. Public exhibitions were held at the Wokingham Waterside and Reading Town Hall on 10th and 13th July 2017 to inform the public about the planning application.
- 3.11.3 The eastern end of the scheme sits within Wokingham Borough Council area and will link to the TVP Park and Ride scheme which has an approved business case and secured planning permission, for which WBC are the lead authority.
- 3.11.4 The **Local Enterprise Partnership (LEP)** is responsible for deciding which of the bid schemes receive funding and are therefore fundamental to the successful delivery of the scheme. The LEP Local Transport Board has approved the scheme for Programme Entry status.
- 3.11.5 **Members of the public** have been consulted about the scheme where it affects those living in the local area.
- 3.11.6 **Bus operating companies** have been consulted on the business case and scheme design as it has been progressed.

3.12 Options

- 3.12.1 The OAR sets out clearly the process that has been undertaken to develop and sift options at various stages. The preferred option best meets the scheme objectives, as well as providing economic growth, value for money and practical feasibility. This scheme has the lowest impact on the environment compared to highest ranking options, particularly in relation to ecology, flood risk, visual impact, landscape impact.

4 Economic Case

PV Benefits (£m)	PV Costs (£m)	BCR	Value for Money Category
44.22	24.48	1.81	High

4.1 Introduction

- 4.1.1 The transport inputs that feed into the ERMRT scheme economics have been assessed using a newly validated SATURN Highway model and a spreadsheet based passenger demand model. The following modelling reports have been submitted to support the business case:
- i. Reading Transport Model (RTM) Local Model Validation Report
 - ii. Reading Transport Model Forecast Model Report
 - iii. Demand Model Report
- 4.1.2 Reports i) and ii) set out the development of the SATURN highway model and iii) describes the development of the spreadsheet demand model.
- 4.1.3 Economic benefits from public transport and highway users, including time saving benefits are calculated within TUBA for the majority of the benefits accrued. Some additional benefits from bus travel and cycle benefits have been included. The Economic Appraisal Report, submitted as part of the business case, includes detail of the benefits included, along with details of additional sensitivity tests undertaken. The sensitivity tests include a test with 10% reduction in patronage and a 50% reduction in developer contributions.
- 4.1.4 The Economic Case set out in this section demonstrates that the proposed ERMRT offers high value for money and meets the scheme objectives. It presents the costs of delivering the scheme and quantifies, where possible, the key benefits that the scheme will deliver. It should be noted that some significant benefits, for example Sunday usage, of the scheme cannot be readily quantified and so are not included in the economic case, but are nevertheless very real effects. These are likely to improve the value for money of the scheme.
- 4.1.5 A key issue in validating the Reading Transport Model (RTM) which forms a key component of the modelling evidence base, is the variation in day to day peak traffic flows into and out of Reading to/from the east. These routes are at capacity during peak periods and their use varies on a daily basis depending upon congestion. The model should be viewed in the context of these day to day variations. These issues were documented in the LMVR Section 7.7. It can be considered that the relatively lower journey times in the model validation implies network conditions are understated and hence the switch to public transport is likely to be on the conservative side. The modelling is therefore assessing a worse and hence more conservative scenario.

4.2 Options Appraised

- 4.2.1 The ERMRT would provide a segregated fast track public transport, pedestrian and cycle route running parallel to the Great Western Railway line and south of the River Thames between Thames Valley Park and Napier Road. Bus priority would also be provided on the Napier Road approach towards Reading town centre and services would use the existing priority into the northern interchange at Reading railway station. This will result in reduced journey times and improved reliability for public transport on this corridor into Reading. It would connect the TVP park and ride facility and existing businesses and business parks at

Thames Valley Park and the residential areas in Wokingham Borough (and beyond) to central Reading and Reading station.

- 4.2.2 The OAR sets out the process that has been undertaken to develop and sift options at various stages. The preferred option best meets the scheme objectives, as well as providing economic growth, value for money and practical feasibility. This scheme has the lowest impact on the environment compared to the alternative schemes which rank relatively high, particularly in relation to ecology, flood risk, visual impact, landscape impact.

4.3 Appraisal Assumptions

- 4.3.1 In line with Government advice, the appraisal considers the economic case over 60 years of operation. The opening year of the scheme assumed within the business case is 2021 and hence the horizon year is 2080. It has been assumed that the infrastructure measures of the scheme will continue to be in place over the whole of the 60-year appraisal period.
- 4.3.2 All costs and benefits for the purposes of economic appraisal are converted to 2010 prices and values to match DfT price base year.
- 4.3.3 The discount rate brings all future year values to a 'Present Value' (PV) in 2010. This is done by adjusting future year values, discounting them at 3.5% for the first 30 years from the current year in which the appraisal is undertaken, and 3.0% thereafter. This is carried out to reflect the fact that benefits and costs today are valued more highly than those in future and are taken from WebTAG Databook Table 1.1.1 (DfT July 2017 v1.8).
- 4.3.4 The demand calculated through the modelling exercise has been subject to an annualisation factor of 253 to represent the average number of weekdays likely to be used. At this stage no demand has been calculated for Sunday trips, therefore the overall scheme benefits may be underestimated, although an estimate of Saturday only benefits has been made by assuming that Saturday conditions are similar to weekday Inter Peak conditions.
- 4.3.5 Time savings have been converted to monetary values using values of time taken from WebTAG Databook.

