**MEETING OF THE BERKSHIRE LOCAL TRANSPORT BODY (BLTB) – THURSDAY 11 NOVEMBER 2021**

**CONTACT OFFICER: Josie Wragg, Chief Executive, Slough Borough Council, Lead Officer to the BLTB**

**Item 6: 2.12 Reading: South Reading Mass Rapid Transit (MRT) phases 1 & 2 – One Year Evaluation Report**

***Purpose of Report***

1. At your meeting in March 2017, you approved guidance for the preparation of one- and five-year-on impact reports for BLTB funded local transport schemes.

2. Per reports received at the March and July 2021 BLTB meetings, it was agreed that due to the Covid pandemic, the pending one-year impact reports would be temporarily suspended until a sufficient resumption of normal, or near normal, traffic movements resumed. It has been agreed by the Berkshire Transport Officers that we are probably now at this point, enabling reports to be drawn up and submitted.

3. This report introduces the one-year impact report for scheme 2.12 Reading: South Reading MRT Phases 1 & 2.

***Recommendation***

4. You are recommended to note the reports from the scheme promoter and the independent assessor.

***Other Implications***

*Financial*

5. There are no direct financial implications of this report.

*Risk Management*

6. The government requires all LEPs to have Assurance Frameworks which set out governance arrangements and financial procedures. One of the specific requirements for transport schemes is to require scheme promoters to submit impact reports one- and five-years post implementation.

*Human Rights Act and Other Legal Implications*

7. Slough Borough Council will provide legal support for the BLTB should any questions arise on the application of the Assurance Framework.

***Supporting Information***

8. Reading Borough Council received £4.5m in LGF towards the cost of this £5.62m scheme.

9. The one-year on impact report is attached at Appendix 1; and the independent assessor's report is attached at Appendix 2.

***Conclusion***

10. The Independent Assessor concludes that the South Reading MRT Phase 1 and Phase 2 report, prepared by WSP on behalf of RBC, is a comprehensive and detailed document. It provides an insightful view on the scheme, its rationale and objectives, as well as initial findings on how the scheme is performing against key metrics and indicators. It also helpfully sets out the context that this project is the first part of a much bigger vision for delivering the whole South Reading MRT.

11. The scheme was delivered on budget and with three of its four component sections delivered by the project completion date/scheme opening in early 2018. The report is very clear on the reasons and justification for why the final section of the scheme was delayed and delivered as part of the construction contract for Phase 3 and 4 (2019). The available data analysed and presented in the report must be viewed within that context.

12. The report clearly outlines the positive and successful outcomes of the scheme. The available data has shown significant improvements in bus journey times, service reliability and frequency, as well as increased capacity and patronage levels have consequently improved. The scheme is also having an initial impact on behavioural change, with increases in the share of bus trips increasing post-scheme implementation.

13. Significant new commercial and industrial floorspace has also come forward in the area following the scheme's opening, as well as around 3,500 new homes. The early phases of the South Reading MRT, albeit part of a much larger future bus network, is already playing a role in supporting sustainable economic growth and providing alternative public transport options to residents and workers.

14. The key points for consideration, both to enhance the future outcomes of the project and to facilitate wider learning, include:

    - Given this is an early phase of a much larger MRT scheme, it will be important to continue to monitor bus modal share and overall vehicle counts along the corridor against forecasts going forward. A key test for the scheme, and the full MRT network once completed, will be that the road capacity freed up by those shifting to bus is 'locked-in' and not just filled by other car users.

15. There is no further action required.

***Background Papers:*** None.

**Appendix 1**

# Reading Borough Council

# South Reading MRT Phase 1 and 2 Monitoring Report

**CONTENTS**

# INTRODUCTION

## PURPOSE OF THE REPORT

This report provides a review of the Reading Mass Rapid Transit (MRT) scheme Phases 1 and 2 after its opening. The report aims to evaluate how successful the scheme has been so far, by comparing the assumptions made in the original 2015 Business Case against the scheme's current outcomes.

## BACKGROUND

The A33 corridor is the main strategic route for vehicles travelling to and from Reading Town Centre to the south of Reading, linking to major employment locations, major housing developments and M4 Junction 11. It carries high volumes of traffic between the M4/A33 and Town Centre, providing access to over 50,000 Town Centre jobs. The route is also the main access for the major south Reading employment area of 10,000 jobs and 1,600 homes.

The A33 is busy throughout the day, carrying in the region of 46,000 vehicles each day in 2019. The route is particularly busy during AM and PM peak periods when employees arrive and leave the business units and parks along the corridor and when there are high levels of traffic into Reading town centre. In the AM peak period (08:00-09:00), for example, inbound flows were in the region of 2,700 vehicles.

Reading Borough Council (RBC) and the business parks along the A33 have made significant investment in expanding the bus services along the corridor, delivering high-quality, low noise and low emission bus services (approximately 1.2 million trips per annum).

The level of congestion resulted in the need to add extra vehicles during the peak periods and reduce the peak period frequency to offset the impact of high journey time variability.

At the time of writing the Business Case, there was planned growth of some 7,500 and 1,500 homes along the corridor. A further three strategic development locations were planned south of the M4 Junction 11 (2,500 homes), South Wokingham (2,500 homes) and North Wokingham (1,500 homes), which have planning obligations to the delivery of express bus or mass rapid transit services. Around 50% of the traffic on this corridor is forecast to be associated with planned development by 2026.

If nothing was done, congestion on the network would continue to increase and economic growth would be constrained. In addition, there is a risk that existing businesses would consider relocating out of the Thames Valley area and possibly elsewhere in Europe.

## DESCRIPTION OF THE SCHEME

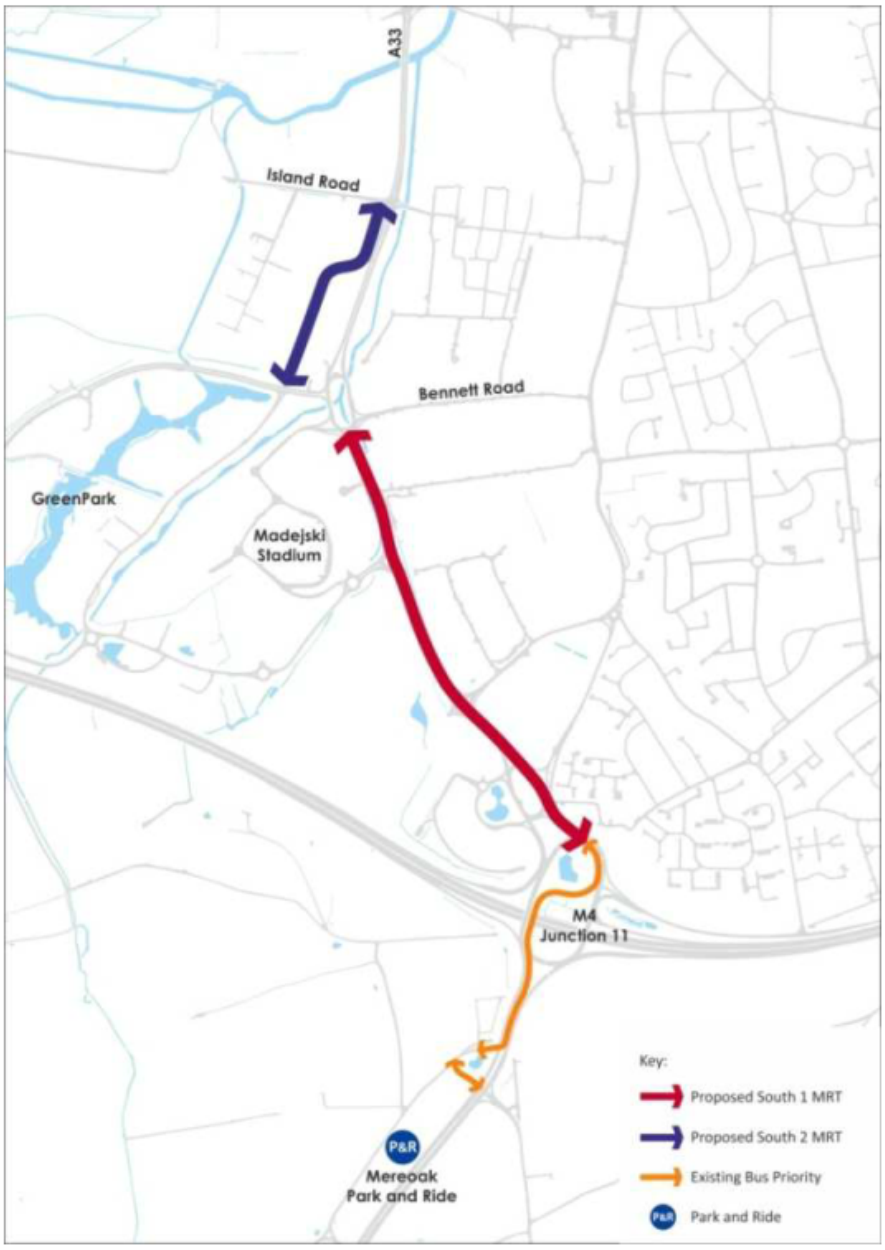
The MRT scheme provides a series of new and improved bus priority measures on the A33 to improve journey times and reliability for public transport on the main corridor into Reading. It links central Reading to the existing/proposed residential and employment areas to the south of Reading including Green Park and Southside. It also connects into the bus lanes through M4 Junction 11 to the new Mereoak Park and Ride facility. (The bus priority through the M4 Junction 11 was completed in summer 2010.)