4.4 Calculation of Scheme Benefits

- 4.4.1 Monetised benefits for the ERMRT scheme are assumed to include:
- i. Additional revenue as a result of increased patronage of Thames Valley Park and Winnersh Park and Ride sites due to time savings introduced by scheme
 - ii. User benefits for existing Park and Ride users – equivalent to the journey time saving with scheme introduced
 - iii. User benefits for new users – assumed to have switched from car and hence have a saving in generalised cost equivalent to the generalised cost of previously travelling by car without the scheme and new generalised cost with the scheme
 - iv. User benefit for users of other buses using the ERMRT as a result of journey time savings when the scheme is introduced – these include services to Woodley, Bracknell/Wokingham, the Thames Valley Park shuttle bus, the Heathrow Rail Air link and services from further afield.
 - v. Highway User Benefits or decongestion benefits – i.e. highway users who may experience benefits due to a reduction in traffic as a result of mode shift from car to Park and Ride or dis-benefit if the ERMRT were to reduce highway capacity. Benefits as a result of trips reassigning from rat running routes on to more suitable links, as a result of mode shift creating additional capacity are also measured here.

- vi. TUBA has been used to produce the bus user and revenue benefits and to calculate the overall economic appraisal results.
- vii. Benefits accrued from benefits for public transport users at weekends which have been estimated for Saturdays only.
- viii. Bus journey time reliability – buses will be significantly more reliable when the scheme is developed. This is due to services that will use the ERMRT avoiding the main pinchpoint on London Road between A3290 and Cemetery junction.
- ix. Active mode user benefits of health and absenteeism benefits arising from an increase in levels of cycling;
- x. Additional Non-User Benefits or marginal external costs arising from a reduction in highway trips, which are likely to be relatively small in the case of this scheme. These include;
 - Accident benefits;
 - Noise; and
 - Air Quality – greenhouse benefits that would accrue as a result of the scheme are captured within the TUBA assessment. These benefits are associated with changes in highway trips (reduction and reassignment), as well as a result of some buses switching from the congested highway network around London Road/Cemetery junction to ERMRT, where they will operate with lower emissions.

4.4.2 The following benefits and dis-benefits from the scheme have not been monetised and therefore the economic assessment is a conservative estimate of the benefits accrued from the scheme:

- i. Wider transport benefits such as agglomeration and Gross Value Added (GVA) benefits that would arise because of the scheme.
- ii. GVA benefits – the scheme will derive GVA benefits in the form of new jobs created in both the construction period of the scheme and within the operation of the scheme, as improved access to/from Reading will attract investment.
- iii. Benefits linked to increase usage of rail and potential increased revenues to the train operating companies – Reading is a major rail hub and many people commute into and out of Reading by train. The scheme will offer improved access to the rail network. The success of the Thames Valley Park shuttle bus from the Northern Interchange at Reading Station demonstrates that there is demand to access rail. Surveys undertaken on buses from Woodley showed there are in the region of 7% of bus users from Woodley onward travel by train. The ERMRT will improve the bus journey more attractive and is therefore likely to increase patronage on rail – some of these trips would be newly generated trips and therefore derive revenue benefits that have not been calculated.
- iv. The demand to access rail in Reading is likely to increase in the future with Crossrail coming forward and the likely Western Access to Heathrow. This has not been monetised.
- v. The ERMRT scheme is only part of a much wider scheme to improve public transport use in Reading and surrounding area. This is likely to see additional benefits over and above those monetised when looking at this scheme in isolation.
- vi. Journey quality benefits for bus users have also not been monetised and these will include smoothness of ride and reduction in the fear of accidents, because of the scheme

being a segregated route for buses only and removing conflict with other vehicles on a congested network.

- 4.4.3 The value for money assessment has assumed that the park & ride site at Thames Valley Park will already be operational and this is included within the do-minimum.
- 4.4.4 Details of the modelling procedures are provided within the Demand Model Report, which is a spreadsheet based model, using a logit function to calculate demand. The model takes inputs from the RTM SATURN model, details of which are provided within the RTM LMVR and Forecast Reports. All these reports are submitted to support the business case.

4.5 Scheme Costs and Whole Life Costs

- 4.5.1 Capital costs and land costs of the scheme have been calculated at £24.0m in 2016 values and prices, of which £4.8m will come from developer funding. Developer funding is a cost borne by the private sector and is considered in this way in the appraisal. Land costs of [REDACTED] are included within the appraisal. This value has been independently calculated.
- 4.5.2 The scheme costs have been subject to the application of optimism bias that is appropriate for the business case stage as well as reflect the level of knowledge of risks to the project construction. All the risks have been identified and quantified. Consideration has also taken into account that 52% of scheme costs relate to bridge costs and so a higher level of optimism bias has been applied to the bridge elements. An optimism bias of 15% for road elements and 23% for structures has been assumed in all the tests. These uplifts are higher than the 3% and 6% applicable to road and bridge elements respectively at Stage 3 or Full approval documented in Table 8 of TAG Unit A1.2. The optimism bias applied reflects the level of knowledge of risks to the project construction.
- 4.5.3 Additionally, whole life costs of highway maintenance for the scheme, have been estimated at £3.095m and at £4.154m for structures maintenance over the 60-year appraisal period. This gives whole life costs of £7.249m in 2016 prices. Conversion to 2010 prices including discounting, has been undertaken within TUBA. The resultant PVC of costs have been estimated at £24.48m.

4.6 Outputs

- 4.6.1 Total Present Value of Benefits (PVB) over the 60-year appraisal period have been estimated to be £44.22m with the Present Value of Costs (PVC) of £24.48m.
- 4.6.2 The calculation of benefits has been compared with the scheme costs over a 60-year appraisal period and results in a **BCR of 1.81** for the East Reading MRT, and includes estimates of journey time reliability, noise and estimates of weekend Saturday public transport benefits as well as air quality benefits estimated by TUBA's greenhouse assessment. Social inclusion benefits are not included. A breakdown of the scheme benefits is shown in Table 4-1. As shown in Table 4-1, benefits of £0.456m have been estimated for W12 (output change in imperfectly competitive markets) using the guidance in WebTAG Unit 2.1 (Wider Impacts). These benefits have been calculated as a 10% uplift to business user benefits as per paragraph 4.1.9 of TAG Unit 2.1.
- 4.6.3 COBALT has been used to estimate the accident benefits and these have been estimated at £0.72m. The COBALT has been informed by flows from the SATURN model. Default accident rates have been assumed. The COBALT analysis suggests that 14.3 accidents will be saved by the scheme. In terms of casualties, the analysis suggests that 0.2 fatal, 2.2 serious and 16.7 slight casualties will be saved by the scheme.

Table 4-1: Summary of Scheme Benefits in £m (2010 prices)

Benefit	Present Value of Benefits £m (2010 prices)
Highway Benefits	7.89
Public Transport Benefits	26.53
WI2 benefits (Output change in imperfectly competitive markets)	0.46
Cycle Benefit	1.99
Bus Journey Time reliability	6.16
Greenhouse Gases	0.47
Accidents	0.72
Total	44.22

Consideration of Other Benefits

- 4.6.4 The value of benefits accrued of £44.22m will result in a Switching Value of £4.74m to take the project to the high VfM category.
- 4.6.5 The ERMRT scheme will unlock some dependent developments. The benefit associated with the dependent development has been calculated using the TAG Workbook valuing housing impacts and several sensitivity tests have been undertaken. The core scenario assumes that the number of dependent dwellings that can be directly associated with the transport scheme is 168, which is a conservative estimate. Table 4-2 shows the sensitivity results and the Net Social Value of the additional housing.

Table 4-2: Dependent Development Benefits

Dependent Housing Numbers	Net Social Value of housing (£'000)
168	11,963
300	21,360
210	14,954
120	8,549
90	6,405

- 4.6.6 The benefits from dependent development have been calculated at £11.9m in the core scenario, with the lowest level of dependent development showing a benefit of £6.4m and an upper value of £21.4m.
- 4.6.7 Even at the lowest level, the benefit from the dependent development will exceed the switching value, given this, the proposal should be assigned to the **High VfM category**.

5 Financial Case

Overall Cost of Scheme (£m)	LTB Contribution	Local Contribution	Contingent Liabilities
24.0	19.1	4.9	3.49

5.1 Introduction

- 5.1.1 The ERMRT proposed in this business case bid is considered affordable, financially sustainable and deliverable by RBC. Robust sources of local contributions exist demonstrating the local commitment to ownership and delivery.
- 5.1.2 The costs, resulting spend profiles and all other financial aspects of the case will be controlled through a financial model that has been used for similar bids in the past.

5.2 Base Cost Estimates

- 5.2.1 A capital cost estimate for the scheme is shown in Table 5-1 for Phase 1 and 2. All costs are given in 2016 Quarter 2 prices.

Table 5-1: Scheme Construction Costs – Phase 1 & 2 (2016 Quarter 2 Prices)

Item	Cost (£m)
Phase 1	19.5
Phase 2	4.5
Total	24.00

Note: Landscaping and improvements to deliver a segregated cycle route have been included in the phase 1 costings. A contingency value of £3.49m is included in the costs.

- 5.2.2 The scheme has been prioritised for LTB Funds with additional funding provided from the private sector including through S106 and CIL obligations.
- 5.2.3 Land costs have been estimated [REDACTED]. This value has been independently calculated.