This scheme is a long-established element of Reading's strategy to deliver economic growth and housing and has been included in Reading's three Local Transport Plans and adopted Core Strategy. Phases 1 and 2 are just the initial phases of the overall vision for the corridor of a fully segregated public transport route between the town centre and Mereoak Park and Ride, which in the future could be used by guided buses, trams or an autonomous public transport system.

## LOCATION

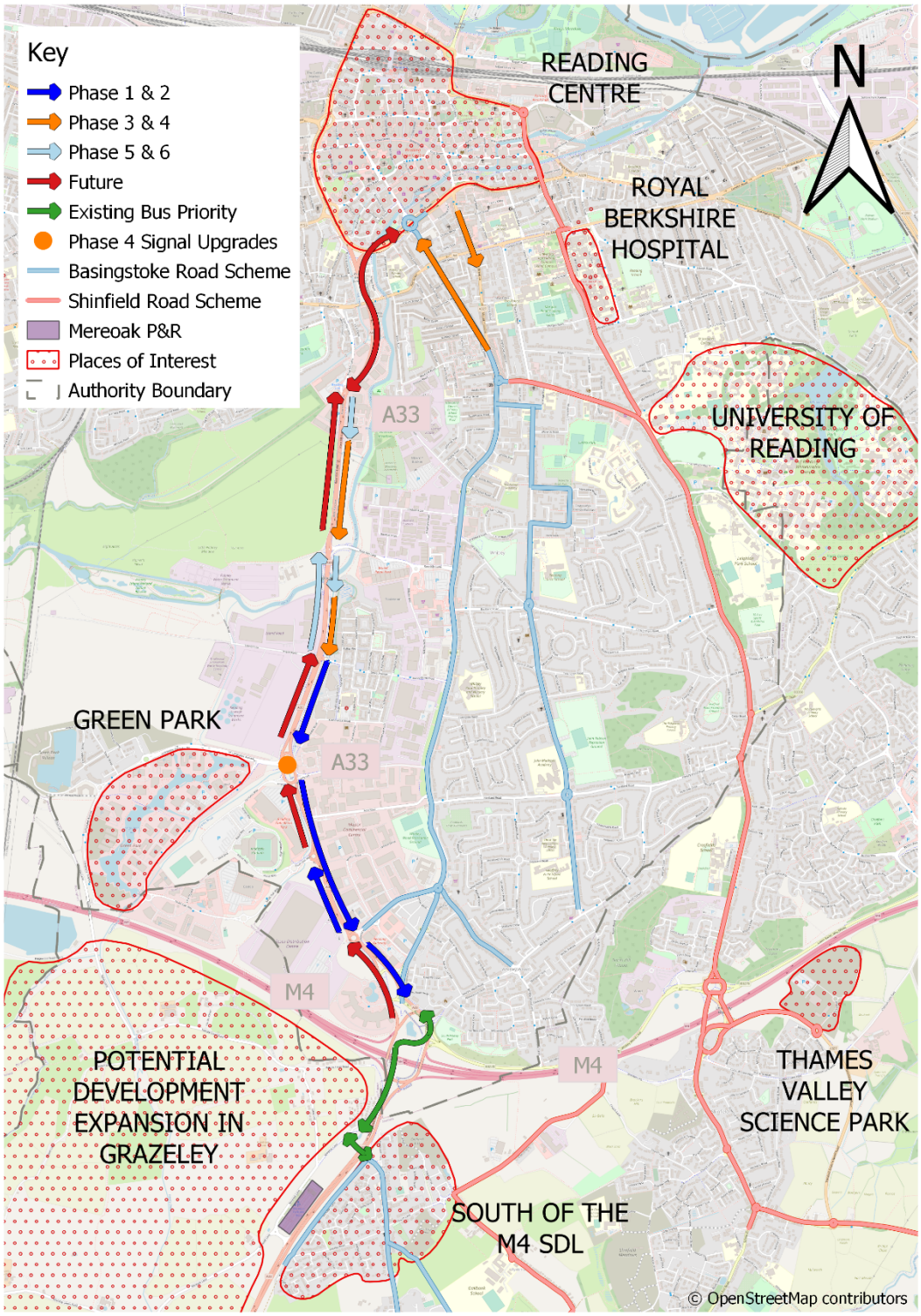
The Business Case stated that Phase 1 of the scheme would run between M4 Junction 11 and A33 junction with Longwater Avenue (Green Park), while Phase 2 would run between the A33 junctions with Longwater Avenue (Green Park) and Island Road. **Figure 1-1** below shows the phasing plan taken from the Business Case.

**Figure Error! No text of specified style in document.-1: Extent of South Reading MRT Phase 1 and 2**




Since the Phase 1 and 2 Business Case, the location of the scheme was amended with the agreement of the Local Enterprise Partnership (LEP) and Berkshire Local Transport Body (BLTB) through regular progress reporting on the scheme. **Figure 1-2** shows the updated location of the scheme, including future phases of the MRT.

**Figure Error! No text of specified style in document.-2: Updated extent of South Reading MRT**




## AIMS AND OBJECTIVES

The scheme aims to improve the connectivity of central Reading with the key employment and development sites along the A33 corridor for bus travel, providing a more attractive alternative to the private car. It will also provide a key north-south link to a potential wider Thames Valley Berkshire MRT network.

Delivery of the scheme would increase travel capacity and improve reliability and journey time for bus services along the route.

- Provide a cost-effective solution to accommodate future travel demand on the A33 Corridor for local trips;
- Provide a high quality, sustainable and attractive alternative to car travel;
- Increase capacity for movement of people and thereby reduce congestion along the Corridor;
- Reduce journey times along the A33 Corridor and improve journey time reliability; and
- Support economic development on the A33 Corridor and within the wider sub-region.

## MEASURES FOR SUCCESS

For each of the objectives set out above, at least one 'indicator of success' had been established to determine what constitutes successful delivery of any transport-related improvements. Indicators and related targets are outlined below in **Table 1-1**.

**Table Error! No text of specified style in document.-1: Success Indicators**

| Indicator | Target |
|---|---|
| Provide a high quality, safe, convenient and reliable alternative to the car and improve public perception of transport in Reading | Increase public transport modal split<br>Increase public transport capacity<br>Improve public transport reliability<br>Improve public transport journey times<br>Improve personal security<br>Reduce casualty frequency and severity |
| Alleviate the severe congestion on the A33 by allowing better flow of traffic | Improve (or keep to neutral) car journey times |
| Stimulate development, increase in jobs and resident population in South Reading | Number new jobs created<br>Number homes built |

## COST ESTIMATES

The Business case estimated the total cost for Phase 1 to be £3,690,700 and Phase 2 to be £1,870,700. These included a 30% contingency derived from a detailed project Quantified Risk Assessment (QRA). Therefore, the total cost of both phases was estimated at £5,560,000. A 20% optimism bias had been assumed.