5.3 Funding

- 5.3.1 The scheme will be funded through the LTB and developer contributions.
- 5.3.2 Table 5-3 sets out the funding for the scheme based on the indicative funding profile. Under the funding mechanism, the LTB would provide 80% of the scheme funding with the private sector providing 20%.

Table 5-3: Scheme Funding

Source of funding	2018/19	2019/20	2020/21	Total
Amount from LEP/Local Growth Deal	3.0	3.0	13.1	19.1
Local contributions from:				
- Section 106 agreements / Community Infrastructure Levy		3.9	1.0	4.9
- Council Capital Programme	-	-	-	-
- Other sources	-	-	-	-
Total Scheme Cost	3.0	6.9	14.1	24.0

5.4 Budgets and Funding Cover

- 5.4.1 Private sector funding will be secured from the Community Infrastructure Levy/S106 contributions from adjacent and surrounding planned and committed developments via the planning obligation mechanisms.

5.5 Financial Risks

- 5.5.1 A Quantified Risk Assessment has been developed to identify the range of cost risks that could impact on the project and suitable mitigation measures to measure them. This is attached as Appendix A

5.6 Accounting Implications

- 5.6.1 Accounting and budgeting will be in accordance with RBC's financial regulations and standing orders.

6 Commercial Case

6.1 Introduction

- 6.1.1 The commercial case provides evidence on the commercial viability of the proposal and the procurement strategy that will be used to engage the market. There are several procurement methods for the works. Different solutions may suit the scheme and the associated highway works.
- 6.1.2 Through the project governance structure outlined within the Management Case the Special Projects Vehicle (SPV) for the scheme works and the procurement delivery group (DG) for the highway works will report to the Steering Group (SG). The SG will be charged with delivery of the procurement strategy and associated elements of the risk management strategy (set out below and described in more detail in the management case). One important objective of this group will be to realise the benefits of integration of the works and streamlining processes where valuable and possible.
- 6.1.3 The procurement process for each package will consider several factors to enable best value solutions are robustly identified. In determining the best value solution and appropriate management of relevant risks identification of a procurement route would also need to consider the following factors:
- i. Local procurement rules including approved supplier lists and any relevant established procurement mechanisms.
 - ii. European procurement rules.
 - iii. Relevant procurement guidance from the Cabinet Office.
 - iv. Relevant legislation.
 - v. Package / component scheme geography and the type of work, where applicable.
 - vi. Synergies / economies of scale in relation to other projects.

6.2 Output Based Specification

- 6.2.1 The commercial case is based on strategic outcomes and outputs, against which alternative procurement options are assessed. The outcomes which the procurement strategy must deliver are to:
- i. Achieve reasonable surety that the scheme can be delivered within the any funding constraints;
 - ii. Minimising preparation costs through ensuring best value, and appropriate quality in relation to scheme design elements;
 - iii. Utilise contractor experience and input to the construction programme to enable the preparation of a robust and achievable implementation programme; and
 - iv. Obtain contractor input to risk management, including mitigation measures, to capitalise at an early stage on opportunities to reduce construction risk.

6.3 Procurement Strategy

- 6.3.1 The scheme will be broken down into the two phases of construction, equivalent to Phase 1 and 2. OJEU rules will apply as the construction costs of phase 1 or the combined phases are above the OJEU limits.
- 6.3.2 The scheme and associated works would be delivered either through a competitively tendering procedure or a competitively tendered local government framework available to RBC, by agreement of the Project Steering Group (SG) as discussed in Section 7.4. The relevant technical specifications and risk allocation approaches would be agreed by the SG. Note: If it is decided that phase 2 would be better tendered separately this would be tendered in compliance with RBC's local procurement rules.

6.4 Sourcing Options

- 6.4.1 RBC has a range of experienced resources to procure and deliver the ERMRT programme. This includes officers, legal advisors and supporting partner organisations such as framework consultants. The established resource pool is sufficient in terms of size and experience to effectively deliver the ERMRT programme.

6.5 Risk Allocation and Transfer

- 6.5.1 Solutions and services will be procured from contractors who are well placed to own the risks that are close to their businesses. The project sponsor will accept the ownership of those risks which it:
- i. has good experience in managing,
 - ii. is best placed to mitigate the risk, and
 - iii. is the only entity capable of managing a particular issue
- 6.5.2 This balance of risk allocation and transfer between Client and Contracting party will be achieved through selecting the right procurement routes and forms of contract and robustly setting out the intended risk allocation strategy as part of any tendering process. Where appropriate this would include the establishment of risk sharing agreements and/or Employers and Contractors risk registers. Suppliers maybe asked to price and own appropriate risks through the tendering process.
- 6.5.3 Reference should also be made to the Management Case which outlines the approach to risk management in more detail.

6.6 Contract Length

- 6.6.1 24 month contracts would be proposed to allow adequate time for detail design and construction. This includes potential for float within the contractor programme.

6.7 Human Resources Issues

- 6.7.1 No human resource issues have been identified.

6.8 Contract Management

- 6.8.1 The design and delivery of the scheme will be managed by RBC's Strategic Transport Projects Team. The council has access to several specialist consultants to provide additional engineering and transport planning support, if required. Developing the capacity to actively

manage continuous improvement, and to delivery efficiency savings will be a key element of contract management.

6.9 Payment Mechanisms

6.9.1 This section sets out the most likely payment mechanisms that will be negotiated with the providers/contractors. RBC has a wealth of experience of delivering infrastructure projects. Over the years the borough has negotiated payment mechanisms that are linked to performance.

6.9.2 Where practicable, payment mechanisms will be chosen to reflect the opportunities offered by integrated team working. Wherever possible steps will be taken to discourage the potential abuse of retentions within the supply chain such as;

- A tendered fixed price contract will be awarded based on the NEC 3 contract model, which allows for delay damages, specifically relating to over running.
- Payments to the contractor will be made in arrears to the value of 60% of the project subject to an independent clerk of works (appointed by the Council) agreeing with the submission made by the contractor.
- Payments made to the contractor will be subject to a further cross checking against the programme to ensure that the absolute minimum over run occurs, if any and if a penalty is due to be applied work with the contractor to rectify/remedy this.
- The final 40% will be paid in stages upon receiving invoices for completed elements of the work.

6.10 Pricing Framework and Charging Mechanisms

6.10.1 This section outlines likely incentives, deductions and performance targets. The delivery agent will have ultimate control of work on site.

6.10.2 Under NEC3, payment options are listed below and it is likely that one of these options will be taken forward

- Priced contract with activity schedule
- Priced contract with bill of quantities
- Target contract with activity schedule
- Target contract with bill of quantities

7 Management Case

7.1 Introduction

- 7.1.1 Established governance protocols for project delivery exist within RBC and operate effectively between the Berkshire Unitary Authorities and business partners through the Berkshire Strategic Transport Forum and TVB LEP Sections below reflect the basis of a live project management framework and plan as the project moves into its next stage of development. It should be noted that the arrangements proposed reflect tried and tested governance protocols used in the successful delivery of schemes.
- 7.1.2 RBC is the project sponsor with several parties involved in the design, delivery and operation, including:
- i. Project Sponsor, Highway and Planning Authority – RBC & WBC (Wokingham Borough Council)
 - ii. Landowner(s) /developers– land and funding
 - iii. Other private sector partners - funding
 - iv. BLTB - funding
 - v. Selected designers and contractors – highways
- 7.1.3 A Project Steering Group (SG) will be set up with representatives from RBC, WBC, bus operators and Thames Valley Berkshire LEP. The SG will be the joint project board for ERMRT, providing the strategic decision making and oversight necessary to successfully deliver the project.
- 7.1.4 The Senior Responsible Officer will be Cris Butler (RBC, Acting Head of Transportation and Streetcare). The project owner will be Chris Maddocks (RBC, Acting Strategic Transport Programme Manager).
- 7.1.5 If necessary, escalated decisions from the Steering Group (for example significant spend approvals) would be dealt with by the respective organisations executive boards. For example, in the case of the Council this would be the Councils Policy Committee, Strategic Environment, Planning & Transport Committee or Traffic Management Sub-Committee.
- 7.1.6 A project working group will be established to manage day to day project delivery. The assigned Project Manager would lead the working group which would be responsible for risk reviews, programme and deliverables, developing and implementing a procurement, stakeholder and communications strategy and monthly reporting to the Steering Group.
- 7.1.7 The BLTB operates a DfT-approved Assurance Framework which governs the release of project funds.

7.2 Evidence of Similar Schemes

- 7.2.1 RBC and its partners have experience of delivering a diverse range of public transport schemes from inception to delivery. A proven delivery track record therefore exists. RBC is a joint Client for the delivery of the £1bn Reading Station Rail Capacity and Performance upgrade by Network Rail alongside DfT Rail. With Network Rail, DfT Rail and the train operator RBC sit on the Project Delivery Group, providing strategic direction and oversight to the delivery of this nationally significant project.

- 7.2.2 RBC has also completed the £68m M4 Junction 11 and Mere oak improvement scheme delivered on time and to budget (in partnership with Wokingham Borough Council). The £13.2m Reading Station interchange scheme is also complete and RBC has also delivered the £35m Reading Urban Area Local Sustainable Transport Fund programme (with ten partner organisations including neighbouring authorities) and several Local Authority Pinch Point Schemes. RBC has completed Phase 1 of the South Reading MRT scheme, and phase 2 currently being constructed, which has been funded through the Local Growth Fund.

7.3 Programme and Project Dependencies

- 7.3.1 This project is part of the Infrastructure Package: Enhancing urban connectivity. It also contributes to Unlocking Housing Development and Encouraging Vibrant Town Centres.