The scheme was prioritised for Local Growth Deal (LGF) Funds with additional match funding provided by RBC including from the private sector including through Section 106[1] (S106) obligations. Existing S106 funding was specifically committed to this scheme. In addition, there had been significant contributions from the local authority to progress the scheme, including scheme development costs.

[1] Section 106 (S106) obligations are a mechanism which make a development proposal acceptable in planning terms, that would not otherwise be acceptable. They are focused on site specific mitigation of the impact of development. They are often referred to as 'developer contributions'. https://www.local.gov.uk/pas/pas-topics/infrastructure/s106-obligations-overview

The Business Case stated that LGF was going to provide 80% of the scheme funding, with 20% local contribution.

# SCHEME DETAILS

## UPDATED PHASING PLAN

Phase 1 and 2 was completed to the phasing plan found in the Business Case in the southbound direction. Phase 1 commences at the A33 junction with Longwater Avenue (Green Park) and travels south to M4 Junction 11. Phase 2 runs between the A33 junction with Island Road and follows southbound to Longwater Avenue (Green Park). However, travelling northbound, Phase 1 and 2 only included the section between the Imperial Way junction and the South Oak Way junction. Feasibility of the remaining sections have been reassessed as part of planning for future phases of the scheme.

# PROJECT MANAGEMENT

## TIMESCALES

No major constraints had been identified within the Business Case that would affect the delivery of Phase 1 of the scheme which was proposed to be fully within the existing highway land and safeguarded land for MRT. Phase 2 was offline across brown field third party owned land, and although the route was safeguarded and had planning permission within the Southside scheme this permission was not subsequently delivered by the developer.

The Business Case stated that the delivery of the scheme was dependent on developer contributions as part of the local contribution for the scheme, however all the required funding was secured by legal agreements to enable the contributions to come to fruition.

The opening year for the scheme was proposed as the year 2018.

**Table 3-2** below details when the phases were completed.

**Table Error! No text of specified style in document.-2: Phasing completion dates**

| Phase | Direction | Location | Completion |
|---|---|---|---|
| Phase 1 | Southbound | Imperial Way to RIBP | December 2016 |
| Phase 1 | Southbound | Bennett Road to Imperial Way | December 2017 |
| Phase 2 | Southbound | Kennet Island to Bennett Road | December 2017 |
| Phase 2 | Northbound | Imperial Way to South Oak Way | November 2019 |

The table above shows that Phase 1 was broken down into two sections, the first of which was completed in December 2016 and the second section, along with Phase 2 southbound, followed a year later in December 2017. However, the remaining section of Phase 2 northbound was not completed until November 2019 due to efficiencies with it being combined with the contract for constructing Phase 3 of the scheme, which had subsequently been awarded funding. Therefore, while the majority was completed ahead of the proposed opening year of 2018, the only northbound section of the scheme was one year later than originally planned.

## ACTUAL SCHEME COSTS

The Business case estimated the total cost for Phase 1 and 2 to be £5,560,000, which included a 30% contingency derived from a detailed project Quantified Risk Assessment (QRA). A 20% optimism bias had been assumed.

The current spend to date of Phases 1 and 2 is £5,450,000 million. The remaining costs will be spent on contract retentions and the five-year Monitoring Report.

# REVIEW AND EVALUATION OF THE OUTCOMES

The scheme aims to improve connectivity between central Reading and the key employment and development sites along the A33 corridor and support economic development along the corridor. The scheme also aims to increase travel capacity and improve reliability and journey times for bus services along the A33 corridor, providing a more attractive alternative to the private car.

A range of metrics have been examined to determine whether these objectives have been met and whether the scheme is delivering the expected benefits. Each objective is examined in detail below.

## IMPROVE CONNECTIVITY AND SUPPORT ECONOMIC DEVELOPMENT

The Full Business Case identifies a number of economic opportunities along the A33 corridor and wider area which will be supported by the scheme, including:

- 7,500 jobs at Southside, Shinfield Science Park, Worton Grange, Station Hill and Royal Mail site;
- 1,500 homes at Green Park, Kennet Island, Station Hill, Chatham Place and Royal Mail sites; and
- 2,500 homes South of the M4 junction 11 within Wokingham's SDL.

The scheme has improved sustainable transport connections between central Reading and the key employment and development sites along the A33 corridor, which has in turn supported economic growth in the vicinity of the scheme.

There have been several development schemes along the A33 corridor in recent years, for example the Reading Gateway scheme at Worton Grange (comprising of commercial units, warehouses, houses and a new Premier Inn) and the Island Road development (comprising of commercial units and warehouses).

The residential and commercial development completions in South Reading for the year following Phases 1 and 2 opening are summarised in **Table 4-3** below. The scheme has also improved access between central Reading and areas to the south of the M4 such as Shinfield, Spencers Wood and Three Mile Cross, so completions in these areas have been included. Although some of these developments are not located directly off the A33 corridor, they fall within the wider area identified as being supported by the scheme in the Full Business Case.

**Table Error! No text of specified style in document.-3: 2017-2018 development completions**

| Area | Dwellings (units) | Business/Industrial (sq. m) | Retail (sq. m) |
|---|---|---|---|
| Shinfield/ Spencers Wood/ Three Mile Cross | 2,833 | 0 | 0 |
| South Reading | 695 | 32,559 | 4,555 |
| Total | 3,528 | 32,559 | 4,555 |

Table Error**! No text of specified style in document.-3** shows that in the year following Phases 1 and 2 opening, approximately 3,500 dwellings, 32,500sq. m business and industrial development and 4,500sq. m retail development was delivered in the vicinity of the scheme. This economic growth along the A33 corridor has been supported by the improved connectivity between these areas and central Reading.

## INCREASED TRAVEL CAPACITY

The scheme has increased travel capacity by bus along the A33 corridor. The improved journey times and reliability along the corridor (which is discussed in detail below) has allowed bus services to operate with higher frequency. In 2016, before the introduction of the scheme, there were 10 services from Mereoak Park and Ride to central Reading in the AM peak, and 9 services from central Reading to Mereoak Park and Ride in the PM peak. In 2018, after the introduction of MRT Phases 1 and 2, an additional service was provided between Mereoak Park and Ride to central Reading in the AM peak.

The increased travel capacity is reflected in the annual passenger growth for Greenwave bus services. Greenwave annual patronage changes between 2016 and 2018 are displayed in **Table 4-4** below.

**Table Error! No text of specified style in document.-4: Greenwave annual patronage**

| Year | Annual Greenwave patronage | Annual Mereoak Park and Ride patronage |
|---|---|---|
| 2016 | 881,231 | 127,898 |
| 2017 | 950,214 | 184,698 |
| 2018 | 1,070,554 | 238,897 |

Table Error**! No text of specified style in document.-4** shows that annual Greenwave bus patronage increased by approximately 190,000 passengers between 2016 (before the introduction of MRT Phases 1 and 2) and 2018 (after the introduction of MRT Phases 1 and 2) as a result of improved travel capacity along the corridor. The annual Mereoak Park and Ride patronage increased by approximately 111,000 passengers.

The increased travel capacity is also reflected in the increase in cars parked at Mereoak Park and Ride before and after the introduction of the scheme. **Table 4-5** shows that approximately 37,500 additional cars parked at Mereoak Park and Ride between April 2017 – March 2018 (after scheme opening) compared with August 2015 – March 2016 (before scheme opening).

**Table Error! No text of specified style in document.-5: Cars parked at Mereoak Park and Ride**

| Year | Cars parked |
|---|---|
| August 2015 – March 2016 | 29,978 |
| April 2016 - March 2017 | 54,366 |

| | |
|---|---|
| April 2017 - March 2018 | 67,445 |

## IMPROVED RELIABILITY AND JOURNEY TIMES

The introduction of MRT Phases 1 and 2 has improved the reliability of bus services along the A33 corridor. Real time bus information has been extracted for the x60 route, which is the direct service between the town centre and Mereoak Park and Ride along the A33. In 2016, before the introduction of MRT Phases 1 and 2, 93% of buses were on time or early and 7% of buses were late. In 2018, after the introduction of MRT Phases 1 and 2, 97% of buses were on time or early and 3% of buses were late. The scheme has therefore improved bus reliability and punctuality along the A33 corridor by 4%.