7.4 Governance, Organisational, Structure and Roles

- 7.4.1 A project steering group (SG) will be established to coordinate works and monitor progress. The role of the steering group will be to adhere to and consider project manager and working group reports, update project risks and oversee and manage all key decisions on the programme.
- 7.4.2 The Sections below reflect the basis of a live project management framework and plan as the project moves into its next stage of development. It should be noted that the arrangements proposed reflect tried and tested governance protocols used in the successful delivery of schemes.
- 7.4.3 RBC is the project sponsor with several parties involved in the design, delivery and operation, including:

Policy Committee

- 7.4.4 Reading Borough Councils Policy Committee, which meets monthly, is also a senior level decision-making body to which key decisions are referred, if required. Significant spend approvals are examples of such decisions.

Strategic Environment, Planning and Transport Committee

- 7.4.5 The Strategic Environment, Planning and Transport (SEPT) Committee acts as the Project Executive for the scheme and receives a regular update report from the project Steering Group. It is responsible for considering the wider programme implications of Transport projects within Reading and cross boundary projects. It considers the impact and resource implications on the Authority and makes informed decisions based across the overall programme rather than scheme specific issues. This ensures that each project receives due consideration with broader decisions made in line with corporate goals and policies. This also ensures a consistent approach as key Members and Officers provide support and continuity.
- 7.4.6 The SEPT is a cross party, councillor forum used to confirm officer decisions on high-level strategic policy. It will have no direct role in the day-to-day management of the project but will act as a reference point for maintaining high-level awareness of project progress.

Project Steering Group

- 7.4.7 The Steering Group (SG) is the Project Board for this scheme. Alison Bell (RBC, Director of Environment & Neighbourhood) chairs the Steering Group and is the Project Sponsor and Senior Responsible Officer in charge of the project. The Project Owner is Chris Maddocks (Transport Planning Manager). The group meets monthly to consider the Update Report from the Project Manager along with other reports as required. An updated risk register is considered each month within the Update Report. This group is responsible for managing all

key decisions on the project, usually based on recommendations from working groups and individuals.

7.4.8 The role of the Steering Group is to:

- i. Determine the parameters within which the project is delivered.
- ii. Monitor and review the delivery of project objectives.
- iii. Control project delivery by monitoring progress, quality, and costs.
- iv. Enable communications and consultations to be effective.
- v. Ensure that regular reports are presented to the Strategic Transport Programme Board.
- vi. Promote the project within the Council.

7.4.9 The project Steering Group would be aligned with other project Steering Groups currently operating where the relevant people are present, to maximise efficiencies.

Major Transport Project Group

7.4.10 The Major Transport Project Group is chaired by Cris Butler (RBC, Acting Head of Transportation and Streetcare). This group will manage different project components and interfaces on a day-to-day level. Interfaces will include those stakeholders referenced in Section 7.7.2. Delivery teams in turn are responsible for the technical delivery.

Decision Making

7.4.11 Each decision is made at the appropriate level by the Project Sponsor, the Project Owner, and Project Manager, or is escalated to the Steering Group. As appropriate decisions with a strategic significance will be communicated to (and involve if necessary) the STPB. Where a formal decision is required to satisfy Standing Orders as part of the Council's Constitution, a report will be taken to Cabinet or Full Council as required.

7.5 Project Plan

7.5.1 A detailed project programme will be developed for the scheme and a project management manual will be produced and used as a live document by the team as one management tool. A high-level project delivery programme is attached in Appendix B. The project plan envisages that construction will be complete in Spring 2022.

7.6 Assurances and Approvals Plan

7.6.1 Any funding awarded to this project from the Local Growth Fund (LGF) process will be managed by the LTB. The LTB operates a DfT- approved Assurance Framework which governs the release of project funds.

7.7 Communications and Stakeholder Management

7.7.1 As part of effective project management and risk mitigation strategy both a communication and stakeholder management plan would be prepared going forward. These would be live documents that establish key protocols and basic information in relation to:

- (i) The communication with all relevant parties internal and external to the project components, including the media and

- (ii) The role, involvement, communication, contact details and approvals associated with relevant stakeholders.

7.7.2 An appropriate stakeholder management plan will be developed and agreed through the project Steering Group. This will identify Stakeholder requirements, communication arrangements and key project and programme interfaces. Where appropriate, Stakeholder communications will be aligned with other projects and established forums. Contract documentation will carry forward any relevant Contractor interfaces into the implementation stage. A brief summary of Stakeholders, influences and interests is presented below:

- i. Statutory Undertakers: Work will be undertaken in proximity to services and diversions of some services will be required. Project planning and working methods will require agreement through the New Roads and Street Works Act process coordinated with RBC's street works manager.
- ii. RBC and WBC: Key partners in design development, planning and technical approvals will be required.
- iii. Environment Agency: Approvals will be required to cross the River Kennet and run adjacent to the River Thames and within flood plain.
- iv. Transport Operators: Bus operator interfaces will be through existing forums for other projects.
- v. Members / Public: Relevant Council Member interfaces will be important to project development and public communication and expectation management during construction. Through a number of communication interfaces, including relevant community and transport user forums advertising the works will be essential in managing related construction risks.
- vi. Emergency Services: Interests similar to transport operators.
- vii. Network Rail: Works adjacent to the railway will need to be agreed.
- viii. Business local to works: Interests similar to Members / Public.
- ix. Any other statutory consultees e.g. Highways England

7.8 Project Reporting

7.8.1 Governance protocols will include appropriate progress reports to Local Authority Councillors and the appropriate LEP meetings.