The scheme has also improved journey times along the A33 corridor. Bus journey times from Mereoak Park and Ride to central Reading in the AM peak decreased from 18 minutes in September 2016 (before the introduction of MRT Phases 1 and 2) to 17 minutes in April 2018 (after the introduction of MRT Phases 1 and 2). Bus journey times from central Reading to Mereoak Park and Ride in the PM peak decreased by 16% from 25 minutes to 21 minutes. Prior to the introduction of the scheme, the PM peak southbound buses were required to travel via Basingstoke Road in order to reliably achieve a 25-minute trip to Mereoak Park and Ride. However, after completion of the outbound MRT sections, the bus priority measures enabled buses to travel the more direct route along the A33. The off-peak travel times have also decreased by one minute in each direction.

The improved journey times and reliability are reflected in the timetable changes before and after the introduction of the scheme, which are shown in **Table 4-6** below.

**Table Error! No text of specified style in document.-6: Timetable changes**

| Direction | Time period | September 2016 | | April 2018 | |
|---|---|---|---|---|---|
| | | Journey time (min) | No. of trip | Journey times (min) | No. of trips |
| Mereoak – Central Reading | AM peak | 18 | 10 | 17 | 11 |
| | Off-peak | 15 | | 14 | |
| Central Reading - Mereoak | Off-peak | 16 | | 15 | |
| | PM peak | 25 | 9 | 21 | 9 |

These journey time savings have been multiplied by the 2018 Mereoak Park and Ride patronage to calculate the total journey time savings for bus users in the year after scheme opening. The total journey time savings for bus users in the year after scheme opening have been estimated at 6,403 vehicle hours. The following assumptions have been made in this calculation:

- 2018 Mereoak Park and Ride patronage has been used instead of total annual Greenwave patronage as Mereoak Park and Ride passengers benefit from the total length of MRT Phases 1 and 2. This is a worst-case assessment, as a proportion of Greenwave passengers will also benefit from the scheme.

- National Trip End Model (NTEM) factors have been used to split the patronage into AM peak, inter-peak/ off-peak and PM peak demand.
- It has been assumed that all Mereoak Park and Ride passengers travel into central Reading in the AM peak and out of central Reading in the PM peak. In the inter-peak/off-peak it has been assumed that 50% of Mereoak Park and Ride passengers travel into central Reading and 50% of Mereoak Park and Ride passengers travel out of central Reading.

The introduction of the scheme has also dramatically reduced the mileage lost due to congestion. The mileage lost due to congestion on the Greenwave bus services between April 2016 and September 2018 is shown in **Table 4-7**.

**Table Error! No text of specified style in document.-7: Mileage lost due to congestion**

| Period | Total mileage lost due to congestion |
|---|---|
| April 2016 – Sep 2016 | 183.89 |
| Oct 2016 - Mar 2017 | 691.31 |
| April 2017 - Sep 2017 | 101.53 |
| Oct 2017 - Mar 2018 | 163.59 |
| April 2018 - Sep 2018 | 15.36 |

Table Error**! No text of specified style in document.-7** shows that between April 2016 – September 2016, before the introduction of the scheme, 183.89 miles were lost due to congestion. The introduction of the bus priority measures along the A33 corridor dramatically reduced the number of miles lost due to congestion, with just 15.36 miles lost due to congestion between April 2018 – September 2018.

The data presented above clearly demonstrates that the MRT Phases 1 and 2 has improved reliability and journey times for bus services along the A33.

## BEHAVIOURAL CHANGE

The scheme has improved public transport connections along the A33 corridor, with the aim of providing a more attractive alternative to the private car.

Traffic count data along the A33 has been extracted before and after the introduction of the scheme to understand the impact of the scheme on traffic flows. The average two-way daily traffic outside Green Park Business Park increased from 20,855 vehicles in 2016 to 21,235 vehicles in 2018. Whilst this is an increase of 380 vehicles, it is a lower increase than expected based on NTEM growth rates for Reading. NTEM forecasts a 3% increase in traffic between 2016 and 2018 in Reading, which would equate to average two-way daily traffic flows in 2018 of 21,485. The observed 2018 data is 250 vehicles lower than the NTEM forecast, which demonstrates that private car trips along the A33 were lower than expected forecasts.

The analysis of traffic count data suggests that private car trips along the A33 in 2018 were lower than expected forecasts. It is likely that some of these trips have shifted from highway to bus travel as a result of the improved public transport connections along the A33 corridor.

Average car occupancy has been applied to the daily traffic flows to calculate the number of people travelling along the A33 corridor by car. These have been converted to annual values and compared to annual bus patronage in **Table 4-8** below.

**Table Error! No text of specified style in document.-8: Mode share**

| | Average annual person trips | | Mode share | |
|---|---|---|---|---|
| | 2016 | 2018 | 2016 | 2018 |
| Bus person trips | 881,231 | 1,070,554 | 7% | 8% |
| Car person trips | 12,253,599 | 12,476,873 | 93% | 92% |
| Total person trips | 13,134,830 | 13,547,427 | 100% | 100% |

**Table Error! No text of specified style in document.-8** shows that the bus mode share of trips along the A33 corridor increased by 1% in 2018 (after the introduction of the scheme) compared to 2016 (before the introduction of the scheme). This demonstrates that there has been a shift from highway to bus travel as a result of the improved public transport connections along the A33 corridor.

Travel Plan surveys between 2016 and 2018 have been requested from the managers of Green Park Business Park to understand the impact of the scheme on employee travel behaviour, however unfortunately this information is not available.

As discussed above, the introduction of MRT Phases 1 and 2 has resulted in increased patronage for Greenwave bus services, and an increase in the number of cars parked at Mereoak Park and Ride. Whilst some of these new users may have been generated by the new residential and commercial development along the corridor, some of the new users are due to a mode shift from highway, resulting in fewer private car trips being made.

## COLLISION ANALYSIS

Collision data has been analysed to determine the impact of the Reading Mass Rapid Transit (MRT) scheme on the number of collisions that occur along the route corridor. Reading Borough Council provided collision data for all reported Personal Injury Collisions (PICs) which occurred within the scheme extent and nearby approaches for the period 2016 to 2018.

For the purpose of this analysis, the years 2016 and 2018 have been used as these were the years pre and post implementation of the scheme.

Figure 4-3 and **Figure 4-4** depict the location of each collision by severity for each year.