7.9 Key Issues for Implementation

7.9.1 The implementation of work streams and key issues for implementation are included in Appendix C.

7.10 Contract Management

7.10.1 Monitoring during implementation will be undertaken by the RBC Senior Responsible Officer and will ensure that mitigation measures identified in the risk register will be undertaken and adhered to.

7.10.2 The monitoring of activity during the construction will be embodied in a Construction Management Plan (CMP) to be prepared and operated by the scheme promoter (i.e. the planning authority) and adhered to by the contractor. Similarly, a site waste management plan

would be prepared, in accordance with environmental regulations, to address requirements for waste handling and disposal, which would be adhered to during the construction phase.

- 7.10.3 Local authority environmental health officers' stipulations in respect of air, noise, operating hours and waste would also be incorporated into the contractor's monitoring procedures and plans as part of a construction code of practice.

7.11 Risk Management Strategy

- 7.11.1 A risk register will be maintained by the project manager throughout the project, and will form part of the project plan and early warning system to manage risks and implement mitigation. Each risk will be assigned an owner to allow the management actions to be identified and implemented. The project risk register will be made available to the Steering Group for review with key related issues and actions flagged.

7.12 Benefits Realisation Plan

- 7.12.1 The project working group will be responsible for the realisation of the benefits associated with the proposed improvements. The benefits realisation strategy (to be approved by the project Steering Group) is formed by the following components:

- The identification of tangible and intangible benefits arising from the improvements
- Establishing the baseline and measuring the benefits against the baseline
- A timeline identifying the relevant measurement and reporting points
- Reporting and governance structure associated with benefits realisation
- Post project review and evaluation

7.13 Monitoring and Evaluation

- 7.13.1 The purpose of the Monitoring and Evaluation Plan is to identify how scheme delivery, including wider scheme impacts, construction and budget management, will be evaluated.
- 7.13.2 The Monitoring and Evaluation Plan will include a Post – Implementation Review approximately one year after scheme opening and further assessment 5-years after opening.
- 7.13.3 Assessment of value for money of the project will be undertaken utilising the outcome information to inform an economic appraisal spreadsheet framed around the scheme appraisal undertaken for the business case submission. Key elements will include the following;
- Capital Costs – outcome from procurement of the scheme;
 - Operating Costs – outcome from commercial agreement on the services;
 - Demand / Revenue – derived from ticket sales data and surveys;
 - New Users
 - User Benefits – derived from the data collection / passenger surveys;
 - Wider Economic benefits – informed from the analysis of sub-factors;
 - Improved Labour Supply – evidence of increased commuter trips and take up of jobs.

7.13.4 The analysis will compare the outcomes with the business case assumptions to determine where the outcomes differ from expectations and the resultant impact on the value for money of the scheme.

7.13.5 Data requirements would include;

- Bus Patronage – to measure passenger numbers against predictions
- Interview surveys – to measure the level of mode shift – employer surveys at local businesses
- Traffic flows on local highway network to measure whether any change as a result of the scheme – Automatic traffic counter on London Road
- Journey times on key routes – RBC Bluetooth monitoring data
- Employment numbers – actual numbers will be monitored against numbers stated in business case
- Population numbers – from census or Office for National Statistics

7.14 Contingency

7.14.1 A programme and financial details are provided as part of this business case. This includes current funding arrangements. If the scheme implementation was to be delayed, the funding profile would need to be revised which may need updates to the business case submission. Any changes to the scheme programme and funding profile will be reported as soon as it is identified.

7.14.2 At this early stage, risks to contingency are works to utilities apparatus, unforeseen works to the proposed highway structures; any unforeseen requirements working adjacent to Network Rail land or the Rivers; and land negotiations.

7.14.3 Subjective, but informed provision in contingency (£3.49m) has been made to include utilities diversion/protection works, unforeseen works to highway structures and/or higher costs construction methods.

7.15 Options

7.15.1 The scheme is being project managed by the Council's Transportation & Streetcare Service who are leading on the delivery of the business case and the options appraisal. As the project develops to final approval, contract management will be the responsibility to the delivery team, with continued overall project management remaining with the Transportation & Streetcare Service for continuity.