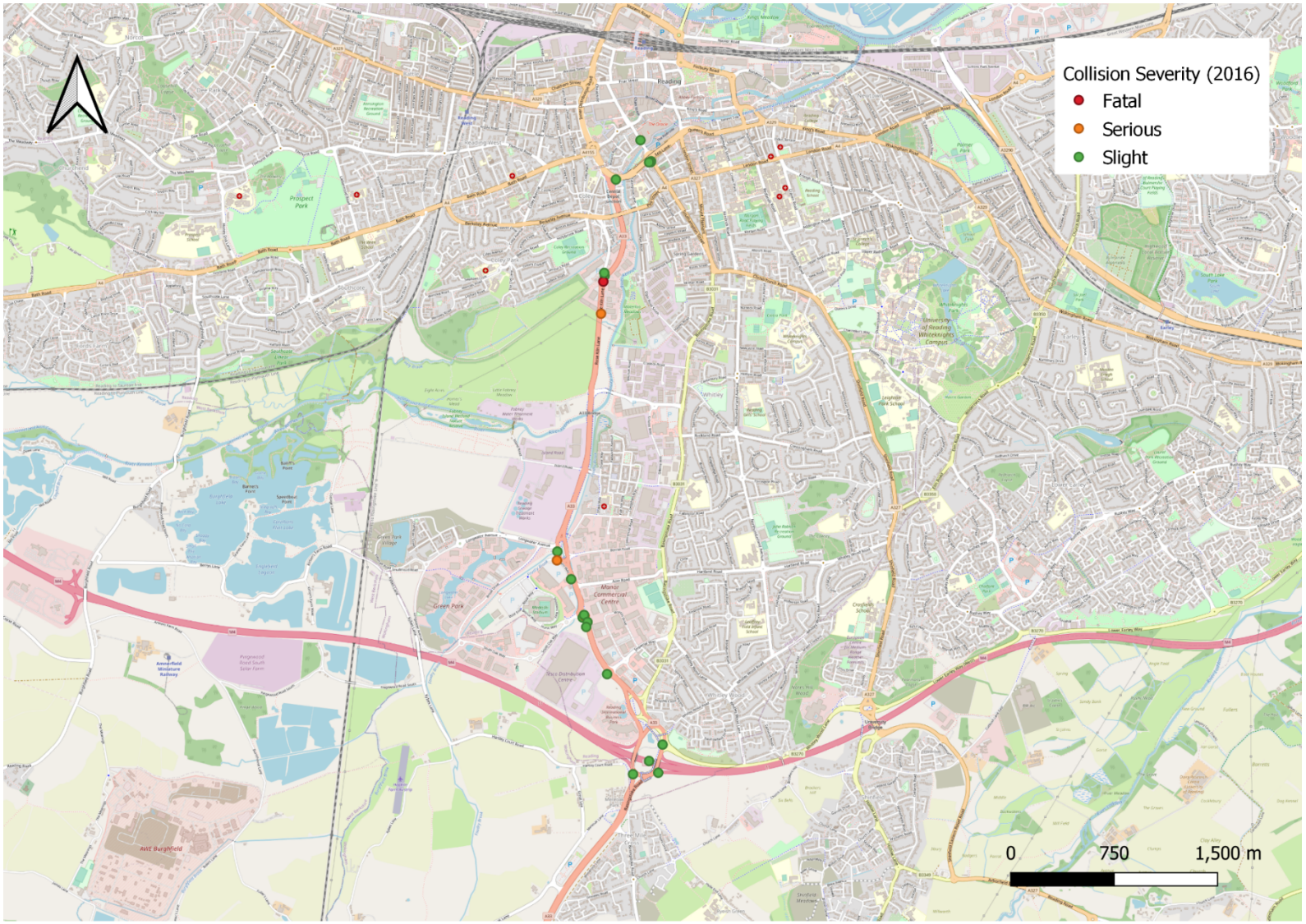



**Figure Error! No text of specified style in document.-3: 2016 Collisions by Severity**

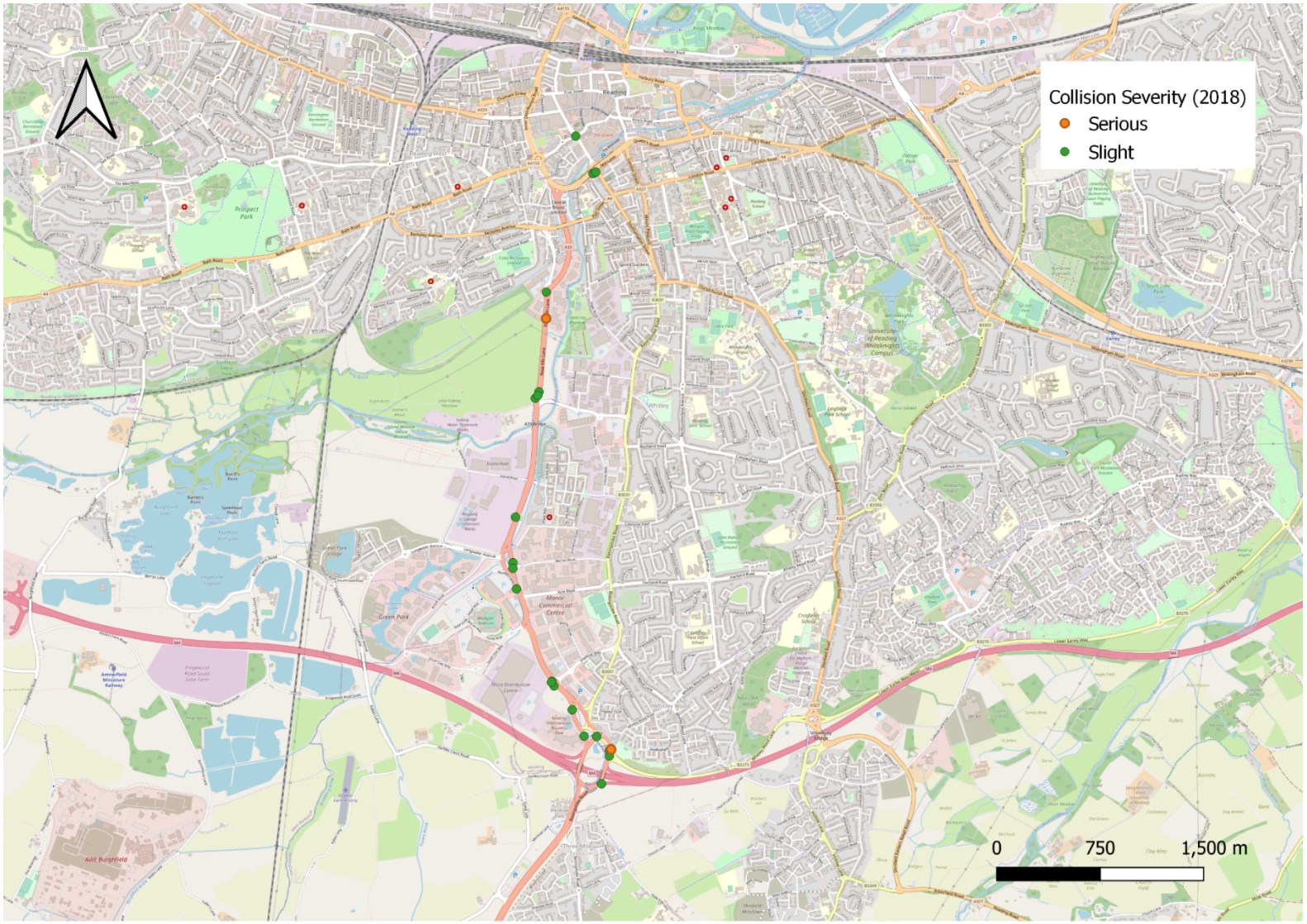



**Figure Error! No text of specified style in document.-4: 2018 Collisions by Severity**

## Summary of collisions

There was a total of 63 reported collisions in 2016 and 2018, of which seven were serious and one was fatal.

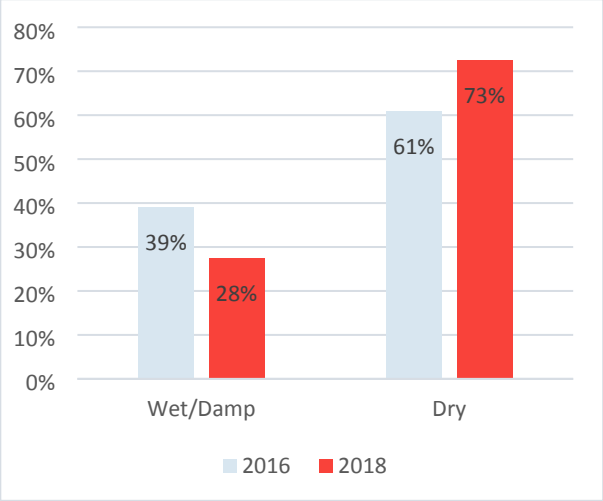
**Table 4-9** summarises the collisions that occurred in 2016 and 2018 by severity.

**Table Error! No text of specified style in document.-9: Collision summary by year and severity**

| | Fatal | Serious | Slight | Total |
|---|---|---|---|---|
| 2016 | 1 | 3 | 19 | 23 |
| 2018 | 0 | 4 | 36 | 40 |
| **Grand Total** | **1** | **7** | **55** | **63** |

**Table Error! No text of specified style in document.-9** shows that there were more collisions in 2018 compared to 2016, with nearly two-thirds of the reported collisions that occurred during the study period occurring in 2018. In terms of severity, the proportion of Killed or Seriously Injured (KSI) collisions was highest in 2016 (17%) compared to 10% in 2016. This is due to the increased number of slight collisions in this period. The increase in collisions may be linked to the slight increase in vehicle flow along the route indicated earlier.

Analysis shows that most collisions occurred in daylight conditions with fine weather and dry road surface as shown below.



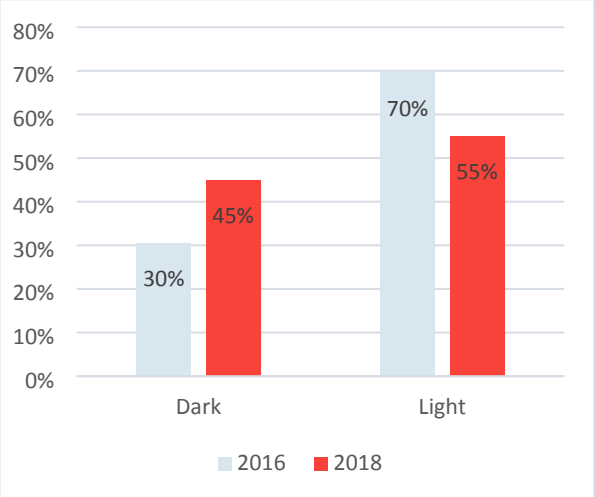




**Figure Error! No text of specified style in document.-5: Road Conditions**
**Figure Error! No text of specified style in document.-6: Lighting conditions**

Between the two years, the number of collisions in wet/damp road surface conditions fell 10% in 2018, however the number of collisions in the dark increased 15% compared to 2016 levels. It is unclear whether these changes are connected to the implementation of the scheme.

## Road users involved

Table 4-10: presents the number of the vulnerable road users (VRUs) involved in the collisions. VRUs in this instance have been assessed in the following groups: motorcycles, pedal cycles, pedestrians, children and OAPs.

**Table Error! No text of specified style in document.-10: Vulnerable road user involvement by year and severity**

| Severity | Year | Motorcycles | Pedal Cycles | Pedestrians | Children | OAPs | Total |
|---|---|---|---|---|---|---|---|
| **Fatal** | 2016 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 2018 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Serious** | 2016 | 0 | 1 | 1 | 0 | 0 | 2 |
| | 2018 | 2 | 0 | 0 | 0 | 0 | 2 |
| **Slight** | 2016 | 2 | 2 | 0 | 1 | 2 | 7 |
| | 2018 | 8 | 6 | 5 | 2 | 2 | 23 |
| *All Severity* | *2016* | *2* | *3* | *1* | *1* | *2* | 9 |
| | *2018* | *10* | *6* | *5* | *2* | *2* | *25* |

A total of nine VRUs were involved in collisions in 2016, a total of 25 VRUs were involved in collisions in 2018. As a proportion of VRUs per collision, this equates to 39% in 2016 and 63% in 2018, indicating a significant rise in collisions involving VRUs since the scheme was implemented.

When looking at the severity, the increase in VRUs is seen in the slight collisions, where there was a significant increase in the number of motorcycles and pedestrians being involved in collisions, and a slightly lower increase in collisions involving pedal cycles. **Table 4-11** shows the VRU proportions for all severities across the collisions in the study period.

**Table Error! No text of specified style in document.-11: Proportion of collisions involving VRUs by year**

| Year | Motorcycles | Pedal Cycles | Pedestrians | Children | OAPs |
|---|---|---|---|---|---|
| 2016 | 17% | 33% | 17% | 33% | 50% |
| 2018 | 83% | 67% | 83% | 67% | 50% |

## Turning Movements

Collision data from the pre and post implementation periods was analysed to investigate whether the scheme had an impact on collision patterns involving turning vehicles along the route. This is shown in **Table 4-12**.

**Table Error! No text of specified style in document.-12: Collisions involving turning movements by year and severity**

| | Year | Left | No turn | Right |
|---|---|---|---|---|
| **Fatal** | 2016 | 0 | 1 | 0 |
| | 2018 | 0 | 0 | 0 |
| **Serious** | 2016 | 1 | 2 | 0 |
| | 2018 | 2 | 2 | 0 |
| **Slight** | 2016 | 2 | 16 | 1 |

| | | | | |
|---|---|---|---|---|
| | 2018 | 4 | 25 | 7 |

This data indicates that the greatest changes in turning movement collisions were in the slight collisions. This is anticipated given the increase in the number of slight collisions.

Taking the increase in the number of slight collisions between 2016 and 2018 as a baseline (89% increase), it can be seen that the increase in slight left and right turn collisions is higher than the baseline (100% and 600% respectively).

### Collision Location

The collision locations in 2018 have typically followed the patterns of those in 2016, being in or close to the same locations. A combined plot of collision locations is shown below in **Figure 4-7**.

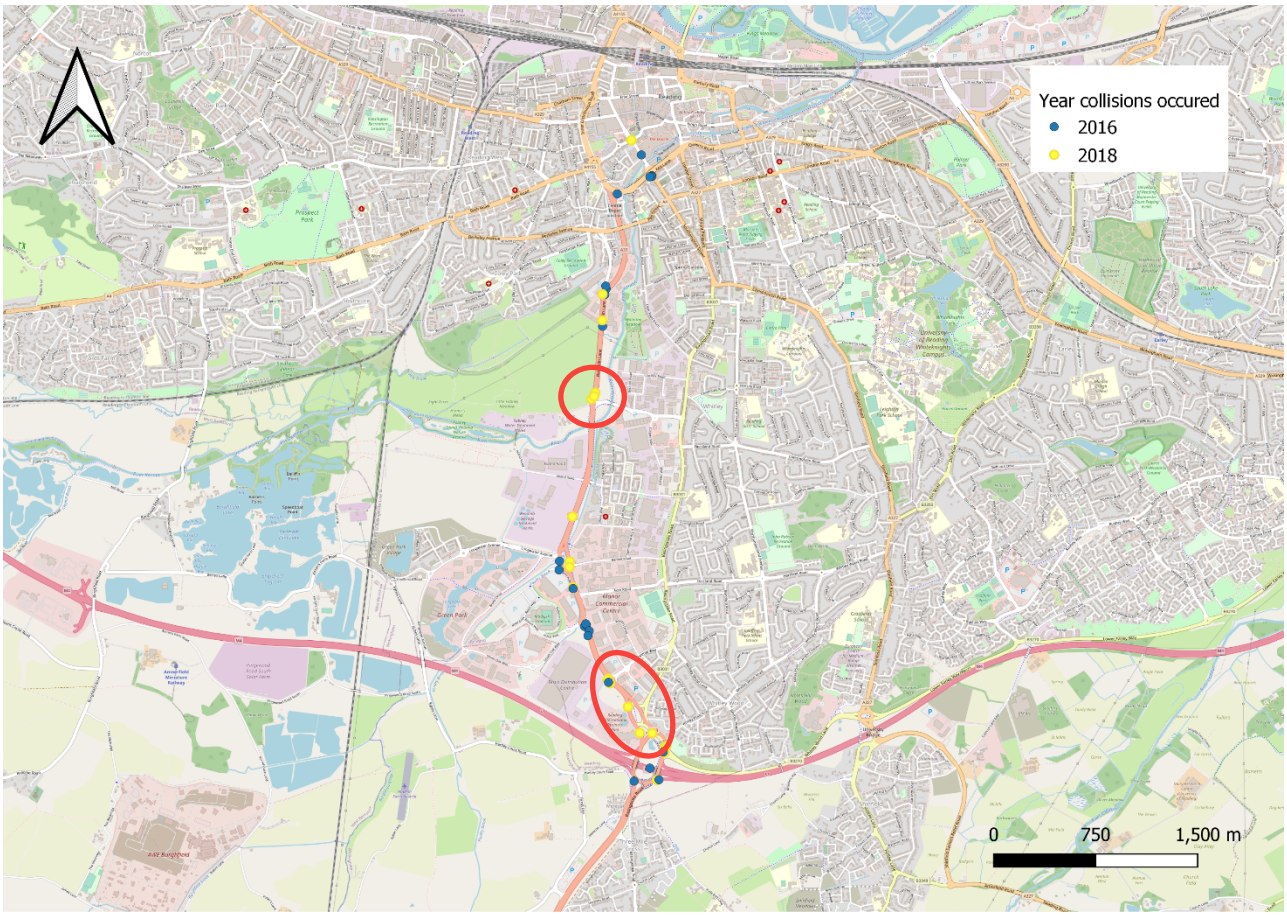



**Figure Error! No text of specified style in document.-7: 2016 and 2018 collision locations**

There are two locations where there are new groupings of new collisions, one is at the junction with Rose Kiln Lane and the other is the Imperial Way roundabout. In 2016 there was a small group of collisions at the South Oak Way roundabout, there were no collisions at this location in 2018.