Appendix A Quantified Risk Assessment

Reading - East Bridge over River Kennet and associated works

Cost Estimate

Risk/contingency

Ref	Description	Likelihood	Owner	Impact	Delay allowed for	Prelims	Works	£
1	Stakeholder Groups / communications affect PR before / during / after project	4	E	Additional costs for public meeting Potential additional safety audits Potential changes to scheme once constructed	0		£ 50,000	£ 50,000
2	Uncharted / additional works to utilities	3	E	Employers Costs for Protection / Diversion works / Delys project	6	£58,000	£ 25,000	£ 373,000
3	Damage to existing trees	3	E	Additional costs to the Contractor	0		£ 15,000	£ 15,000
5	River conditions prevent / delay work, above contractor's risk	2	E	Delays and costs to Contractor / Employer	4	£58,000		£ 232,000
6	Archaeological Find	2	E	Delays and costs to Contractor / Employer	2	£58,000	£ 10,000	£ 126,000
7	Ground Conditions no site report.	4	E	Delay and costs to Employer	4	£58,000	£100,000	£ 332,000
8	Contamination discovered.	4	E	Delay and costs to Employer	4	£58,000	£100,000	£ 332,000
9	Design details not finalised at Tender (time, cost)	4	E	If issued after start of works will pay a premium	2		£ 25,000	£ 25,000
10	Illegal mooring delays work.	2	E	Delays project and costs to Employer	1	£58,000	£ -	£ 58,000
11	Extreme weather conditions	2	E	Delays and costs to Contractor / Employer	2	£58,000	£ -	£ 116,000
12	Pile refusal / underground obstructions.	1	E	Delays and costs to Contractor / Employer	0		£ 10,000	£ 10,000
13	UXO	1	E	Delays project and costs to Employer	1	£58,000	£ 5,000	£ 63,000
14	Unknown adjacent works conflict	1	E	Delays project and costs to Employer	1	£58,000	£ -	£ 58,000
15	Onerous EA requirements add to cost / time (e.g. materials storage locations)	2	E	Delays project and costs to Employer	2	£58,000	£ 25,000	£ 141,000
16	Poor ground conditions – difficult access conditions – additional temporary works	4	C	Contractors risk	0	£ -	£ -	£ -
17	Damage to Bridge (from river craft) during normal river conditions.	3	C	Delays and costs to Contractor	0	£ -	£ -	£ -
18	Design / method changes require additional temporary works.	3	C	Delay to contractor	0	£ -	£ -	£ -
19	Bespoke components on long lead ins	2	C	Delay and costs to contractor	0	£ -	£ -	£ -
20	Vandalism allowance (key request for a sum to be included from Anthony).	2	C	Contractors cost	0	£ -	£ -	£ -
21	Achieving required site tolerances	2	C	Delay and costs to contractor	0	£ -	£ -	£ -
22	Damage to Bridge (from river craft) during flood conditions	1	E	Delay and costs to contractor	0	£ -	£ -	£ -
23	Volume of work locally / in industry leads to higher than expected prices/inability to secure materials	2	E	Costs to Employer	0	£ -	£200,000	£ 200,000
24	Quality of fabrication and materials	1	C	Delay and costs to contractor	0	£ -	£ -	£ -
25	Extent of works required by Tesco	3	E	Costs to Employer	1	£58,000	£ 50,000	£ 108,000
26	Existing Footpath / Diversion	1	E	Costs to Employer	0	£ -	£ 10,000	£ 10,000
27	Specialist steelwork fabricators unable to obtain budget prices form suppliers / maufactor for CORETEN steelwork	1	E	Costs to Employer	0	£ -	£100,000	£ 100,000
28	Lack of detail at cost plan stage resulting in increases in budget	4	E	Costs to Employer	0	£ -	£100,000	£ 100,000
Total								£2,449,000
Likelihood					Least Likely	1	Likely	4

Appendix B Project Programme

Appendix C Key Issues for Implementation

Key Issues for Implementation

Planning/Approval Risks & Mitigation	
Risk	Mitigation
Additional or changed permanent land acquisition / wayleaves, leading to programme delay, additional costs and CPO / Order Process impacts	<ol style="list-style-type: none"> 1. Pre determination of land ownership. 2. Legal agreements to acquire land. 3. Early identification of risks/issues and scheme progressed sufficiently at planning stage.
Permanent Scheme: Change to Environmental Impact, Mitigation Requirements and risk levels: Visual Impact, Contamination, Geology / Hydrology.	Early survey work. Monitor and control as necessary
Cost Risks & Mitigation	
Delay, cost escalation and change of scheme scope due to unknown ground conditions and geo-environmental considerations.	Review of risks and potential work scope with geotechnical specialists - discuss with team and Client - agree and implement scope where / if necessary.
Statutory undertakers apparatus (including significant SSE (electric) and SGN (gas) apparatus) impacted by proposals (i.e. diversions required), affecting deliverability, programme and cost.	Statutory Undertaker information to be obtained during detailed design following NRSWA process. Early liaison with affected utility companies.
Delivery Risks & Mitigation	
During Construction: Environmental impacts including fluvial flooding leading to delay.	Equitable and clear division of risks between employer and contractor, and appropriate programming to minimise risks, and contingency fund to deal with employer risks.
Adjacent construction of the Park and Ride facility	Early and ongoing liaison with Wokingham Borough Council