### Vehicle Class

Analysis of the collision data provided indicates that buses and minibuses were not involved in any of the collisions in 2016 or 2018.

## Summary & Conclusions

Analysis of the collision data has shown that there have been some changes in the collision patterns in 2018 when the Reading MRT scheme was opened compared 2016 prior to construction commencing.  The number of slight collisions has increased, with the collisions typically involving a higher proportion of pedestrians, pedal cyclists or motorcyclists. Fewer collisions occurred in wet/damp conditions, but there was an increase in the number of collisions occurring in the dark.

The data provided for analysis provides a snapshot of the collision patterns. It is recommended that a fuller assessment is undertaken once collision data for three or five years post-opening is available, so that any seasonal or temporal variations can be taken into account, as well as providing an opportunity for the scheme to settle and road users to understand and adapt to the changes as a result of the scheme.

# LESSONS LEARNT AND RECOMMENDATIONS

One of the successful outcomes of Phases 1 and 2 was the delivery ahead of the 2018 proposed opening year for the majority of the scheme. Phase 1 was completed in December 2016 and 2017 and Phase 2 southbound was completed in December 2017. One of the main reasons for this was due to the majority of the scheme being built within the highway boundary and safeguarded land specifically for the MRT scheme.

Therefore, in order for future phases to be as successful as Phase 1 and 2, by being built on time, the scheme should avoid third party land wherever possible, and be delivered within the highway boundary. This would prevent having to acquire any additional land and seek the relevant permissions.

Despite the successful outcomes of the phases listed in the sections above, there is evidence to show congestion along the corridor is increasing again, and the bus services are gradually becoming more unreliable. This is discouraging people from using the bus as a mode of transport as well as using the route to access the town centre and destinations along the corridor by all modes. If this was to continue, there would be detrimental economic and social impacts within Reading and the sub-region, constraining economic growth and in particular the economic and social recovery from the current pandemic. Therefore, it is important that future phases of the scheme to go ahead. This is reinforced with the results of the 2019 visioning consultation for the Reading Transport Strategy 2036, which highlighted 93% of the public thought making public transport journeys faster and more reliable would be effective in encouraging more sustainable travel in Reading.

The period of 2019-20 from October to February saw a significant increase in lost mileage due to congestion. However, the congestion was identified as being that on Green Park specifically on South Oak Way and Brook Drive in the afternoon peak. This resulted in buses that served these two roads being delayed by up to 20 minutes on a single trip. These parts of the Greenwave route are on private roads on the Green Park estate and have no bus priority. Due to the interworking of peak buses delays created here had a knock-on effect on the rest of the service. In response the next timetable change from April 2020 would have separated all previous interworking so that buses that were delayed on Green Park would go back to Green Park, those on the Mereoak Park and Ride circuit would stay away from Green Park.

Overall, this report demonstrates the huge benefits delivered by the South Reading MRT Phases 1 and 2 scheme in terms of increased passenger numbers, employment and housing delivery, modal shift to sustainable travel and the resulting decongestion, air quality and carbon benefits. Ideally the full South Reading MRT scheme would have been delivered in a single phase, however due to limited funding availability it has been split into a phased delivery, therefore the overriding lesson learnt from these initial phases is the importance of continuing to deliver the full scheme to ensure the full benefits can be delivered.

***End of report***

**Appendix 2**

# Thames Valley Berkshire Local Enterprise Partnership

# Independent Assessment Summary Report: South Reading MRT Phases 1 & 2

# One Year Impact Report

## October 2021

## www.hatch.co.uk

**Independent Assessment**

i. This technical note provides an independent assessment of the one-year Impact Report submitted by Reading Borough Council (RBC) in relation to the South Reading MRT Phase 1 and 2 project.

ii. The scheme received £4.48 million funding through the Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) Local Growth Fund deal. TVB LEP contributed 80% of total projects costs, which were £5.56m, with local contributions covering the remaining costs.

iii. As part of the on-going assurance process, TVB LEP requires all funded schemes to produce one-year and five-year post-implementation impact reports to demonstrate how each scheme has performed against expectations.

**Process**

iv. The one and five-year impact reports are expected to assess the following elements of the scheme:

a. did it get built?
b. was it to plan?
c. was it on time?
d. was it to budget?
e. is it working ok?
f. what impact has it had?
g. any learning points?

v. Hatch have applied these criteria, but also sought to use the process as positive influence to identify specific ways in which project scheme design or delivery could be enhanced to enhance future value of this scheme or other future LEP funded schemes.

**Scheme Summary**

vi. Reading Borough Council (RBC) received £4.48m from the TVB LEP Local Growth Fund as part of an overall estimated scheme cost of £5.56m for Phases 1 and 2 of the South Reading Mass Rapid Transport (MRT) scheme. TVB LEP's contribution accounted for 80% of all estimated scheme costs.

vii. The South Reading MRT scheme is a long-established part of Reading's strategy to deliver sustainable economic growth and housing in the borough. The scheme has been included in Reading's three Local Transport Plans and the adopted Core Strategy (2019).

viii. Phases 1 and 2 deliver the initial phases of an overall vision for the A33 corridor to be a fully segregated bus/public transport route between the town centre and Mereoak Park and Ride. For context, we understand that Phases 3 and 4 are currently under construction with further funding received from TVB LEP, with business cases for Phases 5 and 6 currently in development. While the route currently is based on buses, the segregated corridor could potentially be used for guided buses, trams or autonomous public transport in the future.

ix. The A33 corridor was chosen for MRT investment as it is the main strategic route for vehicles travelling to and from Reading Town Centre to the south of Reading, while it is also links to major employment and housing locations, as well as J11 of the M4. The A33 carries high volumes of traffic between the M4/A33 and Town Centre (c.46,000 vehicles daily in 2019) with busy AM and PM peaks, providing access to over 50,000 Town Centre jobs. The route is also the main access for the major south Reading employment area of 10,000 jobs and 1,600 homes.

x. While RBC and business parks along the corridor have made significant investment in expanding bus services in previous years (e.g. the M4 J11 bus priority measures), the corridor is characterised by significant congestion during AM and PM peaks when employees arrive and leave the business units and parks along the corridor and when there are high levels of traffic into Reading town centre. In addition, the wider area is also a focus for further employment and housing growth over the local plan period and beyond, with 50% of traffic forecast on the A33 corridor associated with planned development of the next decade.

xi. Phases 1 and 2 of the MRT scheme aim to be the starting phases to improve the connectivity of central Reading with the key employment and development sites along the A33 corridor for bus travel, providing a more attractive alternative to the private car. It will also provide a key north-south link to a potential wider Thames Valley Berkshire MRT network. In providing an attractive alternative to the car, the delivery of these initial phases is intended to increase travel capacity and improve reliability and

journey times for bus services along the route. The summary objectives of the scheme are to:

- Provide a cost-effective solution to accommodate future travel demand on the A33 corridor for local trips;
- Provide a high quality, sustainable and attractive alternative to car travel;
- Increase capacity for movement of people and thereby reduce congestion along the corridor;
- Reduce journey times along the A33 corridor and improve journey time reliability; and
- Support economic development on the A33 corridor and within the wider sub-region.

xii. The one-year impact report outlined a number of indicators of success for these objectives to determine what constitutes successful project delivery.

- Provide a high quality, safe, convenient and reliable alternative to the car and improve public perception of 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
- Alleviate the severe congestion on the A33 by allowing better flow of traffic:
  - Improve (or keep to neutral) car journey times
- Stimulate development, increase in jobs and resident population in South Reading
  - Number of new jobs created
  - Number of homes built

xiii. It should be noted that since the Phase 1 and 2 business case approval stage, the location of the scheme was amended with the agreement of TVB LEP and Berkshire Local Transport Body (BLTB) through regular **progress**

reporting on the scheme. The RBC one-year impact report included a revised map of all South Reading MRT phases. The key change was for Phase 2 as the intention to route the MRT through private land between Green Park and Island Road was amended with the route being southbound only on the A33.

**Review Findings**

**General Observations**

xiv. The original business case outlined that the opening year for Phases 1 and 2 was 2018. The progress made in the construction programme for Phase 1 and Phase 2's implementation was as follows:

- Phase 1 Southbound - Imperial Way to RIBP – completion December 2016
- Phase 1 Southbound – Bennett Road to Imperial Way – completion December 2017
- Phase 2 Southbound – Kennett Island to Bennett Road – completion December 2017
- Phase 2 Northbound – Imperial Way to South Oak Way – completion November 2019

xv. The RBC report concludes that three sections of the Phase 1 and Phase 2 scheme were delivered ahead of the proposed opening year of 2018. Given the identified changes within the scheme design and location for Phase 2, as well as the opportunity to deliver efficiencies in combining this element with the contract for constructing Phase 3 of the scheme, it was only the northbound section of the scheme which was delayed from early 2018 to late 2019.

xvi. Current spend to date on the Phase 1 and Phase 2 scheme is reported to be £5.45m. The overall estimated cost for the scheme was £5.56m, which included relevant contingency allowances. The scheme will be completed to budget by RBC, with the remaining £110,000 being allocated by RBC on outstanding contract retentions and the five-year monitoring.

xvii. The RBC report was prepared by WSP and provides a thorough section on reviewing and evaluating the early outcomes of the scheme against the scheme's original objectives. The report draws on available data, where possible, across a range of metrics – see below.

xviii. It is appreciated that this is a Year 1 evaluation and many of the datasets used cover the 2018 period, as well as some years preceding investment. However, given the delays to some sections of Phase 2 (completed in late 2019), as well as the impact of Covid-19 delaying the evaluation, data from 2019 and or 2020 could have potentially been drawn upon in the report to provide some further context and insights as to the performance and impact of the Phase 1 & 2 scheme in the corridor.

xix. The report focusses on the role of the corridor improvements supporting improved connectivity and economic development objectives, particularly around key employment and housing locations in Reading. For example, the business case identified the potential for sites within the A33 corridor to support 7,500 jobs and 4,000 new homes. The RBC report highlights that during 2017-18, the first year of the scheme's implementation, that approximately 3,500 dwellings were developed and 32,550 sqm of business/industrial floorspace was developed.

xx. From speaking with RBC officers, we understand that the development of each specific site was not directly tied (i.e. was not 'dependent development') to the implementation of the MRT, but that the MRT scheme is identified as a policy within the Local Plan to ensure that economic growth is supported by targeted transport infrastructure investment. This demonstrates a positive and 'joined-up' approach to delivering sustainable economic growth in Reading.

xxi. Increasing travel capacity is another metric used to measure the scheme's initial success. The data presented (2016-2018) shows significant bus patronage growth. In 2017-18, when most of the scheme had opened, passenger growth was +120,340 (13%) on the Greenwave service and +54,199 (30%) on the Mereoak P&R services. Compared to 2016 levels, growth in passengers by 2018 was approximately +190,000 (21%) and +111,000 (87%). Such significant growth in bus users is also reflected in the overall numbers of cars parking at Mereoak P&R. In the period April 2017 - March 2018, an additional 37,500 cars (125%) were parking at the P&R facility compared to 2015-2016.

xxii. It is clear from the data presented to date that the delivery of Phase 1 and 2 of the MRT scheme has enabled a faster, more reliable and more frequent bus service to be delivered along the A33 corridor with more buses recorded as being on time and fewer delays. In addition, journey time

reductions are also evident compared to pre-scheme. For example, the Central Reading to Mereoak P&R journey time was 21 minutes compared to 25 minutes in 2016 in the PM peak.

xxiii. The report also includes analysis of measures such as annual journey time savings for bus users and annual reductions in mileage lost due to congestion. The impact of the introduction of the prioritised bus measures can be seen clearly in this latter measure. In April – September 2016 183 miles were lost due to congestion, whereas post implementation, April – September 2018, just 15 miles were lost – a significant reduction.

xxiv. Behavioural change is also examined in the report, given a key objective of the scheme is to provide an attractive alternative to the car. Mode share analysis reflects the increased bus trips being made in 2018 compared to 2016, with 8% of trips on the corridor being made by bus compared to 7% in 2016, while the share of car journeys fell from 93% t0 92%. However, data on traffic counts taken outside Green Park Business Park in 2016 and 2018 indicates an increase in overall vehicles on the corridor (+380 vehicles), albeit an increase which was lower than the NTEM forecasts.

xxv. Therefore, while the early analysis of scheme impact is positive in increasing bus modal share and shifting car journeys to bus users, it will be important to continue to monitor modal share and overall vehicle counts along the corridor against forecasts. A key test for the scheme, and the full MRT network once completed, will be that the road capacity freed up by those shifting to bus is 'locked-in' and not just filled by other car users. One of the key metrics of success for the scheme was to 'improve or keep neutral car journey times'. While congestion and journey time data was not available for this report, it should be examined in future MRT monitoring reports.

xxvi. As reducing casualty frequency and severity is a measure of success for the scheme, the RBC report includes a detailed and comprehensive analysis of collisions along the corridor prior to and post scheme delivery. The analysis highlighted how an increase in 'slight collisions' has arisen between 2016 and 2018, with these typically involving pedestrians, cyclists or motorcyclists. It was noted that no buses were involved in any collisions. There was also an increase in collisions occurring in the dark, with fewer collisions happening in wet conditions.

xxvii. Given this increase in collisions, as well as a change in the pattern of collisions, RBC are recommending that a fuller assessment is undertaken once data for 3 and 5 years post opening is available. This is a sensible step and provides an opportunity for all road users to understand and adapt to changes in the road layout linked to the scheme. However, as further phases of the MRT are in development, it will be important for all stakeholders to be aware of this data and to reflect on any early insights to inform the implementation of MRT priority routes and highway changes.

**Conclusions**

xxviii. The South Reading MRT Phase 1 and Phase 2 report, prepared by WSP on behalf of RBC, is a comprehensive and detailed document. It provides an insightful view on the scheme, its rationale and objectives, as well as initial findings on how the scheme is performing against key metrics and indicators. It also helpfully sets out the context that this project is the first part of a much bigger vision for delivering the whole South Reading MRT.

xxix. The scheme was delivered on budget and with three of its four component sections delivered by the project completion date/scheme opening in early 2018. The report is very clear on the reasons and justification for why the final section of the scheme was delayed and delivered as part of the construction contract for Phase 3 and 4 (2019). The available data analysed and presented in the report must be viewed within that context.

xxx. The report clearly outlines the positive and successful outcomes of the scheme. The available data has shown significant improvements in bus journey times, service reliability and frequency, as well as increased capacity and patronage levels have consequently improved. The scheme is also having an initial impact on behavioural change, with increases in the share of bus trips increasing post-scheme implementation.

xxxi. Significant new commercial and industrial floorspace has also come forward in the area following the scheme's opening, as well as around 3,500 new homes. The early phases of the South Reading MRT, albeit part of a much larger future bus network, is already playing a role in supporting sustainable economic growth and providing alternative public transport options to residents and workers.

xxxii. The key points for consideration, both to enhance the future outcomes of the project and to facilitate wider learning, include:

- Given this is an early phase of a much larger MRT scheme, it will be important to continue to monitor bus modal share and overall vehicle counts along the corridor against forecasts going forward. A key test for the scheme, and the full MRT network once completed, will be that the road capacity freed up by those shifting to bus is 'locked-in' and not just filled by other car users.